Seabrook Station
License Renewal Application

NEXTera™ ENERGY SEABROOK

VOLUME II

CHAPTER 3

AGING MANAGEMENT REVIEW RESULTS

3.0 AGING MANAGEMENT REVIEW RESULTS

This Section provides the results of the Aging Management Review (AMR) for those structures and components identified in Section 2 as being subject to aging management review.

The methodology used to perform AMR's is summarized in Subsection 3.0.1 below. The AMRs demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the Current Licensing Basis (CLB) for the period of extended operation as required by 10 CFR 54.21(a)(3).

3.0.1 AMR METHODOLOGY

Seabrook Station structure and component aging management reviews were performed using a methodology consistent with NEI 95-10, Revision 6.

Where beneficial for the AMR process, Seabrook Station's components were grouped into component type groups, or "component groups", within a given Seabrook Station License Renewal Application (LRA) system or structure. For the purposes of aging evaluations, these component groups were sometimes further consolidated based upon distinct combinations of material and environment. These groupings may include various component types from several LRA systems or structures.

The AMR methodology utilized industry reports to identify a set of applicable aging effects for Seabrook Station components and structures.

The components requiring an AMR for each Seabrook Station LRA system or structure were evaluated to determine the applicability of the aging effects identified by the industry report review. The result of this evaluation was a set of aging effects requiring management for each structure, component, or component group. The evaluation addresses differences between the Seabrook Station design, materials of construction, environment parameters and the assumptions contained within the industry guidance documents. Seabrook Station plant specific operating experience was also considered in the evaluation.

One or more Aging Management Programs (AMP's) were identified for each component or structure with an aging effect requiring management. The attributes of each AMP were evaluated to ensure that the aging effects will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation. When necessary, existing Seabrook Station programs were enhanced or new Seabrook Station programs were created.

3.0.2 AMR RESULTS TABLE STRUCTURE

The subsections of Section 3 are:

3.1 Aging Management of Reactor Vessel, Internals, and Reactor Coolant System

3.2 Aging Management of Engineered Safety Features

3.3 Aging Management of Auxiliary Systems

3.4 Aging Management of Steam and Power Conversion Systems

3.5 Aging Management of Containments, Structures, and Component Supports

3.6 Aging Management of Electrical and Instrumentation and Controls (I & C) Components

Descriptions of the internal and external service environments that were used in the aging management review to determine aging effects requiring management are included in Tables 3.0-1, 3.0-2 and 3.0-3, Seabrook Station Service Environments. The environments used in the aging management reviews are listed in the Environment column.

The Aging Management Review results information in Section 3 is presented in one of the two tables described in 3.0.2.2.

3.0.2.1 Table Descriptions

The AMR Results information in Section 3 is presented in the following two table types:

Table 3.X.1

The following describes the numbering sequence for Table 3.X.1 where '3' indicates the LRA Chapter number, 'X' indicates the subsection number from NUREG 1801, Volume 1 and '1' indicates that this is the first table type in Section 3.

The purpose of Table 3.X.1 is also to provide a summary comparison of how the facility aligns with the corresponding tables of NUREG-1801, Volume 1. The table is essentially the same as Tables 3.1.1 through 3.6.1 provided in NUREG-1801, Volume 1, except that the "ID" and "Type" columns have been replaced by an "Item Number" column. The "Related Generic Item" and "Unique Item" columns have been replaced by a "Discussion" column. The "Item Number" column provides the reviewer with a means to cross-reference from Table 3.X.2-Y to Table 3.X.1. The "Discussion" column is used to provide clarifying or amplifying information. The following are examples of information that might be contained within this column:

- "Further Evaluation Recommended" information or reference to where that information is located

- The name of a plant specific aging management program being used
- Exceptions to the NUREG-1801 assumptions
- A discussion of how the line is consistent with the corresponding line item in NUREG-1801, Volume 1, when that may not be intuitively obvious
- A discussion of how the item is different than the corresponding line item in NUREG- 1801, Volume 1, when it may appear to be consistent (e.g., when there is exception taken to an aging management program that is listed in NUREG-1801, Volume 1)

The format of Table 3.X.1 provides the reviewer with a means of aligning a specific Table 3.X.1 row with the corresponding NUREG-1801, Volume 1 table row, thereby allowing for the ease of checking consistency.

Table 3.X.2-Y

The following describes the numbering sequence for Table 3.X.2-Y where '3' indicates the LRA Section number, 'X' indicates the subsection number from NUREG 1801, Volume 1, '2' indicates that this is the second Table type in Section 3, and 'Y' indicates the table number for a specific system.

Table 3.X.2-Y provides the detailed results of the aging management reviews for those structures and component types identified in LRA Chapter 2 as being subject to aging management review. There will be a Table 3.X.2-Y for each of the systems within a Chapter 3 Section grouping.

Table 3.X.2-Y consists of the following nine columns:

- Component Type
- Intended Function
- Material
- Environment
- Aging Effect Requiring Management
- Aging Management Program
- NUREG-1801 Volume 2 Item
- Table 3.X.1 Item
- Note

Component Type – The first column identifies all of the component types from Section 2 of the LRA that are subject to aging management review. They are listed in alphabetical order.

Intended Function – The second column contains the license renewal intended function(s) for the listed component types. Definitions of intended functions are contained in Table 2.1-1.

Material – The third column lists the particular materials of construction for the component type.

Environment – The fourth column lists the environment to which the component types are exposed. Internal and external service environments are indicated and a list of these environments is provided in Tables 3.0-1, 3.0-2, and 3.0-3.

Aging Effect Requiring Management – As part of the aging management review process, the aging effects required to maintain the intended function of the component type are identified for the material and environment combination. These aging effects requiring management are listed in the fifth column.

Aging Management Program – The aging management programs used to manage the aging effects requiring management are listed in the sixth column of Table 3.X.2-Y. Aging management programs are described in Appendix B.

NUREG-1801, Vol. 2 Item – Each combination of component type, material, environment, aging effect requiring management and aging management program that is listed in Table 3.X.2-Y is compared to NUREG-1801, Volume 2, with consideration given to the standard notes to identify consistency. Consistency is documented by noting the appropriate NUREG-1801, Volume 2 item number in the seventh column of Table 3.X.2-Y. If there is no corresponding item number in NUREG-1801, Volume 2, this cell block is "None". Thus, a reviewer can readily identify the correlation between the plant-specific tables and the NUREG-1801, Volume 2 tables.

Table 3.X.1 Item – Each combination of component, material, environment, aging effect requiring management and aging management program that has an identified NUREG-1801, Volume 2 item number must also have a Table 3.X.1 line item reference number. The corresponding line item from Table 3.X.1 is listed in the eighth column of Table 3.X.2. If there is no corresponding item in NUREG-1801, Volume 1, the word "None" is placed in the column. Table 3.X.1 Item allows the information from the two tables to be correlated.

Note – The notes provided in Table 3.X.2-Y describe how the information in the table aligns with the information in NUREG-1801. Table 3.X.2-Y contains both standard lettered notes and plant-specific numbered notes.

The standard lettered notes, e.g., A, B, C, etc., provide standard information regarding comparison of the Seabrook Station aging management review results with the NUREG-1801, Volume 2 Aging Management table line item identified in the seventh column. In addition to the standard lettered notes, numbered plant-specific notes provide additional clarifying information when

appropriate. If a comparison to a NUREG-1801 Volume 2 item does not exist, Column 8 is marked "None."

Plant-Specific notes contain Seabrook Station plant-specific information and clarifications of AMR results. Plant-Specific notes are numerically labeled using a number that correlates to the corresponding AMR Results section. The plant specific notes are numbered sequentially for each table.

The Standard and Plant-Specific notes applicable for LRA Sections 3.1, 3.2, 3.3, 3.4, 3.5, and 3.6 are shown at the end of each of these Sections.

3.0.2.2 Table Usage

Table 3.X.1

Table 3.X.1 Component, Aging Effect, Aging Management Programs and Further Evaluation columns are taken directly from NUREG-1801, Volume 1. The Discussion column summarizes how the Seabrook Station evaluations and aging management programs align with NUREG-1801, Volume 1.

Table 3.X.2-Y

Table 3.X.2 contains the Seabrook Station AMR results. Each Table 3.X.2-Y row represents a component type, material, environment, aging effect requiring management and aging management program combination within a Seabrook Station system or structure. If there is a correlation between a Seabrook Station AMR results item and a NUREG-1801, Volume 2 item, then the NUREG-1801, Volume 2 item will appear in Column 8. If Column 8 is "None", a comparable NUREG-1801, Volume 2 item was not identified.

If a NUREG-1801, Volume 2 item is identified in Column 8, a Table 3.X.1 row number will be shown in Column 8. Table 3.X.1 row number referenced represents the "roll-up" location for the Table 3.X.2-Y item.

3.0.2.3 Further Evaluation Text

For Table 3.X.1, "Summary of Aging Management Programs", items where NUREG-1801, Volume 1 recommends "further evaluation", separate text sections are provided. These text sections summarize the Seabrook Station AMR results as they relate to the issue raised in the applicable "further evaluation recommended" section of NUREG-1800. The Seabrook Station LRA "Further Evaluation" section numbering aligns with the applicable issue text in Section 3 of NUREG-1800.

3.0.3 OPERATING EXPERIENCE

Seabrook Station site-specific and industry operating experience was reviewed. The review was based on a keyword search of the Corrective Action Program. Operating experience from the previous ten (10) years was reviewed. The site specific and industry operating experience included a review of:

- Corrective Action Program Reports
- Input from System Engineers

No new aging effects were identified during this review. In addition, each aging management program contains a discussion of the operating experience relevant to that program.

Industry operating experience has been captured in NUREG-1801. An evaluation of industry operating experience published since the effective date of NUREG-1801 was performed to identify any additional aging effects requiring management. No additional aging effects requiring management were identified beyond those identified during the aging management review process.

Ongoing review of plant-specific and industry operating experience is performed in accordance with the plant Operating Experience Program and as a part of selected Seabrook Station aging management programs.

Table 3.0-1
Seabrook Station Service Environments
for Mechanical Aging Management Reviews

Environment	Description
Air-Indoor Controlled	The environment to which the specified internal or external surface of the component or structure is exposed: indoor air in a humidity controlled (e.g., air conditioned) environment.
Air-Indoor Uncontrolled	Indoor air on systems with temperatures higher than the dew point, i.e., condensation can occur but only rarely, equipment surfaces are normally dry.
Air-Outdoor	The outdoor environment consists of moist, possibly salt laden atmospheric air, ambient temperatures and humidity, and exposure to weather, including precipitation and wind. The component is exposed to air and local weather conditions, including salt water spray where applicable. A component is considered susceptible to a wetted environment when it is submerged, has the potential to pool water or is subject to external condensation.
Air with Borated Water Leakage	Air and untreated borated water leakage on indoor systems with temperatures above or below the dew point. The water from leakage is considered to be untreated, due to the potential for water contamination at the surface.
Air with Metal Temperature up to 288 °C (550 °F)	Metal temperature up to 288°C (550°F).
Air with Reactor Coolant Leakage	Reactor coolant leakage on high temperature systems.
Closed Cycle Cooling Water	Treated water subject to the closed cycle cooling water chemistry program.

Environment	Description
Closed Cycle Cooling Water >140°F	Closed Cycle Cooling Water >140 °F is Closed Cycle Cooling Water that has a temperature greater than140 °F. This environment is only used for stainless steel components subject to stress corrosion cracking.
Concrete	Components embedded in concrete.
Condensation	The environment to which the internal or external surface of the component or structure is exposed. Condensation on the surfaces of systems with temperatures below the dew point is considered raw water due to potential for surface contamination.
Diesel Exhaust	Gases, fluids and particulates present in diesel engine exhaust.
Dried Air	Air that has been treated to reduce the dew point well below the system operating temperature.
Fuel Oil	Fuel Oil includes fuel oil for the emergency diesel generators, diesel-driven fire pumps, and fire pump house boiler. Water contamination of fuel is possible.
Gas	Internal gas environments from dry air, inert or nonreactive gases.
Lubricating Oil	Lubricating oils are low-to-medium viscosity hydrocarbons used for bearing, gear and engine lubrication with the possibility of containing contaminants and water.

Environment	Description
Raw Water	Raw, untreated fresh, salt, potable, or ground water. Building floor drains, and sumps may be exposed to a variety of untreated water that is thus, classified as raw water, for the determination of aging effects. Raw water may contain contaminants including oil and boric acid, depending on the location, as well as originally treated water that is not monitored by a chemistry program.
Reactor Coolant	Water in the Reactor Coolant System and connected systems at or near full operating temperature.
Reactor Coolant >250 °C (>482 °F)	Reactor Coolant above thermal embrittlement threshold for Cast Austenitic Stainless Steel (CASS).
Reactor Coolant and Neutron Flux	The Reactor Coolant and Neutron Flux environment consists of the Reactor Coolant environment in addition to component exposure to neutron fluence projected to exceed 1.0×10^{17} n/cm^2 at the end of the license renewal term.
Secondary Feedwater/Steam	Feedwater or steam at or near full operating temperature, subject to the secondary water chemistry program.
Soil	Soil is used for components that are buried in soil.
Steam	Steam environment consists of steam that is subject to chemistry controls set by the Water Chemistry Program.
System Temperature up to 340°C (644°F)	Maximum metal temperature <340°C (644°F).
Treated Borated Water	Treated Borated Water is a controlled water system.

Environment	Description
Treated Borated Water >140 °F	Treated Borated Water >140 °F is Treated Borated Water that has a temperature greater than 140 °F. This environment is only used for stainless steel components subject to stress corrosion cracking.
Treated Water	Treated Water is demineralized water which is the base water for all clean systems. Depending on the system, this demineralized water may require additional processing.
Treated Water >60°C (>140°F)	Treated Water >140 °F is Treated Water that has a temperature greater than 140 °F. This environment is only used for stainless steel components subject to stress corrosion cracking.

Table 3.0-2
Seabrook Station Service Environments
for Civil Aging Management Reviews

Environment	Description
Air-Indoor Uncontrolled	Indoor air on systems with temperatures higher than the dew point, i.e., condensation can occur but only rarely, equipment surfaces are normally dry.
Air-Outdoor	The outdoor environment consists of moist, possibly salt laden atmospheric air, ambient temperatures and humidity and exposure to weather, including precipitation and wind. The component is exposed to air and local weather conditions, including salt water spray where applicable. A component is considered susceptible to a wetted environment when it is submerged, has the potential to pool water or is subject to external condensation.
Air with Borated Water Leakage	Air and untreated borated water leakage on indoor systems with temperatures above or below the dew point. The water from leakage is considered to be untreated due to the potential for water contamination at the surface.
Ground Water/Soil	Groundwater is the water beneath the surface that can be collected with wells, tunnels, or drainage galleries or that flows naturally to the earth's surface via seeps or springs. Soil is a mixture of inorganic materials produced by the weathering of rocks, and clays and organic material produced by the decomposition of vegetation.

Environment	Description
Raw Water	Raw, untreated fresh, salt, potable or ground water. Building floor drains, and sumps may be exposed to a variety of untreated water that is thus classified as raw water, for the determination of aging effects. Raw water may contain contaminants, including oil and boric acid depending on the location, as well as originally treated water that is not monitored by a chemistry program.
Soil	Soil is used for components that are buried in soil.
Treated Borated Water	Borated Pressurized Water Reactor (PWR) water is a controlled water system.

Table 3.0-3
Seabrook Station Service Environments
for Electrical and Instrumentation & Controls Aging Management Reviews

Environment	Description
Adverse localized environment	The conductor insulation used for electrical cables in instrumentation circuits can be subjected to an adverse localized environment. This can be represented within a specific GALL AMR line item as being due to any of the following: (1) exposure to moisture and voltage (2) heat, radiation or moisture in the presence of oxygen (3) heat, radiation or moisture in the presence of oxygen or >60-year service limiting temperature, or (4) adverse localized environment caused by heat, radiation, oxygen, moisture or voltage. The term ">60-year service limiting temperature" refers to that temperature that exceeds the temperature below which the material has a 60-year or greater service lifetime.
Air-Indoor	Uniquely used for electrical systems, Air-Indoor is synonymous with "Air-Indoor Uncontrolled (internal/external)." Indoor air on systems with temperatures higher than the dew point, i.e., condensation can occur but only rarely, equipment surfaces are normally dry.
Air-Indoor Controlled	The environment to which the specified internal or external surface of the component or structure is exposed: indoor air in a humidity controlled (e.g., air conditioned) environment.
Air-Indoor Uncontrolled	Indoor air on systems with temperatures higher than the dew point, i.e., condensation can occur but only rarely, equipment surfaces are normally dry.

Environment	Description
Air-Outdoor	The outdoor environment consists of moist, possibly salt laden atmospheric air, ambient temperatures and humidity, and exposure to weather, including precipitation and wind. The component is exposed to air and local weather conditions, including salt water spray, where applicable. A component is considered susceptible to a wetted environment when it is submerged, has the potential to pool water or is subject to external condensation.
Air with Borated Water Leakage	Air and untreated borated water leakage on indoor systems with temperatures above or below the dew point. The water from leakage is considered to be untreated due to the potential for water contamination at the surface.
Gas	Internal gas environments from dry air, inert or nonreactive gases.

3.1 AGING MANAGEMENT OF REACTOR VESSEL, INTERNALS, AND REACTOR COOLANT SYSTEM

3.1.1 INTRODUCTION

This section provides the results of the aging management review for those components identified in Section 2.3.1, Reactor Vessel, Internals, and Reactor Coolant System, as being subject to aging management review. The systems, or portions of systems, which are addressed in this section are described in the indicated sections.

- Reactor Coolant System (2.3.1.1)
- Reactor Vessel (2.3.1.2)
- Reactor Vessel Internals (2.3.1.3)
- Steam Generator (2.3.1.4)

3.1.2 RESULTS

The following tables summarize the results of the aging management review for Reactor Vessel, Internals and Reactor Coolant System:

Table 3.1.2-1 Summary of Aging Management Evaluation – Reactor Coolant System

Table 3.1.2-2 Summary of Aging Management Evaluation – Reactor Vessel

Table 3.1.2-3 Summary of Aging Management Evaluation – Reactor Vessel Internals

Table 3.1.2-4 Summary of Aging Management Evaluation – Steam Generator

3.1.2.1 Materials, Environments, Aging Effects Requiring Management and Aging Managements Programs

3.1.2.1.1 Reactor Coolant System

Materials

The materials of construction for the Reactor Coolant System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS

- Nickel Alloy
- Stainless Steel
- Steel
- Steel with Stainless Steel Cladding

Environments

Components of the Reactor Coolant System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Air with Metal Temperature up to 288 °C (550 °F)
- Air with Reactor Coolant Leakage
- Closed Cycle Cooling Water
- Gas
- Reactor Coolant
- Reactor Coolant >250 °C (>482 °F)
- System Temperature up to 340°C (644°F)
- Treated Borated Water
- Treated Borated Water >140 °F
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Reactor Coolant System components and commodities require management:

- Cracking
- Cumulative Fatigue Damage
- Loss of Fracture Toughness

- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Reactor Coolant System components:

- ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program (B2.1.1)
- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Nickel-Alloy Nozzles and Penetrations Program (B.2.2.3)
- One-Time Inspection Program (B.2.1.20)
- One-Time Inspection of ASME Code Class 1 Small Bore Piping Program (B.2.1.23)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.1.2-1, Summary of Aging Management Evaluation – Reactor Coolant System, summarizes the results of the aging management review for the Reactor Coolant System.

3.1.2.1.2 Reactor Vessel

Materials

The materials of construction for the Reactor Vessel components requiring aging management review are:

- Nickel Alloy
- Stainless Steel

- Steel
- Steel with Stainless Steel Cladding

Environments

Components of the Reactor Vessel are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Air with Reactor Coolant Leakage
- Reactor Coolant
- Reactor Coolant and Neutron Flux

Aging Effects Requiring Management

The following aging effects associated with the Reactor Vessel components and commodities require management:

- Cracking
- Cumulative Fatigue Damage
- Loss of Fracture Toughness
- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Reactor Vessel components:

- ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program (B.2.1.1)
- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Control Program (B.2.1.4)
- Nickel-Alloy Nozzles and Penetrations Program (B.2.2.3)

- Nickel-Alloy Penetration Nozzles Welded to the Upper RV Closure Heads of PWRs Program (B.2.1.5)
- Reactor Head Closure Studs Program (B.2.1.3)
- Reactor Vessel Surveillance Program (B.2.1.19)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.1.2-2, Summary of Aging Management Evaluation – Reactor Vessel, summarizes the results of the aging management review for the Reactor Vessel.

3.1.2.1.3 Reactor Vessel Internals

Materials

The materials of construction for the Reactor Vessel Internals components requiring aging management review are:

- Nickel Alloy
- Stainless Steel

Environments

Components of the Reactor Vessel Internals are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Reactor Coolant
- Reactor Coolant and Neutron Flux

Aging Effects Requiring Management

The following aging effects associated with the Reactor Vessel Internals components and commodities require management:

- Changes in Dimensions
- Cracking

- Cumulative Fatigue Damage
- Loss of Fracture Toughness
- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Reactor Vessel Internals components:

- ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program (B.2.1.1)
- PWR Vessel Internals Program (B.2.1.7)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.1.2-3, Summary of Aging Management Evaluation – Reactor Vessel Internals, summarizes the results of the aging management review for the Reactor Vessel Internals.

3.1.2.1.4 Steam Generator

Materials

The materials of construction for the Steam Generator components requiring aging management review are:

- Nickel Alloy
- Stainless Steel
- Steel
- Steel with Nickel Alloy Cladding
- Steel with Stainless Steel Cladding

Environments

Components of the Steam Generator are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Air with Reactor Coolant Leakage
- Reactor Coolant
- Secondary Feedwater/Steam
- System Temperature Up To 340°C (644°F)

Aging Effects Requiring Management

The following aging effects associated with the Steam Generator components and commodities require management:

- Cracking
- Cumulative Fatigue Damage
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer
- Wall Thinning

Aging Management Programs

The following programs manage the aging effects requiring management for the Steam Generator components:

- ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program (B.2.1.1)
- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Flow-Accelerated Corrosion Program (B.2.1.8)
- Steam Generator Tube Integrity Program (B.2.1.10)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.1.2-4, Summary of Aging Management Evaluation – Steam Generator, summarizes the results of the aging management review for the Steam Generator.

3.1.2.2 AMR Results for Which Further Evaluation is Recommended by the GALL Report

NUREG-1800 indicates that further evaluation is necessary for certain aging effects, particularly those that require plant specific programs. Section 3.0 of NUREG-1800 discusses these aging effects that require further evaluation. The following sections are numbered in accordance with the discussions in Section 3.0 of NUREG-1800 and explain Seabrook Station's approach to these areas requiring further evaluation.

3.1.2.2.1 Cumulative Fatigue Damage

Fatigue is a time-limited aging analysis (TLAA) as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c)(1). This TLAA is addressed separately in Section 4.3, "Metal Fatigue Analysis," of this SRP-LR.

At Seabrook Station, the evaluation of metal fatigue as a TLAA for the Chemical and Volume Control System, Reactor Coolant System, Reactor Vessel, Reactor Vessel Internals, Residual Heat Removal System, Safety Injection System, and Steam Generator is discussed in Section 4.3.

3.1.2.2.2 Loss of Material due to General, Pitting, and Crevice Corrosion

1. *Loss of material due to general, pitting, and crevice corrosion could occur in the steel PWR steam generator shell assembly exposed to secondary feedwater and steam. Loss of material due to general, pitting, and crevice corrosion could also occur for the steel top head enclosure (without cladding) top head nozzles [vent, top head spray or reactor core isolation cooling (RCIC), and spare] exposed to reactor coolant. The existing program relies on control of reactor water chemistry to mitigate corrosion. However, control of water chemistry does not preclude loss of material due to pitting and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of the chemistry control program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is*

progressing very slowly such that the component's intended function will be maintained during the period of extended operation.

Item Number 3.1.1-11 is applicable to BWRs only and is not used for Seabrook Station.

Item Number 3.1.1-12 is applicable to (Once Through) Steam Generators, which are not used at Seabrook Station.

2. *Loss of material due to pitting and crevice corrosion could occur in stainless steel BWR isolation condenser components exposed to reactor coolant. Loss of material due to general, pitting, and crevice corrosion could occur in steel BWR isolation condenser components. The existing program relies on control of reactor water chemistry to mitigate corrosion. However, control of water chemistry does not preclude loss of material due to pitting and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of the chemistry control program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is progressing very slowly such that the component's intended function will be maintained during the period of extended operation.*

   Items Number 3.1.1-13 is applicable to BWRs only and is not used for Seabrook Station.

3. *Loss of material due to pitting and crevice corrosion could occur for stainless steel, nickel alloy, and steel with stainless steel or nickel alloy cladding flanges, nozzles, penetrations, pressure housings, safe ends, and vessel shells, heads and welds exposed to reactor coolant. The existing program relies on control of reactor water chemistry to mitigate corrosion. However, control of water chemistry does not preclude loss of material due to pitting and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of the chemistry control program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is progressing very slowly such that the component's intended function will be maintained during the period of extended operation.*

   Items Number 3.1.1-14 and 3.1.1-15 are applicable to BWRs only and are not used for Seabrook Station.

4. *Loss of material due to general, pitting, and crevice corrosion could occur in the steel PWR steam generator upper and lower shell and transition cone exposed to secondary feedwater and steam. The existing program relies on control of chemistry to mitigate corrosion and Inservice Inspection (ISI) to detect loss of material. The extent and schedule of the existing steam generator inspections are designed to ensure that flaws cannot attain a depth sufficient to threaten the integrity of the welds. However, according to NRC Information Notice (IN) 90-04, the program may not be sufficient to detect pitting and crevice corrosion, if general and pitting corrosion of the shell is known to exist. The GALL Report recommends augmented inspection to manage this aging effect. Furthermore, the GALL Report clarifies that this issue is limited to Westinghouse Model 44 and 51 Steam Generators where a high stress region exists at the shell to transition cone weld. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Seabrook Station will implement the ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to general, pitting and crevice corrosion in steel steam generator components (Feedwater and Main Steam nozzles, lower shell, secondary handholes, secondary manways, shell penetrations, top head, transition cone, and upper shell) exposed to secondary feedwater/steam in the Steam Generator. Since Seabrook Station has Westinghouse Model F Steam Generators, no additional inspections are required. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD and Water Chemistry programs are described in Appendix B.

3.1.2.2.3 Loss of Fracture Toughness due to Neutron Irradiation Embrittlement

1. *Neutron irradiation embrittlement is a TLAA to be evaluated for the period of extended operation for all ferritic materials that have a neutron fluence greater than 10^{17} n/cm2 (E >1 MeV) at the end of the license renewal term. Certain aspects of neutron irradiation embrittlement are TLAAs as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c)(1). This TLAA is addressed separately in Section 4.2, "Reactor Vessel Neutron Embrittlement Analysis," of this SRP-LR.*

   At Seabrook Station the evaluation of neutron irradiation embrittlement as a TLAA for the Reactor Vessel is discussed in Section 4.2 of the LRA.

2. *Loss of fracture toughness due to neutron irradiation embrittlement could occur in BWR and PWR reactor vessel beltline shell, nozzle, and welds exposed to reactor coolant and neutron flux. A reactor vessel materials*

surveillance program monitors neutron irradiation embrittlement of the reactor vessel. Reactor vessel surveillance program is plant-specific, depending on matters such as the composition of limiting materials, availability of surveillance capsules, and projected fluence levels. In accordance with 10 CFR Part 50, Appendix H, an applicant is required to submit its proposed withdrawal schedule for approval prior to implementation. Untested capsules placed in storage must be maintained for future insertion. Thus, further staff evaluation is required for license renewal. Specific recommendations for an acceptable AMP are provided in Chapter XI, Section M31 of the GALL Report.

Seabrook Station will implement the Reactor Vessel Surveillance Program, B.2.1.19, to manage loss of fracture toughness due to neutron irradiation embrittlement in the steel with stainless steel cladding in the reactor vessel shell (upper shell, intermediate shell, and lower shell including beltline welds) and the inlet and outlet nozzles exposed to reactor coolant and neutron flex. The Reactor Vessel Surveillance Program provides sufficient material data and dosimetry to monitor irradiation embrittlement at the end of the period of extended operation and to determine the need for operating restrictions on the inlet temperature, neutron spectrum, and neutron flux. The Reactor Vessel Surveillance Program is described in Appendix B.

3.1.2.2.4 Cracking due to Stress Corrosion Cracking (SCC) and Intergranular Stress Corrosion Cracking (IGSCC)

1. *Cracking due to SCC and IGSCC could occur in the stainless steel and nickel alloy BWR top head enclosure vessel flange leak detection lines. The GALL Report recommends that a plant-specific AMP be evaluated because existing programs may not be capable of mitigating or detecting cracking due to SCC and IGSCC. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Item Number 3.1.1-19 is applicable to BWRs only and is not used for Seabrook Station.

2. *Cracking due to SCC and IGSCC could occur in stainless steel BWR isolation condenser components exposed to reactor coolant. The existing program relies on control of reactor water chemistry to mitigate SCC and on ASME Section XI ISI. However, the existing program should be augmented to detect cracking due to SCC and IGSCC. The GALL Report recommends an augmented program to include temperature and radioactivity monitoring of the shell-side water, and eddy current testing of tubes to ensure that the component's intended function will be maintained during the period of extended operation. Acceptance criteria are described in Branch Technical Position RLSB-1.*

Item Number 3.1.1-20 is applicable to BWRs only and is not used for Seabrook Station.

3.1.2.2.5 Crack Growth due to Cyclic Loading

Crack growth due to cyclic loading could occur in reactor vessel shell forgings clad with stainless steel using a high-heat-input welding process. Growth of intergranular separations (underclad cracks) in the heat affected zone under austenitic stainless steel cladding is a TLAA to be evaluated for the period of extended operation for all the SA 508-Cl 2 forgings where the cladding was deposited with a high heat input welding process. The methodology for evaluating the underclad flaw should be consistent with the current well-established flaw evaluation procedure and criterion in the ASME Section XI Code. See the SRP-LR, Section 4.7, "Other Plant-specific Time-Limited Aging Analysis," for generic guidance for meeting the requirements of 10 CFR 54.21(c).

Item Number 3.1.1-21 is not applicable to Seabrook Station. The Reactor Vessel Shell is not fabricated of SA 508-Cl 2 forgings clad with stainless steel using a high-heat-input welding process.

3.1.2.2.6 Loss of Fracture Toughness due to Neutron Irradiation Embrittlement and Void Swelling

Loss of fracture toughness due to neutron irradiation embrittlement and void swelling could occur in stainless steel and nickel alloy reactor vessel internals components exposed to reactor coolant and neutron flux. The GALL Report recommends no further aging management review if the applicant provides a commitment in the FSAR Supplement to (1) participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.

Seabrook Station will implement the PWR Vessel Internals Program, B.2.1.7, to manage loss of fracture toughness due to neutron irradiation embrittlement and void swelling in stainless steel and nickel alloy reactor vessel internals components exposed to reactor coolant and neutron flux. The PWR Vessel Internals program is described in Appendix B.

3.1.2.2.7 Cracking due to Stress Corrosion Cracking

1. *Cracking due to SCC could occur in the PWR stainless steel reactor vessel flange leak detection lines and bottom-mounted instrument guide tubes exposed to reactor coolant. The GALL Report recommends further*

evaluation to ensure that these aging effects are adequately managed. The GALL Report recommends that a plant specific AMP be evaluated to ensure that this aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RLSB- 1.

Seabrook Station will implement the ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, to manage cracking due to stress corrosion cracking in the stainless steel reactor vessel flange leak detection lines exposed to reactor coolant. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program relies on VT-2 examinations to identify and evaluate the degradation of stainless steel reactor vessel flange leak detection lines to ensure that there is no loss of intended function. The ASME Section XI Inservice Inspection program, Subsections IWB, IWC, and IWD program is described in Appendix B.

2. *Cracking due to SCC could occur in Class 1 PWR cast austenitic stainless steel (CASS) reactor coolant system piping, piping components, and piping elements exposed to reactor coolant. The existing program relies on control of water chemistry to mitigate SCC; however SCC could occur for CASS components that do not meet the NUREG-0313 guidelines with regard to ferrite and carbon content. The GALL Report recommends further evaluation of a plant specific program for these components to ensure that this aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Seabrook Station will implement the ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, which will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage stress corrosion cracking of the Class 1 cast austenitic stainless steel piping components in the Reactor Coolant and Safety Injection Systems. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program relies on VT-2 examinations to identify and evaluate the degradation of the CASS components to ensure that there is no loss of intended function. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program and the Water Chemistry Program are discussed in Appendix B.

3.1.2.2.8 Cracking due to Cyclic Loading

1. *Cracking due to cyclic loading could occur in the stainless steel BWR jet pump sensing lines. The GALL Report recommends that a plant specific AMP be evaluated to ensure that this aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1 .*

   Item Number 3.1.1-25 is applicable to BWRs only.

2. *Cracking due to cyclic loading could occur in steel and stainless steel BWR isolation condenser components exposed to reactor coolant. The existing program relies on ASME Section XI ISI. However, the existing program should be augmented to detect cracking due to cyclic loading. The GALL Report recommends an augmented program to include temperature and radioactivity monitoring of the shell-side water, and eddy current testing of tubes to ensure that the component's intended function will be maintained during the period of extended operation. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Item Number 3.1.1-26 is applicable to BWRs only and is not used for Seabrook Station.

3.1.2.2.9 Loss of Preload due to Stress Relaxation

Loss of preload due to stress relaxation could occur in stainless steel and nickel alloy PWR reactor vessel internals screws, bolts, tie rods, and hold-down springs exposed to reactor coolant. The GALL Report recommends no further aging management review if the applicant provides a commitment in the FSAR Supplement to (1) participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.

Seabrook Station will implement the PWR Vessel Internals Program, B.2.1.7, to manage the aging effects of loss of preload due to stress relaxation in stainless steel and nickel alloy reactor vessel internal components exposed to reactor coolant. The PWR Vessel Internals program is described in Appendix B.

3.1.2.2.10 Loss of Material due to Erosion

Loss of material due to erosion could occur in steel steam generator Feedwater impingement plates and supports exposed to secondary feedwater. The GALL Report recommends further evaluation of a plant-specific AMP to ensure that this aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.

Item Number 3.1.1-28 is not applicable to Seabrook Station. Steel steam generator feedwater impingement plates and supports do not exist in the Seabrook Station Steam Generators.

3.1.2.2.11 Cracking due to Flow-Induced Vibration

Cracking due to flow-induced vibration could occur for the BWR stainless steel steam dryers exposed to reactor coolant. The GALL Report recommends further evaluation of a plant-specific AMP to ensure that this aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.

Item Number 3.1.1-29 is applicable to BWRs only and is not used for Seabrook Station

3.1.2.2.12 Cracking due to Stress Corrosion Cracking and Irradiation-Assisted Stress Corrosion Cracking (IASCC)

Cracking due to SCC and IASCC could occur in PWR stainless steel reactor internals exposed to reactor coolant. The existing program relies on control of water chemistry to mitigate these effects. The GALL Report recommends no further aging management review if the applicant provides a commitment in the FSAR Supplement to (1) participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.

Seabrook Station will implement the PWR Vessel Internals Program, B.2.1.7, and the Water Chemistry Program, B.2.1.2, to manage the aging effects of cracking due to stress corrosion cracking and irradiation-assisted stress corrosion cracking in stainless steel reactor vessel internals components exposed to reactor coolant. The PWR Vessel Internals Program and the Water Chemistry Program are described in Appendix B.

3.1.2.2.13 Cracking due to Primary Water Stress Corrosion Cracking (PWSCC)

Cracking due to PWSCC could occur in PWR components made of nickel alloy and steel with nickel alloy cladding, including reactor coolant pressure boundary components and penetrations inside the RCS such as pressurizer heater sheathes and sleeves, nozzles, and other internal components. With the exception of reactor vessel upper head nozzles and penetrations, the GALL Report recommends ASME Section XI ISI (for Class 1 components) and control of water chemistry. For nickel alloy components, no further aging management review is necessary if the applicant complies with applicable NRC Orders and provides a commitment in the FSAR supplement to implement applicable (1) Bulletins and Generic Letters and (2) staff accepted industry guidelines.

Seabrook Station will implement the ASME Section XI Inservice Inspection , Subsections IWB, IWC, and IWD Program, B.2.1.1, the Nickel-Alloy Nozzles and Penetrations Program, B.2.2.3, and the Water Chemistry Program, B.2.1.2, to manage the aging effects of cracking due to primary water stress corrosion cracking in nickel alloy components in the Reactor Coolant System, in the nickel alloy bottom instrument tube and core support pads/core guide lugs in the Reactor Vessel, and the nickel alloy steam generator primary nozzle weld in the Steam Generator. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, the Nickel-Alloy Nozzles and Penetrations Program, and the Water Chemistry Program are described in Appendix B.

3.1.2.2.14 Wall Thinning due to Flow-Accelerated Corrosion

Wall thinning due to flow-accelerated corrosion could occur in steel feedwater inlet rings and supports. The GALL Report references NRC IN 91-19, "Steam Generator Feedwater Distribution Piping Damage," for evidence of flow accelerated corrosion in steam generators and recommends that a plant-specific AMP be evaluated because existing programs may not be capable of mitigating or detecting wall thinning due to flow-accelerated corrosion. Acceptance criteria are described in Branch Technical Position RLSB-1.

IN 91-19 was issued to inform licensees of wall thinning due to flow-accelerated corrosion in Combustion Engineering designed steam generator feedwater inlet rings and supports. Seabrook Station is a Westinghouse designed plant with Model F steam generators. Therefore, the issues associated with IN 91-19 are not directly applicable to Seabrook Station. Seabrook Station will implement the Steam Generator Tube Integrity Program, B.2.1.10, to manage wall thinning due to flow-accelerated corrosion in the steel steam generator feedwater inlet ring and supports exposed to secondary Feedwater/steam in the Steam Generators. The Steam Generator Tube Integrity program implements a number of industry guidelines and incorporates a balance of prevention, inspection, evaluation, repair, and leakage monitoring measures to assure that existing environmental conditions are not causing wall thinning that could result in a loss of component intended function. The Steam Generator Tube Integrity program is described in Appendix B.

3.1.2.2.15 Changes in Dimensions due to Void Swelling

Changes in dimensions due to void swelling could occur in stainless steel and nickel alloy PWR reactor internal components exposed to reactor coolant. The GALL Report recommends no further aging management review if the applicant provides a commitment in the FSAR Supplement to (1) participate in the industry programs for investigating and managing aging effects on reactor

internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.

Seabrook Station will implement the PWR Vessel Internals Program, B.2.1.7, to manage the aging effects of changes in dimensions due to void swelling in stainless steel and nickel alloy reactor vessel internals components exposed to reactor coolant. The PWR Vessel Internals program is described in Appendix B.

3.1.2.2.16 Cracking due to Stress Corrosion Cracking and Primary Water Stress Corrosion Cracking

1. *Cracking due to SCC could occur on the primary coolant side of PWR steel steam generator upper and lower heads, tubesheets, and tube-to-tube sheet welds made or clad with stainless steel. Cracking due to PWSCC could occur on the primary coolant side of PWR steel steam generator upper and lower heads, tubesheets, and tube-to-tube sheet welds made or clad with nickel alloy. The GALL Report recommends ASME Section XI ISI and control of water chemistry to manage this aging and recommends no further aging management review for PWSCC of nickel alloy if the applicant complies with applicable NRC Orders and provides a commitment in the FSAR supplement to implement applicable (1) Bulletins and Generic Letters and (2) staff-accepted industry guidelines.*

   Seabrook Station will implement the ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, and the Water Chemistry Program, B.2.1.2, to manage cracking due to stress corrosion cracking in the stainless steel canopy seal pressure housing and cracking due to primary water stress corrosion cracking in the nickel alloy control rod drive pressure housing exposed to reactor coolant in the Reactor Vessel. The ASME Section XI Inservice Inspection, Subsections IWB, IWC and IWD and Water Chemistry programs are described in Appendix B.

   Item Number 3.1.1-35 is not applicable. Seabrook Station does not have Once-Through Steam Generators and therefore, does not have the components associated with the Once-Through Steam Generators.

2. *Cracking due to SCC could occur on stainless steel pressurizer spray heads. Cracking due to PWSCC could occur on nickel-alloy pressurizer spray heads. The existing program relies on control of water chemistry to mitigate this aging effect. The GALL Report recommends one-time*

inspection to confirm that cracking is not occurring. For nickel alloy welded spray heads, the GALL Report recommends no further aging management review if the applicant complies with applicable NRC Orders and provide a commitment in the FSAR supplement to implement applicable (1) Bulletins and Generic Letters and (2) staff-accepted industry guidelines.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage cracking due to stress corrosion cracking in the stainless steel pressurizer spray head exposed to reactor coolant. The One-Time Inspection and Water Chemistry programs are described in Appendix B.

3.1.2.2.17 Cracking due to Stress Corrosion Cracking, Primary Water Stress Corrosion Cracking, and Irradiation-Assisted Stress Corrosion Cracking

Cracking due to stress corrosion cracking (SCC), primary water stress corrosion cracking (PWSCC), and irradiation assisted stress corrosion cracking (IASCC) could occur in PWR stainless steel and nickel alloy reactor vessel internals components. The existing program relies on control of water chemistry to mitigate these effects. However, the existing program should be augmented to manage these aging effects for reactor vessel internals components. The GALL Report recommends no further aging management review if the applicant provides a commitment in the FSAR Supplement to (1) participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.

Seabrook Station will implement the PWR Vessel Internals Program, B.2.1.7, and the Water Chemistry Program, B.2.1.2, to manage cracking due to primary water stress corrosion cracking in the nickel alloy reactor vessel internal components and to manage cracking due to stress corrosion cracking and irradiation assisted stress corrosion cracking in the stainless steel reactor vessel internal components exposed to reactor coolant. The PWR Vessel Internals and the Water Chemistry programs are described in Appendix B.

3.1.2.2.18 Quality Assurance for Aging Management of Nonsafety-Related Components

QA provisions applicable to License Renewal are discussed in Section B.1.3.

3.1.2.3 Time-Limited Aging Analyses

The time-limited aging analyses identified below are associated with the Reactor Vessel, Internals, and Reactor Coolant System components:

- Section 4.2, Reactor Vessel Neutron Embrittlement
- Section 4.3, Metal Fatigue of Piping and Components
- Section 4.7, Plant-Specific Analyses

3.1.3 CONCLUSION

The Reactor Vessel, Internals, and Reactor Coolant System piping and components subject to aging management review have been identified in accordance with the scoping criteria of 10 CFR 54.4. Aging effects have been identified based on plant and industry operating experience as well as industry literature. Programs to manage these aging effects have been identified in this section, and detailed program descriptions are provided in Appendix B. These activities demonstrate that the aging effects associated with the Reactor Vessel, Internals, and Reactor Coolant System will be adequately managed such that there is reasonable assurance that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-1	BWR Only				
3.1.1-2	BWR Only				
3.1.1-3	BWR Only				
3.1.1-4	BWR Only				
3.1.1-5	Stainless steel and nickel alloy reactor vessel internals components	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c)	Yes, TLAA	Fatigue is a TLAA. Further evaluation is documented in Subsection 3.1.2.2.1.
3.1.1-6	Nickel Alloy tubes and sleeves in a reactor coolant and secondary feedwater/steam environment	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c)	Yes, TLAA	Fatigue is a TLAA. Further evaluation is documented in Subsection 3.1.2.2.1.
3.1.1-7	Steel and stainless steel reactor coolant pressure boundary closure bolting, head closure studs, support skirts and attachment welds, pressurizer relief tank components, steam generator components, piping and components external surfaces and bolting	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c)	Yes, TLAA	Fatigue is a TLAA. Further evaluation is documented in Subsection 3.1.2.2.1.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-8	Steel; stainless steel; and nickel-alloy reactor coolant pressure boundary piping, piping components, piping elements; flanges; nozzles and safe ends; pressurizer vessel shell heads and welds; heater sheaths and sleeves; penetrations; and thermal sleeves	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c) and environmental effects are to be addressed for Class 1 components	Yes, TLAA	Fatigue is a TLAA. Further evaluation is documented in Subsection 3.1.2.2.1.
3.1.1-9	Steel; stainless steel; steel with nickel-alloy or stainless steel cladding; nickel-alloy reactor vessel components: flanges; nozzles; penetrations; pressure housings; safe ends; thermal sleeves; vessel shells, heads and welds	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c) and environmental effects are to be addressed for Class 1 components	Yes, TLAA	Fatigue is a TLAA. Further evaluation is documented in Subsection 3.1.2.2.1.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-10	Steel; stainless steel; steel with nickel-alloy or stainless steel cladding; nickel-alloy steam generator components (flanges; penetrations; nozzles; safe ends, lower heads and welds)	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c) and environmental effects are to be addressed for Class 1 components	Yes, TLAA	Fatigue is a TLAA. Further evaluation is documented in Subsection 3.1.2.2.1.
3.1.1-11	BWR Only				
3.1.1-12	Steel steam generator shell assembly exposed to secondary feedwater and steam	Loss of material due to general, pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Not Applicable. This item is applicable to (Once Through) Steam Generators, which are not used at Seabrook Station. See Subsection 3.1.2.2.2.1.
3.1.1-13	BWR Only				
3.1.1-14	BWR Only				
3.1.1-15	BWR Only				

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-16	Steel steam generator upper and lower shell and transition cone exposed to secondary feedwater and steam	Loss of material due to general, pitting and crevice corrosion	Inservice Inspection (IWB, IWC, and IWD), and Water Chemistry and, for Westinghouse Model 44 and 51 S/G, if general and pitting corrosion of the shell is known to exist, additional inspection procedures are to be developed.	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to general, pitting and crevice corrosion in the steel components in the Steam Generators (Feedwater and Main Steam nozzles, lower shell, secondary hand holes, secondary manways, shell penetrations, top head, transition cone, and upper shell) exposed to secondary feedwater/steam. Seabrook Station has Westinghouse Model F Steam Generators. Therefore, additional inspection procedures are not required. See Subsection 3.1.2.2.2.4.
3.1.1-17	Steel (with or without stainless steel cladding) reactor vessel beltline shell, nozzles, and welds	Loss of fracture toughness due to neutron irradiation embrittlement	TLAA, evaluated in accordance with Appendix G of 10 CFR Part 50 and RG 1.99. The applicant may choose to demonstrate that the materials of the nozzles are not controlling for the TLAA evaluations.	Yes, TLAA	Loss of fracture toughness due to neutron irradiation embrittlement is a TLAA. See Subsection 3.1.2.2.3.1
3.1.1-18	Steel (with or without stainless steel cladding) reactor vessel beltline shell, nozzles, and welds; safety injection nozzles	Loss of fracture toughness due to neutron irradiation embrittlement	Reactor Vessel Surveillance	Yes, plant specific	Consistent with NUREG-1801. The Reactor Vessel Surveillance Program, B.2.1.19, will be used to manage loss of fracture toughness due to neutron irradiation embrittlement in the steel with stainless steel cladding reactor vessel shell (Upper shell, Intermediate Shell, and lower shell including beltline welds) and the inlet and outlet nozzles exposed to internal environment of reactor coolant and neutron flux. See Subsection 3.1.2.2.3.2.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-19	BWR Only				
3.1.1-20	BWR Only				
3.1.1-21	Reactor vessel shell fabricated of SA508-Cl 2 forgings clad with stainless steel using a high-heat- input welding process	Crack growth due to cyclic loading	TLAA	Yes, TLAA	Not Applicable. The Seabrook Station Reactor Vessel shell is not fabricated of SA508-Cl 2 forgings clad with stainless steel using a high-heat-input welding process. See Subsection 3.1.2.2.5.
3.1.1-22	Stainless steel and nickel alloy reactor vessel internals components exposed to reactor coolant and neutron flux	Loss of fracture toughness due to neutron irradiation embrittlement, void swelling	FSAR supplement commitment to (1) participate in industry RVI aging programs (2) implement applicable results (3) submit for NRC approval > 24 months before the extended period an RVI inspection plan based on industry recommendation.	No, but licensee commitment to be confirmed	Consistent with NUREG-1801. The PWR Vessel Internals Program, B.2.1.7, will be used to manage loss of fracture toughness due to neutron irradiation embrittlement and void swelling in stainless steel and nickel alloy reactor vessel internals components exposed to reactor coolant and neutron flux in the Reactor Vessel Internals. See Subsection 3.1.2.2.6.
3.1.1-23	Stainless steel reactor vessel closure head flange leak detection line and bottom-mounted instrument guide tubes	Cracking due to stress corrosion cracking	A plant-specific aging management program is to be evaluated.	Yes, plant specific	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, will be used to manage cracking due to stress corrosion cracking in the stainless steel reactor vessel closure head flange leak detection lines. See Subsection 3.1.2.2.7.1.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-24	Class 1 cast austenitic stainless steel piping, piping components, and piping elements exposed to reactor coolant	Cracking due to stress corrosion cracking	Water Chemistry and, for CASS components that do not meet the NUREG-0313 guidelines, a plant specific aging management program	Yes, plant specific	Components in the Safety Injection system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage stress corrosion cracking of the Class 1 cast austenitic stainless steel piping components in the Reactor Coolant and Safety Injection systems. See Subsection 3.1.2.2.7.2.
3.1.1-25	BWR Only				
3.1.1-26	BWR Only				
3.1.1-27	Stainless steel and nickel alloy reactor vessel internals screws, bolts, tie rods, and hold-down springs	Loss of preload due to stress relaxation	FSAR supplement commitment to (1) participate in industry RVI aging programs (2) implement applicable results (3) submit for NRC approval > 24 months before the extended period an RVI inspection plan based on industry recommendation.	No, but licensee commitment to be confirmed	Consistent with NUREG-1801. The PWR Vessel Internals Program, B.2.1.7, will be used to manage loss of preload due to stress relaxation in stainless steel and nickel alloy reactor vessel internals components exposed to reactor coolant in the Reactor Vessel Internals. See Subsection 3.1.2.2.9.
3.1.1-28	Steel steam generator Feedwater impingement plate and support exposed to secondary feedwater	Loss of material due to erosion	A plant-specific aging management program is to be evaluated.	Yes, plant specific	Not applicable. See Subsection 3.1.2.2.10.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-29	BWR Only				
3.1.1-30	Stainless steel reactor vessel internals components (e.g., Upper internals assembly, RCCA guide tube assemblies, Baffle/former assembly, Lower internal assembly, shroud assemblies, Plenum cover and plenum cylinder, Upper grid assembly, Control rod guide tube (CRGT) assembly, Core support shield assembly, Core barrel assembly, Lower grid assembly, Flow distributor assembly, Thermal shield, Instrumentation support structures)	Cracking due to stress corrosion cracking, irradiation assisted stress corrosion cracking	Water Chemistry and FSAR supplement commitment to (1) participate in industry RVI aging programs (2) implement applicable results (3) submit for NRC approval > 24 months before the extended period an RVI inspection plan based on industry recommendation	No, but licensee commitment needs to be confirmed	Consistent with NUREG-1801. The PWR Vessel Internals Program, B.2.1.7, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking, irradiation-assisted stress corrosion cracking in stainless steel reactor vessel internals components exposed to reactor coolant in the Reactor Vessel Internals. See Subsection 3.1.2.2.12.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-31	Nickel alloy and steel with nickel-alloy cladding piping, piping component, piping elements, penetrations, nozzles, safe ends, and welds (other than reactor vessel head); pressurizer heater sheaths, sleeves, diaphragm plate, manways and flanges; core support pads/core guide lugs	Cracking due to primary water stress corrosion cracking	Inservice Inspection, Subsections IWB, IWC, and IWD and Water Chemistry and for nickel alloy, comply with applicable NRC Orders and provide a commitment in the FSAR supplement to implement applicable (1) Bulletins and Generic Letters and (2) staff-accepted industry guidelines	No, but licensee commitment needs to be confirmed	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection Subsections IWB, IWC, and IWD Program, B.2.1.1, the Nickel-Alloy Nozzles and Penetrations Program, B.2.2.3, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to primary water stress corrosion cracking in nickel alloy components in the Reactor Coolant system, in the nickel alloy bottom instrument tube and core support pads/core guide lugs in the Reactor Vessel, and the nickel alloy Steam Generator primary nozzle weld in the Steam Generator. See Subsection 3.1.2.2.13.
3.1.1-32	Steel steam generator feedwater inlet ring and supports	Wall thinning due to flow-accelerated corrosion	A plant-specific aging management program is to be evaluated.	Yes, plant specific	Consistent with NUREG-1801 with exceptions. The Steam Generator Tube Integrity Program (with exceptions), B.2.1.10, will be used to manage wall thinning due to flow-accelerated corrosion in the steel Steam Generator feedwater inlet ring and supports exposed to secondary feedwater/steam. See Subsection 3.1.2.2.14.
3.1.1-33	Stainless steel and nickel alloy reactor vessel internals components	Changes in dimensions due to void swelling	FSAR supplement commitment to (1) participate in industry RVI aging programs (2) implement applicable results (3) submit for NRC approval > 24 months before the extended period an RVI inspection plan based on industry recommendation	No, but licensee commitment to be confirmed	Consistent with NUREG-1801. The PWR Vessel Internals Program, B.2.1.7, will be used to manage changes in dimensions due to void swelling in stainless steel and nickel alloy reactor vessel internals components exposed to reactor coolant in the Reactor Vessel Internals. See Subsection 3.1.2.2.15.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-34	Stainless steel and nickel alloy reactor control rod drive head penetration pressure housings	Cracking due to stress corrosion cracking and primary water stress corrosion cracking	Inservice Inspection, Subsections IWB, IWC, and IWD and Water Chemistry and for nickel alloy, comply with applicable NRC Orders and provide a commitment in the FSAR supplement to implement applicable (1) Bulletins and Generic Letters and (2) staff-accepted industry guidelines.	No, but licensee commitment needs to be confirmed	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in the stainless steel canopy seal pressure housing and cracking due to primary water stress corrosion cracking in the nickel alloy control rod drive pressure housing exposed to reactor coolant in the Reactor Vessel. See Subsection 3.1.2.2.16.1.
3.1.1-35	Steel with stainless steel or nickel alloy cladding primary side components; steam generator upper and lower heads, tubesheets and tube-to-tube sheet welds	Cracking due to stress corrosion cracking and primary water stress corrosion cracking	Inservice Inspection, Subsections IWB, IWC, and IWD and Water Chemistry and for nickel alloy, comply with applicable NRC Orders and provide a commitment in the FSAR supplement to implement applicable (1) Bulletins and Generic Letters and (2) staff-accepted industry guidelines.	No, but licensee commitment needs to be confirmed	Not Applicable See Subsection 3.1.2.2.16.1.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-36	Nickel alloy, stainless steel pressurizer spray head	Cracking due to stress corrosion cracking and primary water stress corrosion cracking	Water Chemistry and One-Time Inspection and, for nickel alloy welded spray heads, comply with applicable NRC Orders and provide a commitment in the FSAR supplement to implement applicable (1) Bulletins and Generic Letters and (2) staff-accepted industry guidelines.	No, unless licensee commitment needs to be confirmed	Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in the stainless steel pressurizer spray head exposed to reactor coolant. See Subsection 3.1.2.2.16.2.
3.1.1-37	Stainless steel and nickel alloy reactor vessel internals components (e.g., Upper internals assembly, RCCA guide tube assemblies, Lower internal assembly, CEA shroud assemblies, Core shroud assembly, Core support shield assembly, Core barrel assembly, Lower grid assembly, Flow distributor assembly)	Cracking due to stress corrosion cracking, primary water stress corrosion cracking, irradiation-assisted stress corrosion cracking	Water Chemistry and FSAR supplement commitment to (1) participate in industry RVI aging programs (2) implement applicable results (3) submit for NRC approval > 24 months before the extended period an RVI inspection plan based on industry recommendation.	No, but licensee commitment needs to be confirmed	Consistent with NUREG-1801. The PWR Vessel Internals Program, B.2.1.7, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to primary water stress corrosion cracking in nickel alloy reactor vessel internals components and will also be used to manage cracking due to stress corrosion cracking and irradiation-assisted stress corrosion cracking in stainless steel reactor vessel internal components exposed to reactor coolant in the Reactor Vessel Internals. See Subsection 3.1.2.2.17.
3.1.1-38	BWR Only				
3.1.1-39	BWR Only				

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-40	BWR Only				
3.1.1-41	BWR Only				
3.1.1-42	BWR Only				
3.1.1-43	BWR Only				
3.1.1-44	BWR Only				
3.1.1-45	BWR Only				
3.1.1-46	BWR Only				
3.1.1-47	BWR Only				
3.1.1-48	BWR Only				
3.1.1-49	BWR Only				
3.1.1-50	BWR Only				
3.1.1-51	BWR Only				

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-52	Steel and stainless steel reactor coolant pressure boundary (RCPB) pump and valve closure bolting, manway and holding bolting, flange bolting, and closure bolting in high pressure and high temperature systems	Cracking due to stress corrosion cracking, loss of material due to wear, loss of preload due to thermal effects, gasket creep, and self loosening	Bolting Integrity	No	Components in the Chemical and Volume Control, Residual Heat Removal, and Safety Injection systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of preload due to thermal effects, gasket creep, and self-loosening in steel and stainless steel bolting exposed to reactor coolant leakage. Steel bolting is contained in the Reactor Coolant System and Steam Generator systems. Stainless steel bolting is contained in the Chemical and Volume Control System, Reactor Coolant, Reactor Vessel, Residual Heat Removal, and Safety Injection systems. Consistent with NUREG-1801. The Bolting Integrity Program, B.2.1.9, will be used to manage stress corrosion cracking in the steel and stainless steel bolting. Steel bolting is contained in the Steam Generator system. Stainless steel bolting is contained in the Chemical and Volume Control System, Reactor Coolant, Reactor Vessel, Residual Heat Removal, and Safety Injection systems. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of material due to wear in the stainless steel control rod drive flange bolting in the Reactor Vessel.
3.1.1-53	Steel piping, piping components, and piping elements exposed to closed cycle cooling water	Loss of material due to general, pitting and crevice corrosion	Closed-Cycle Cooling Water System	No	Consistent with NUREG- 1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to general, pitting, and crevice corrosion in steel piping components in the Reactor Coolant system.
3.1.1-54	Copper alloy piping, piping components, and piping elements exposed to closed cycle cooling water	Loss of material due to pitting, crevice, and galvanic corrosion	Closed-Cycle Cooling Water System	No	Not applicable. There are no copper alloy components exposed to closed cycle cooling water in the Reactor Coolant system, Reactor Vessel, Reactor Vessel Internals, and Steam Generator.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-55	Cast austenitic stainless steel Class 1 pump casings, and valve bodies and bonnets exposed to reactor coolant >250°C (>482°F)	Loss of fracture toughness due to thermal aging embrittlement	Inservice inspection (IWB, IWC, and IWD). Thermal aging susceptibility screening is not necessary, inservice inspection requirements are sufficient for managing these aging effects. ASME Code Case N-81 also provides an alternative for pump casings.	No	Components in the Safety Injection system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, will be used to manage the loss of fracture toughness due to thermal aging embrittlement in cast austenitic stainless steel Class 1 pump casings in the Reactor Coolant system and valve bodies exposed to reactor coolant in the Safety Injection system.
3.1.1-56	Copper alloy >15% Zn piping, piping components, and piping elements exposed to closed cycle cooling water	Loss of material due to selective leaching	Selective Leaching of Materials	No	Not applicable. There are no copper alloy >15% Zn components exposed to closed cycle cooling water in the Reactor Coolant system, Reactor Vessel, Reactor Vessel Internals and Steam Generator.
3.1.1-57	Cast austenitic stainless steel Class 1 piping, piping component, and piping elements and control rod drive pressure housings exposed to reactor coolant >250°C (>482°F)	Loss of fracture toughness due to thermal aging embrittlement	Thermal Aging Embrittlement of CASS	No	Not Applicable. The Seabrook Station Reactor Coolant system contains fittings constructed of SA-351 Grade CF8A material in a service condition greater than 482°F. These fittings are in the Reactor Coolant system hot legs between the reactor and the Steam Generators, in the crossover legs between the Steam Generators and the Reactor Coolant pumps and in the cold legs between the Reactor Coolant pumps and the reactor. However, the aging effect in NUREG-1801 for this material and environment combination is not applicable because the molybdenum and ferrite contents for these components are below the industry accepted threshold (<0.5% Mo, <20% ferrite) for loss of fracture toughness due to thermal aging embrittlement.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-58	Steel reactor coolant pressure boundary external surfaces exposed to air with borated water leakage	Loss of material due to Boric acid corrosion	Boric Acid Corrosion	No	Consistent with NUREG-1801. The Boric Acid Corrosion Program, B.2.1.4, will be used to manage loss of material due to boric acid corrosion on steel reactor coolant pressure boundary external surfaces exposed to air with borated water leakage in the Reactor Coolant system, Reactor Vessel, and Steam Generator.
3.1.1-59	Steel steam generator steam nozzle and safe end, Feedwater nozzle and safe end, AFW nozzles and safe ends exposed to secondary feedwater/steam	Wall thinning due to flow-accelerated corrosion	Flow-Accelerated Corrosion	No	Consistent with NUREG-1801. The Flow-Accelerated Corrosion Program, B.2.1.8, will be used to manage wall thinning due to flow-accelerated corrosion on steel Steam Generator steam nozzle and feedwater nozzle exposed to secondary feedwater/steam in the Steam Generator.
3.1.1-60	Stainless steel flux thimble tubes (with or without chrome plating)	Loss of material due to Wear	Flux Thimble Tube Inspection	No	Not applicable. The Seabrook Station utilizes a double-concentric thimble tube design fabricated from wear resistant, seamless Nickel Alloy material (Inconel 600).
3.1.1-61	Stainless steel, steel pressurizer integral support exposed to air with metal temperature up to 288°C (550°F)	Cracking due to cyclic loading	Inservice Inspection (IWB, IWC, and IWD)	No	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, will be used to manage cracking due to cyclic loading in the steel pressurizer integral support exposed to air with metal temperature up to 288°C (550° F) in the Reactor Coolant system.
3.1.1-62	Stainless steel, steel with stainless steel cladding reactor coolant system cold leg, hot leg, surge line, and spray line piping and fittings exposed to reactor coolant	Cracking due to cyclic loading	Inservice Inspection (IWB, IWC, and IWD)	No	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, will be used to manage cracking due to cyclic loading in the reactor coolant system cold leg, hot leg, surge line, and spray line piping and fittings exposed to reactor coolant in the Reactor Coolant system.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-63	Steel reactor vessel flange, stainless steel and nickel alloy reactor vessel internals exposed to reactor coolant (e.g., upper and lower internals assembly, CEA shroud assembly, core support barrel, upper grid assembly, core support shield assembly, lower grid assembly)	Loss of material due to Wear	Inservice Inspection (IWB, IWC, and IWD)	No	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, will be used to manage loss of material due to wear in the stainless steel reactor vessel internal upper core plate pins exposed to reactor coolant in the Reactor Vessel Internals.
3.1.1-64	Stainless steel and steel with stainless steel or nickel alloy cladding pressurizer components	Cracking due to stress corrosion cracking, primary water stress corrosion cracking	Inservice Inspection, Subsections (IWB, IWC, and IWD) and Water Chemistry	No	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in the stainless steel and steel with stainless steel cladding in pressurizer components exposed to reactor coolant in the Reactor Coolant system.
3.1.1-65	Nickel alloy reactor vessel upper head and control rod drive penetration nozzles, instrument tubes, head vent pipe (top head), and welds	Cracking due to primary water stress corrosion cracking	Inservice Inspection, Subsections (IWB, IWC, and IWD) and Water Chemistry and Nickel-Alloy Penetration Nozzles Welded to the Upper Reactor Vessel Closure Heads of Pressurized Water Reactors	No	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, Nickel-Alloy Penetration Nozzles Welded to the Upper RV Closure Heads of PWRs Program, B.2.1.5, and Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in nickel-alloy reactor vessel upper head vent pipe and control rod drive penetration nozzles and welds exposed to reactor coolant in the Reactor Vessel.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-66	Steel steam generator secondary manways and handholes (cover only) exposed to air with leaking secondary-side water and/or steam	Loss of material due to erosion	Inservice Inspection, Subsections (IWB, IWC, and IWD) for Class 2 components	No	Not applicable. This item is applicable to (Once Through) Steam Generators which are not used at Seabrook Station.
3.1.1-67	Steel with stainless steel or nickel alloy cladding; or stainless steel pressurizer components exposed to reactor coolant	Cracking due to cyclic loading	Inservice Inspection (IWB, IWC, and IWD), and Water Chemistry	No	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to cyclic loading in the stainless steel and steel with stainless steel cladding pressurizer components exposed to reactor coolant in the Reactor Coolant system.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-68	Stainless steel, steel with stainless steel cladding Class 1 piping, fittings, pump casings, valve bodies, nozzles, safe ends, manways, flanges, CRD housing; pressurizer heater sheaths, sleeves, diaphragm plate; pressurizer relief tank components, reactor coolant system cold leg, hot leg, surge line, and spray line piping and fittings	Cracking due to stress corrosion cracking	Inservice Inspection (IWB, IWC, and IWD), and Water Chemistry	No	Components in the Chemical and Volume Control, Residual Heat Removal, and Safety Injection systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in the stainless steel Class 1 piping components in the Chemical and Volume Control, Reactor Coolant, Residual Heat Removal, and Safety Injection systems and the pressurizer diaphragm plate, pressurizer heater sleeves, reactor coolant system cold leg, hot leg, surge line, and spray line components in the Reactor Coolant system exposed to reactor coolant. Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in the steel with stainless steel cladding in Steam Generator lower head, Steam Generator primary manway, Steam Generator primary nozzle, and the stainless steel Steam Generator primary nozzle safe end, and Steam Generator primary nozzle drain line exposed to reactor coolant in the Steam Generator. The pressurizer relief tank components are not exposed to treated borated water >60°C (>140°F).
3.1.1-69	Stainless steel, nickel alloy safety injection nozzles, safe ends, and associated welds and buttering exposed to reactor coolant	Cracking due to stress corrosion cracking, primary water stress corrosion cracking	Inservice Inspection (IWB, IWC, and IWD), and Water Chemistry	No	Consistent with NUREG-1801. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in the stainless steel vessel nozzle safe ends and cracking due to primary water stress corrosion cracking in the nickel alloy nozzle welds exposed to reactor coolant in the Reactor Vessel.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-70	Stainless steel; steel with stainless steel cladding Class 1 piping, fittings and branch connections < NPS 4 exposed to reactor coolant	Cracking due to stress corrosion cracking, thermal and mechanical loading	Inservice Inspection (IWB, IWC, and IWD), Water Chemistry, and One-Time Inspection of ASME Code Class 1 Small-bore Piping	No	Components in the Chemical and Volume Control, Residual Heat Removal, and Safety Injection systems have been aligned to this line item due to material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program, B.2.1.1, Water Chemistry Program, B.2.1.2, and One-Time Inspection of ASME Code Class 1 Small Bore-Piping Program (with exceptions), B.2.1.23, will be used to manage cracking due to stress corrosion cracking, thermal and mechanical loading in the stainless steel Class 1 piping, fittings, and branch connections < NPS 4 exposed to reactor coolant in the Chemical and Volume Control, Reactor Coolant, Residual Heat Removal, and Safety Injection systems.
3.1.1-71	High-strength low alloy steel closure head stud assembly exposed to air with reactor coolant leakage	Cracking due to stress corrosion cracking; loss of material due to wear	Reactor Head Closure Studs	No	Consistent with NUREG-1801 with exceptions. The Reactor Head Closure Studs Program (with exceptions), B.2.1.3, will be used to manage cracking due to stress corrosion cracking and loss of material due to wear in the low alloy steel closure head stud assembly exposed to indoor air with reactor coolant leakage in the Reactor Vessel.
3.1.1-72	Nickel alloy steam generator tubes and sleeves exposed to secondary feedwater/ steam	Cracking due to OD stress corrosion cracking and intergranular attack, loss of material due to fretting and wear	Steam Generator Tube Integrity and Water Chemistry	No	Consistent with NUREG-1801 with exceptions. The Steam Generator Tube Integrity Program (with exceptions), B.2.1.10, and the Water Chemistry Program, B.2.1.2, will be used to manage cracking due to OD stress corrosion cracking and inter-granular attack, and loss of material due to fretting and wear in the nickel alloy Steam Generator tubes exposed to secondary feedwater/steam in the Steam Generator.
3.1.1-73	Nickel alloy steam generator tubes, repair sleeves, and tube plugs exposed to reactor coolant	Cracking due to primary water stress corrosion cracking	Steam Generator Tube Integrity and Water Chemistry	No	Consistent with NUREG-1801 with exceptions. The Steam Generator Tube Integrity Program (with exceptions), B.2.1.10, and Water Chemistry Program, B.2.1.2, will be used to manage cracking due to primary water stress corrosion cracking in the nickel alloy Steam Generator tubes and tube plugs exposed to reactor coolant in the Steam Generator.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-74	Chrome plated steel, stainless steel, nickel alloy steam generator anti vibration bars exposed to secondary feedwater/ steam	Cracking due to stress corrosion cracking, loss of material due to crevice corrosion and fretting	Steam Generator Tube Integrity and Water Chemistry	No	Consistent with NUREG-1801 with exceptions. The Steam Generator Tube Integrity Program (with exceptions), B.2.1.10, and Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking and loss of material due to crevice corrosion and fretting of the nickel alloy anti-vibration bars, and stainless steel tube supports exposed to secondary feedwater/steam in the Steam Generator.
3.1.1-75	Nickel alloy once-through steam generator tubes exposed to secondary feedwater/ steam	Denting due to corrosion of carbon steel tube support plate	Steam Generator Tube Integrity and Water Chemistry	No	Not applicable. This item is applicable to (Once Through) Steam Generators which are not used at Seabrook Station.
3.1.1-76	Steel steam generator tube support plate, tube bundle wrapper exposed to secondary feedwater/steam	Loss of material due to erosion, general, pitting, and crevice corrosion, ligament cracking due to corrosion	Steam Generator Tube Integrity and Water Chemistry	No	Consistent with NUREG-1801 with exceptions. The Steam Generator Tube Integrity Program (with exceptions), B.2.1.10, and Water Chemistry Program, B.2.1.2, will be used to manage loss of material due to erosion, general, pitting, and crevice corrosion of carbon steel Steam Generator tube bundle wrapper components exposed to secondary feedwater/steam. Ligament cracking is associated with IV.D1-17 which is a line item for steel support plates which are not applicable to Seabrook Station.
3.1.1-77	Nickel alloy steam generator tubes and sleeves exposed to phosphate chemistry in secondary feedwater/steam	Loss of material due to wastage and pitting corrosion	Steam Generator Tube Integrity and Water Chemistry	No	Not applicable. Seabrook Station does not use phosphate chemistry in the secondary feedwater/steam.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-78	Steel steam generator tube support lattice bars exposed to secondary feedwater/ steam	Wall thinning due to flow-accelerated corrosion	Steam Generator Tube Integrity and Water Chemistry	No	Not applicable. Seabrook Station does not have steel Steam Generator tube support lattice bars in the Steam Generator.
3.1.1-79	Nickel alloy steam generator tubes exposed to secondary feedwater/steam	Denting due to corrosion of steel tube support plate	Steam Generator Tube Integrity; Water Chemistry and, for plants that could experience denting at the upper support plates, evaluate potential for rapidly propagating cracks and then develop and take corrective actions consistent with Bulletin 88-02.	No	Not applicable. Seabrook Station Steam Generator tube support plates are manufactured from stainless steel.
3.1.1-80	Cast austenitic stainless steel reactor vessel internals (e.g., upper internals assembly, lower internal assembly, CEA shroud assemblies, control rod guide tube assembly, core support shield assembly, lower grid assembly)	Loss of fracture toughness due to thermal aging and neutron irradiation embrittlement	Thermal Aging and Neutron Irradiation Embrittlement of CASS	No	Not applicable. Seabrook Station does not have cast austenitic stainless steel components in the Reactor Vessel Internals.
3.1.1-81	Nickel alloy or nickel-alloy clad steam generator divider plate exposed to reactor coolant	Cracking due to primary water stress corrosion cracking	Water Chemistry	No	Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage cracking due to primary water stress corrosion cracking in nickel-alloy Steam Generator primary channel head divider plate exposed to reactor coolant in the Steam Generator.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-82	Stainless steel steam generator primary side divider plate exposed to reactor coolant	Cracking due to stress corrosion cracking	Water Chemistry	No	Not applicable. Seabrook Station does not have stainless steel Steam Generator primary channel head divider plate exposed to reactor coolant in the Steam Generator.
3.1.1-83	Stainless steel; steel with nickel-alloy or stainless steel cladding; and nickel alloy reactor vessel internals and reactor coolant pressure boundary components exposed to reactor coolant	Loss of material due to pitting and crevice corrosion	Water Chemistry	No	Components in the Chemical and Volume Control, Residual Heat Removal, and Safety Injection systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage loss of material due to pitting and crevice corrosion in stainless steel components, steel with stainless steel cladding, steel with nickel alloy cladding, and nickel alloy components exposed to reactor coolant. Stainless steel components are contained in the Chemical and Volume Control system, Reactor Coolant system, Reactor Vessel, Reactor Vessel Internals, Residual Heat Removal system, Safety Injection system, and Steam Generator. Steel with stainless steel cladding is contained in the Reactor Coolant system, Reactor Vessel, and Steam Generator Nickel alloy piping components are contained in the Reactor Coolant system, Reactor Vessel, .Reactor Vessel Internals, and Steam Generator. Steel with nickel alloy cladding is contained in the Steam Generator.
3.1.1-84	Nickel alloy steam generator components such as, secondary side nozzles (vent, drain, and instrumentation) exposed to secondary feedwater/steam	Cracking due to stress corrosion cracking	Water Chemistry and One-Time Inspection or ASME Inservice Inspection (IWB, IWC, and IWD).	No	Not applicable. This item is applicable to (Once Through) Steam Generators which are not used at Seabrook Station.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-85	Nickel alloy piping, piping components, and piping elements exposed to air-indoor uncontrolled (external)	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Nickel alloy components exposed to air-indoor uncontrolled (external) are contained in the Reactor Coolant system, Reactor Vessel, Reactor Vessel Internals, and Steam Generator.

Table 3.1.1

Summary of Aging Management Evaluations for the Reactor Vessel, Internals, and Reactor Coolant System

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.1.1-86	Stainless steel piping, piping components, and piping elements exposed to air-indoor uncontrolled (External); air with borated water leakage; concrete; gas	None	None	NA - No AEM or AMP	Components in Chemical and Volume Control, Residual Heat Removal, and Safety Injection systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. Stainless steel piping components exposed to air-indoor uncontrolled (external) and air with borated water leakage (external) are contained in the Chemical and Volume Control System, Reactor Coolant, Residual Heat Removal, and Safety Injection systems. Stainless steel heat exchanger components are contained in the Reactor Coolant system. Stainless steel pressurizer components, pressurizer diaphragm plate, pressurizer heater sleeves, pressurizer manway cover, and pressurizer safe end welds exposed to air-indoor uncontrolled (external) and air with borated water leakage are contained in the Reactor Coolant system. Stainless steel components, exposed to air-indoor uncontrolled (external) and air with borated water leakage are contained in the Reactor Vessel. Stainless steel piping components with gas environment are contained in the Reactor Coolant system. Stainless steel tanks exposed to air indoor uncontrolled (external) and air with borated water leakage (external) are contained in the Reactor Coolant System. Stainless steel steam generator channel head drain line coupling and primary nozzle safe ends exposed to air indoor uncontrolled (external) and air with borated water leakage (external) are contained in the Steam Generator.
3.1.1-87	Steel piping, piping components, and piping elements in concrete	None	None	NA - No AEM or AMP	Not applicable. Seabrook Station does not have any steel components in concrete in the Reactor Coolant system, Reactor Vessel, Reactor Vessel Internals, and the Steam Generator.

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	V.E-4 (E-41))	3.2.1-23	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	V.E-5 (EP-24)	3.2.1-24	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-2 (E-41)	3.2.1-45	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Loss of Preload	Bolting Integrity Program	IV.C2-8 (R-12)	3.1.1-52	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Cracking	Bolting Integrity Program	IV.C2-7 (R-11)	3.1.1-52	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	System Temperature up to 340°C (644°F)	Cumulative Fatigue Damage	TLAA	IV.C2-10 (R-18)	3.1.1-7	A
Bolting (Class 1)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.C2-9 (R-17)	3.1.1-58	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting (Class 1)	Pressure Boundary	Steel	Air With Reactor Coolant Leakage (External)	Loss of Preload	Bolting Integrity Program	IV.C2-8 (R-12)	3.1.1-52	A
Bolting (Class 1)	Pressure Boundary	Steel	System Temperature up to 340°C (644°F)	Cumulative Fatigue Damage	TLAA	IV.C2-10 (R-18)	3.1.1-7	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.A-28 (E-12)	3.2.1-48	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3 X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Heat Exchanger Components (RC-E-126 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	C
Heat Exchanger Components (RC-E-126 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	C
Heat Exchanger Components (RC-E-126 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	C
Heat Exchanger Components (RC-E-126 Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Heat Exchanger Components (RC-E-126 Shell)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.C2-9 (R-17)	3.1.1-58	A
Heat Exchanger Components (RC-E-126 Shell)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B
Heat Exchanger Components (Reactor Coolant Pump Thermal Barrier Heat Exchanger Cooling Coil)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	C

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (Reactor Coolant Pump Thermal Barrier Heat Exchanger Cooling Coil)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D 1-22 (EP-33)	3.2.1-28	B
Heat Exchanger Components (Reactor Coolant Pump Thermal Barrier Heat Exchanger Cooling Coil)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.C2-3 (AP-63)	3.3.1-52	B
Incore Instrument Guide Tube	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Incore Instrument Guide Tube	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Incore Instrument Guide Tube	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program One-Time Inspection of ASME Class 1 Small Bore Piping	IV.C2-1 (R-02)	3.1.1-70	A A B

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Incore Instrument Guide Tube	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program One-Time Inspection of ASME Class 1 Small Bore Piping	IV.C2-1 (R-02)	3.1.1-70	A A B
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Piping and Fittings	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Piping and Fittings	Leakage Boundary (Spatial)	CASS	Gas (Internal)	None	None	IV.E-5 (RP-07)	3.1.1-86	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	IV.E-5 (RP-07)	3.1.1-86	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.A-28 (E-12)	3.2.1-48	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.C2-9 (R-17)	3.1.1-58	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	IV.C2-14 (RP-10)	3.1.1-53	B
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-2 (R-07)	3.1.1-68	A A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program One-Time Inspection of ASME Class 1 Small Bore Piping	IV.C2-1 (R-02)	3.1.1-70	A A B
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A

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REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Pressurizer Components	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	IV.E-1 (RP-03)	3.1.1-85	A
Pressurizer Components	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 1
Pressurizer Components	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program Nickel Alloy Nozzles and Penetrations Program	IV.C2-24 (RP-22)	3.1.1-31	A A A
Pressurizer Components	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pressurizer Components	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Pressurizer Components	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	C
Pressurizer Components	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	C

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REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pressurizer Components	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-18 (R-58)	3.1.1-67	A A
Pressurizer Components	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-19 (R-25)	3.1.1-64	A A
Pressurizer Components	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pressurizer Components	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Pressurizer Components	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.C2-9 (R-17)	3.1.1-58	A
Pressurizer Components	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-18 (R-58)	3.1.1-67	A A

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REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pressurizer Components	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-19 (R-25)	3.1.1-64	A A
Pressurizer Components	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pressurizer Components	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Pressurizer Diaphragm Plate	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	C
Pressurizer Diaphragm Plate	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-18 (R-58)	3.1.1-67	A A
Pressurizer Diaphragm Plate	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-20 (R-217)	3.1.1-68	A A

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REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pressurizer Diaphragm Plate	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pressurizer Diaphragm Plate	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Pressurizer Heater Sleeves	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	C
Pressurizer Heater Sleeves	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	C
Pressurizer Heater Sleeves	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection *Subsections* IWB IWC and IWD Program Water Chemistry Program	IV.C2-18 (R-58)	3.1.1-67	A A
Pressurizer Heater Sleeves	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program *Water Chemistry* Program	IV.C2-20 (R-217)	3.1.1-68	A A
Pressurizer Heater Sleeves	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pressurizer Heater Sleeves	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A

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REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pressurizer Integral Support	Structural Support	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.C2-9 (R-17)	3.1.1-58	A
Pressurizer Integral Support	Structural Support	Steel	Air With metal temperature up to 288°C (550° F) (External)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program	IV.C2-16 (R-19)	3.1.1-61	A
Pressurizer Integral Support	Structural Support	Steel	System Temperature up to 340°C (644°F)	Cumulative Fatigue Damage	TLAA	IV.C2-10 (R-18)	3.1.1-7	A
Pressurizer Manway Cover	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.C2-9 (R-17)	3.1.1-58	A
Pressurizer Manway Cover	Pressure Boundary	Steel With Stainless Steel Cladding	Air-Indoor Uncontrolled (Internal)	None	None	IV.E-2 (RP-04)	3.1.1-86	C
Pressurizer Nozzle	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.C2-9 (R-17)	3.1.1-58	A
Pressurizer Nozzle	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-18 (R-58)	3.1.1-67	A A

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REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pressurizer Nozzle	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-19 (R-25)	3.1.1-64	A A
Pressurizer Nozzle	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pressurizer Nozzle	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Pressurizer Nozzle Safe End	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Pressurizer Nozzle Safe End	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Pressurizer Nozzle Safe End	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-18 (R-58)	3.1.1-67	A A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pressurizer Nozzle Safe End	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-19 (R-25)	3.1.1-64	A A
Pressurizer Nozzle Safe End	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pressurizer Nozzle Safe End	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Pressurizer Spray Head	Spray	Stainless Steel	Reactor Coolant (Internal/External)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-18 (R-58)	3.1.1-67	A A
Pressurizer Spray Head	Spray	Stainless Steel	Reactor Coolant (Internal/External)	Cracking	Water Chemistry Program One-Time Inspection Program	IV.C2-17 (R-24)	3.1.1-36	A A
Pressurizer Spray Head	Spray	Stainless Steel	Reactor Coolant (Internal/External)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Pump Casing (Class 1)	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Pump Casing (Class 1)	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Pump Casing (Class 1)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-3 (R-05)	3.1.1-24	E, 2
Pump Casing (Class 1)	Pressure Boundary	CASS	Reactor Coolant (Internal) >250^{0}C (>482^{0}F)	Loss of Fracture Toughness	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program	IV.C2-6 (R-08)	3.1.1-55	A
Pump Casing (Class 1)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Pump Casing (Class 1)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program	IV.C2-26 (R-56)	3.1.1-62	A
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-3 (R-05)	3.1.1-24	E, 2
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	CASS	Reactor Coolant (Internal) >250^{0}C (>482^{0}F)	None	None	IV.C2-4 (R-52)	3.1.1-57	I, 3
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program	IV.C2-26 (R-56)	3.1.1-62	A
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-27 (R-30)	3.1.1-68	A A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Reactor Coolant System Piping and Fittings (Hot Leg, Cold Leg, Surge Line and Spray Line)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Rupture Disk	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Rupture Disk	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Rupture Disk	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.G-41 (S-13)	3.4.1-6	A A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Gas (Internal)	None	None	IV.E-5 (RP-07)	3.1.1-86	A
Thermowell	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Thermowell (Class 1)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Thermowell (Class 1)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program One-Time Inspection of ASME Code Class 1 Small-Bore Piping Program	IV.C2-1 (R-02)	3.1.1-70	A A B
Thermowell (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Thermowell (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.A-28 (E-12)	3.2.1-48	A
Valve Body	Leakage Boundary (Spatial)	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	IV.E-5 (RP-07)	3.1.1-86	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.A-28 (E-12)	3.2.1-48	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.C2-9 (R-17)	3.1.1-58	A
Valve Body	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	IV.C2-14 (RP-10)	3.1.1-53	B
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A

Table 3.1.2-1

REACTOR COOLANT SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-5 (R-09)	3.1.1-68	A A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 does not include air with borated water leakage for nickel alloy components. Similar to V.F-13 for stainless steel, there are no aging effects for nickel alloy in air with borated water leakage. Additionally, the American Welding Society (AWS) "Welding Handbook," (Seventh Edition, Volume 4, 1982, Library of Congress) identifies that nickel chromium alloy materials that are alloyed with iron, molybdenum, tungsten, cobalt or copper in various combinations have improved corrosion resistance.

2 NUREG-1801 specifies a plant-specific program for this line item. The ASME Section XI Inservice Inspection Subsections IWB, IWC and IWD Program and Water Chemistry Program are used to manage the aging effect(s) applicable to this component type, material, and environment combination.

3 The Seabrook Station Reactor Coolant system contains statically cast fittings constructed of SA-351 Grade CF8A material in a service condition greater than 482°F. However, the aging effect in NUREG-1801 for this material and environment combination is not applicable because the molybdenum and ferrite contents for these components are below the industry accepted threshold (<0.5% molybdenum and <20% ferrite). Therefore, loss of fracture toughness due to thermal aging embrittlement is not applicable.

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Canopy Seal Pressure Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	C
Canopy Seal Pressure Housing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	C
Canopy Seal Pressure Housing	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.A2-11 (R-76)	3.1.1-34	C C
Canopy Seal Pressure Housing	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Canopy Seal Pressure Housing	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Closure Head Components (Vessel Flange Leak Detection Line)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Closure Head Components (Vessel Flange Leak Detection Line)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Closure Head Components (Vessel Flange Leak Detection Line)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program	IV.A2-5 (R-74)	3.1.1-23	E, 1
Closure Head Components (Vessel Flange Leak Detection Line)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Control Rod Drive Pressure Housing	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	IV.E-1 (RP-03)	3.1.1-85	A
Control Rod Drive Pressure Housing	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 2
Control Rod Drive Pressure Housing	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program Nickel-Alloy Nozzles and Penetrations Program	IV.A2-11 (R-76)	3.1.1-34	A A A
Control Rod Drive Pressure Housing	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Control Rod Drive Pressure Housing	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
External Vessel Attachments	Structural Support	Steel	Air-Indoor Uncontrolled (External)	Cumulative Fatigue Damage	TLAA	IV.A2-20 (R-70)	3.1.1-7	A
External Vessel Attachments	Structural Support	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.A2-13 (R-17)	3.1.1-58	A
Reactor Vessel Bottom Instrument Tube	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	IV.E-1 (RP-03)	3.1.1-85	A
Reactor Vessel Bottom Instrument Tube	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 2
Reactor Vessel Bottom Instrument Tube	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program Nickel-Alloy Nozzles and Penetrations Program	IV.A2-19 (R-89)	3.1.1-31	A A A
Reactor Vessel Bottom Instrument Tube	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Vessel Bottom Instrument Tube	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Closure Head	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.A2-13 (R-17)	3.1.1-58	A
Reactor Vessel Closure Head	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Closure Head	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Closure Head Bolting	Pressure Boundary	Steel	Air With Reactor Coolant Leakage (External)	Loss of Material	Reactor Head Closure Studs Program	IV.A2-3 (R-72)	3.1.1-71	B
Reactor Vessel Closure Head Bolting	Pressure Boundary	Steel	Air With Reactor Coolant Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.A2-13 (R-17)	3.1.1-58	A
Reactor Vessel Closure Head Bolting	Pressure Boundary	Steel	Air With Reactor Coolant Leakage (External)	Cracking	Reactor Head Closure Studs Program	IV.A2-2 (R-71)	3.1.1-71	B

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Vessel Closure Head Bolting	Pressure Boundary	Steel	Air With Reactor Coolant Leakage (External)	Cumulative Fatigue Damage	TLAA	IV.A2-4 (R-73)	3.1.1-7	A
Reactor Vessel Control Rod Drive Flange Bolting	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Cracking	Bolting Integrity Program	IV.A2-6 (R-78)	3.1.1-52	A
Reactor Vessel Control Rod Drive Flange Bolting	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Cumulative Fatigue Damage	TLAA	IV.C2-10 (R-18)	3.1.1-7	A
Reactor Vessel Control Rod Drive Flange Bolting	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Loss of Material	Bolting Integrity Program	IV.A2-7 (R-79)	3.1.1-52	A
Reactor Vessel Control Rod Drive Flange Bolting	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Loss of Preload	Bolting Integrity Program	IV.A2-8 (R-80)	3.1.1-52	A
Reactor Vessel Control Rod Drive Penetration Nozzle and Welds	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	IV.E-1 (RP-03)	3.1.1-85	A
Reactor Vessel Control Rod Drive Penetration Nozzle and Welds	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 2

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Vessel Control Rod Drive Penetration Nozzle and Welds	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program Nickel-Alloy Penetration Nozzles Welded to the Upper RV Closure Heads of PWRs Program	IV.A2-9 (R-75)	3.1.1-65	A A A
Reactor Vessel Control Rod Drive Penetration Nozzle and Welds	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Control Rod Drive Penetration Nozzle and Welds	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Core Support Pads/Guide Lugs	Structural Support	Nickel Alloy	Reactor Coolant (External)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program Nickel-Alloy Nozzles and Penetrations Program	IV.A2-12 (R-88)	3.1.1-31	A A A

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Vessel Core Support Pads/Guide Lugs	Structural Support	Nickel Alloy	Reactor Coolant (External)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Core Sup Pads/Guide Lugs	Structural Support	Nickel Alloy	Reactor Coolant (External)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Flange	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.A2-13 (R-17)	3.1.1-58	A
Reactor Vessel Flange	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Flange	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Head Vent Pipe	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	IV.E-1 (RP-03)	3.1.1-85	A
Reactor Vessel Head Vent Pipe	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 2

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Vessel Head Vent Pipe	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Nickel-Alloy Penetration Nozzles Welded to the Upper RV Closure Heads of PWRs Program Water Chemistry Program	IV.A2-18 (R-90)	3.1.1-65	A A A
Reactor Vessel Head Vent Pipe	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Head Vent Pipe	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Nozzle Safe Ends and Welds	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Reactor Vessel Nozzle Safe Ends and Welds	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Reactor Vessel Nozzle Safe Ends and Welds	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.A2-15 (R-83)	3.1.1-69	A A

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Vessel Nozzle Safe Ends and Welds	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Nozzle Safe Ends and Welds	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Primary Inlet and Outlet Nozzles	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.A2-13 (R-17)	3.1.1-58	A
Reactor Vessel Primary Inlet and Outlet Nozzles	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	Reactor Vessel Surveillance	IV.A2-17 (R-82)	3.1.1-18	A
Reactor Vessel Primary Inlet and Outlet Nozzles	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Primary Inlet and Outlet Nozzles	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Primary Inlet and Outlet Nozzle Welds	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	IV.E-1 (RP-03)	3.1.1-85	A
Reactor Vessel Primary Inlet and Outlet Nozzle Welds	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 2

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Vessel Primary Inlet and Outlet Nozzle Welds	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.A2-15 (R-83)	3.1.1-69	A A
Reactor Vessel Primary Inlet and Outlet Nozzle Welds	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A
Reactor Vessel Primary Inlet and Outlet Nozzle Welds	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Shell (Upper shell, Intermediate Shell, and lower shell including beltline welds)	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.A2-13 (R-17)	3.1.1-58	A
Reactor Vessel Shell (Upper shell, Intermediate Shell, and lower shell including beltline welds)	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.A2-21 (R-219)	3.1.1-9	A
Reactor Vessel Shell (Upper Shell, Intermediate Shell, And Lower Shell Including Beltline Welds)	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant and Neutron Flux (Internal)	Loss of Fracture Toughness	TLAA	IV.A2-23 (R-84)	3.1.1-17	A

Table 3.1.2-2

REACTOR VESSEL

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Reactor Vessel Shell (Upper Shell, Intermediate Shell, And Lower Shell Including Beltline Welds)	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant and Neutron Flux (Internal)	Loss of Fracture Toughness	Reactor Vessel Surveillance Program	IV.A2-24 (RP-28)	3.1.1-18	A
Reactor Vessel Shell (Upper Shell, Intermediate Shell, And Lower Shell Including Beltline Welds)	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.A2-14 (RP-28)	3.1.1-83	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies a plant-specific program for this line item. The ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

2 NUREG-1801 does not include air with borated water leakage environment for nickel alloy components. Similar to V.F-13 for stainless steel, there are no aging effects for nickel alloy in air with borated water leakage. Additionally, the American Welding Society (AWS) "Welding Handbook," (Seventh Edition, Volume 4, 1982, Library of Congress) identifies that nickel chromium alloy materials that are alloyed with iron, molybdenum, tungsten, cobalt or copper in various combinations have improved corrosion resistance.

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Baffle and Former Plates	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-1 (R-124)	3.1.1-33	A
Baffle and Former Plates	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-2 (R-123)	3.1.1-30	A A
Baffle and Former Plates	Direct Flow Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-3 (R-127)	3.1.1-22	A
Baffle and Former Plates	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Baffle and Former Plates	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Baffle and Former Bolts	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-4 (R-126)	3.1.1-33	A
Baffle and Former Bolts	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-10 (R-125)	3.1.1-30	A A
Baffle and Former Bolts	Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-6 (R-128)	3.1.1-22	A
Baffle and Former Bolts	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Baffle and Former Bolts	Structural Support	Stainless Steel	Reactor Coolant	Loss of Preload	PWR Vessel Internals	IV.B2-5 (R-129)	3.1.1-27	A
Baffle and Former Bolts	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Bottom Support Forging	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-23 (R-139)	3.1.1-33	A
Bottom Support Forging	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-24 (R-138)	3.1.1-30	A A
Bottom Support Forging	Direct Flow Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-22 (R-141)	3.1.1-22	A
Bottom Support Forging	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Bottom Support Forging	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Clevis Inserts	Structural Support	Nickel Alloy	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-19 (R-131)	3.1.1-33	A
Clevis Inserts	Structural Support	Nickel Alloy	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-20 (R-130)	3.1.1-37	A A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Clevis Inserts	Structural Support	Nickel Alloy	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Clevis Inserts	Structural Support	Nickel Alloy	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Clevis Insert Bolts	Structural Support	Nickel Alloy	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-15 (R-134)	3.1.1-33	A
Clevis Insert Bolts	Structural Support	Nickel Alloy	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-16 (R-133)	3.1.1-37	A A
Clevis Insert Bolts	Structural Support	Nickel Alloy	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-17 (R-135)	3.1.1-22	A
Clevis Insert Bolts	Structural Support	Nickel Alloy	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Clevis Insert Bolts	Structural Support	Nickel Alloy	Reactor Coolant	Loss of Preload	PWR Vessel Internals	IV.B2-14 (R-137)	3.1.1-27	A
Clevis Insert Bolts	Structural Support	Nickel Alloy	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Core Barrel and Core Barrel Flange	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-7 (R-121)	3.1.1-33	A
Core Barrel and Core Barrel Flange	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-8 (R-120)	3.1.1-30	A A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Core Barrel and Core Barrel Flange	Direct Flow Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-9 (R-122)	3.1.1-22	A
Core Barrel and Core Barrel Flange	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Core Barrel and Core Barrel Flange	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Core Barrel Outlet Nozzles	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-7 (R-121)	3.1.1-33	A
Core Barrel Outlet Nozzles	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-8 (R-120)	3.1.1-30	A A
Core Barrel Outlet Nozzles	Direct Flow Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-9 (R-122)	3.1.1-22	A
Core Barrel Outlet Nozzles	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Flux Thimble Guide Tubes	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-11 (R-144)	3.1.1-33	A
Flux Thimble Guide Tubes	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-12 (R-143)	3.1.1-30	A A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flux Thimble Guide Tubes	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Flux Thimble Guide Tubes	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Flux Thimble Tubes	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (Internal)	None	None	IV.E-1 (RP-03)	3.1.1-85	A
Flux Thimble Tubes	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (Internal)	None	None	None	None	G, 1
Flux Thimble Tubes	Pressure Boundary	Nickel Alloy	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-12 (R-143)	3.1.1-30	C C
Flux Thimble Tubes	Pressure Boundary	Nickel Alloy	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Flux Thimble Tubes	Pressure Boundary	Nickel Alloy	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Hold Down Spring	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-41 (R-107)	3.1.1-33	A
Hold Down Spring	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-42 (R-106)	3.1.1-30	A A
Hold Down Spring	Structural Support	Stainless Steel	Reactor Coolant	Loss of Preload	PWR Vessel Internals	IV.B2-33 (R-108)	3.1.1-27	A
Hold Down Spring	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Hold Down Spring	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Lower Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-19 (R-131)	3.1.1-33	A
Lower Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-20 (R-130)	3.1.1-37	A A
Lower Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-18 (R-132)	3.1.1-22	A
Lower Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Lower Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Lower Core Support Columns	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-23 (R-139)	3.1.1-33	A
Lower Core Support Columns	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-24 (R-138)	3.1.1-30	A A
Lower Core Support Columns	Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-22 (R-141)	3.1.1-22	A
Lower Core Support Columns	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Lower Core Support Columns	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Lower Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-15 (R-134)	3.1.1-33	A
Lower Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-16 (R-133)	3.1.1-37	A A
Lower Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-17 (R-135)	3.1.1-22	A
Lower Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Lower Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Lower Radial Support Keys	Structural Support	Nickel Alloy	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-19 (R-131)	3.1.1-33	A
Lower Radial Support Keys	Structural Support	Nickel Alloy	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-20 (R-130)	3.1.1-37	A A
Lower Radial Support Keys	Structural Support	Nickel Alloy	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Lower Radial Support Keys	Structural Support	Nickel Alloy	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Lower Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-15 (R-134)	3.1.1-33	A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Lower Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-16 (R-133)	3.1.1-37	A A
Lower Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-17 (R-135)	3.1.1-22	A
Lower Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Lower Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Loss of Preload	PWR Vessel Internals	IV.B2-25 (R-136)	3.1.1-27	A
Lower Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Rod Control Cluster Bolts	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-27 (R-119)	3.1.1-33	A
Rod Control Cluster Bolts	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-28 (R-118)	3.1.1-37	A A
Rod Control Cluster Bolts	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Rod Control Cluster Bolts	Structural Support	Stainless Steel	Reactor Coolant	Loss of Preload	PWR Vessel Internals	IV.B2-25 (R-136)	3.1.1-27	C
Rod Control Cluster Bolts	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Rod Control Cluster Pins	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-27 (R-119)	3.1.1-33	A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Rod Control Cluster Pins	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-28 (R-118)	3.1.1-37	A A
Rod Control Cluster Pins	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Rod Control Cluster Pins	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Rod Control Cluster Tubes	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-29 (R-117)	3.1.1-33	A
Rod Control Cluster Tubes	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-30 (R-116)	3.1.1-30	A A
Rod Control Cluster Tubes	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Rod Control Cluster Tubes	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Thermal Shield	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-7 (R-121)	3.1.1-33	A
Thermal Shield	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-8 (R-120)	3.1.1-30	A A
Thermal Shield	Structural Support	Stainless Steel	Reactor Coolant and Neutron Flux	Loss of Fracture Toughness	PWR Vessel Internals	IV.B2-9 (R-122)	3.1.1-22	A
Thermal Shield	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermal Shield	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Upper Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-41 (R-107)	3.1.1-33	A
Upper Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-42 (R-106)	3.1.1-30	A A
Upper Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Upper Core Plate	Direct Flow Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Upper Core Plate Pins	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-39 (R-113)	3.1.1-33	A
Upper Core Plate Pins	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-40 (R-112)	3.1.1-37	A A
Upper Core Plate Pins	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Upper Core Plate Pins	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program	IV.B2-34 (R-115)	3.1.1-63	A
Upper Core Plate Pins	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Upper Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-39 (R-113)	3.1.1-33	A
Upper Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-40 (R-112)	3.1.1-37	A A
Upper Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Upper Fuel Alignment Pins	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Upper Support Column	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-35 (R-110)	3.1.1-33	A
Upper Support Column	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-36 (R-109)	3.1.1-30	A A
Upper Support Column	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Upper Support Column	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Upper Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-39 (R-113)	3.1.1-33	A
Upper Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-40 (R-112)	3.1.1-37	A A
Upper Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A

Table 3.1.2-3

REACTOR VESSEL INTERNALS

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Upper Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Loss of Preload	PWR Vessel Internals	IV.B2-38 (R-114)	3.1.1-27	A
Upper Support Column Bolts	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A
Upper Support Plate	Structural Support	Stainless Steel	Reactor Coolant	Changes in Dimensions	PWR Vessel Internals	IV.B2-41 (R-107)	3.1.1-33	A
Upper Support Plate	Structural Support	Stainless Steel	Reactor Coolant	Cracking	PWR Vessel Internals Water Chemistry Program	IV.B2-42 (R-106)	3.1.1-30	A A
Upper Support Plate	Structural Support	Stainless Steel	Reactor Coolant	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Upper Support Plate	Structural Support	Stainless Steel	Reactor Coolant	Cumulative Fatigue Damage	TLAA	IV.B2-31 (R-53)	3.1.1-5	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 does not include air with borated water leakage environment for nickel alloy components. Similar to V.F-13 for stainless steel, there are no aging effects for nickel alloy in air with borated water leakage. Additionally, the American Welding Society (AWS) "Welding Handbook," (Seventh Edition, Volume 4, 1982, Library of Congress) identifies that nickel chromium alloy materials that are alloyed with iron, molybdenum, tungsten, cobalt or copper in various combinations have improved corrosion resistance.

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Pressure Boundary Throttle	Nickel Alloy	Secondary Feedwater/Steam (External)	Loss of Material	Water Chemistry Program	VIII.B1-1 (SP-18)	3.4.1-37	A
Orifice	Pressure Boundary Throttle	Nickel Alloy	Secondary Feedwater/Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-1 (SP-18)	3.4.1-37	A
Steam Generator Anti-Vibration Bars	Structural Support	Nickel Alloy	Secondary Feedwater/Steam (External)	Cracking	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-14 (RP-14)	3.1.1-74	B A
Steam Generator Anti-Vibration Bars	Structural Support	Nickel Alloy	Secondary Feedwater/Steam (External)	Loss of Material	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-15 (RP-15)	3.1.1-74	B A
Steam Generator Channel Head Drain Pipe	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC & IWD Program Water Chemistry Program Nickel Alloy Nozzles and Penetrations Program	IV.D1-4 (R-01)	3.1.1-31	A A A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Channel Head Drain Pipe	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Channel Head Drain Pipe	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A
Steam Generator Channel Head Drain Pipe Coupling	Pressure Boundary	Stainless Steel	Air Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Steam Generator Channel Head Drain Pipe Coupling	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Steam Generator Channel Head Drain Pipe Coupling	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC & IWD Program Water Chemistry Program	IV.D1-1 (R-07)	3.1.1-68	A A
Steam Generator Channel Head Drain Pipe Coupling	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Channel Head Drain Pipe Coupling	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A
Steam Generator Divider Plate	Pressure Boundary	Nickel Alloy	Reactor Coolant (External)	Cracking/PWSCC	Water Chemistry Program	IV.D1-6 (RP-21)	3.1.1-81	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Divider Plate	Pressure Boundary	Nickel Alloy	Reactor Coolant (External)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Divider Plate	Pressure Boundary	Nickel Alloy	Reactor Coolant (External)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A
Steam Generator Feedwater Inlet Ring	Pressure Boundary	Steel	Secondary Feedwater/Steam (External)	Loss of Material	Water Chemistry Program	VIII.B1-8 (S-07)	3.4.1-37	A
Steam Generator Feedwater Inlet Ring	Pressure Boundary	Steel	Secondary Feedwater/Steam (External)	Wall Thinning	Steam Generator Tube Integrity Program	IV.D1-26 (R-51)	3.1.1-32	E, 1
Steam Generator Feedwater Inlet Ring	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-8 (S-07)	3.4.1-37	A
Steam Generator Feedwater Inlet Ring	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Wall Thinning	Steam Generator Tube Integrity Program	IV.D1-26 (R-51)	3.1.1-32	E, 1

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Feedwater Inlet Ring (J Tube)	Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (External)	Loss of Material	Water Chemistry Program	VIII.B1-1 (SP-18)	3.4.1-37	A
Steam Generator Feedwater Inlet Ring (J Tube)	Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-1 (SP-18)	3.4.1-37	A
Steam Generator Feedwater Inlet Ring Support	Structural Support	Steel	Secondary Feedwater/Steam (External)	Loss of Material	Water Chemistry Program	VIII.B1-8 (S-07)	3.4.1-37	C
Steam Generator Feedwater Inlet Ring Support	Structural Support	Steel	Secondary Feedwater/Steam (External)	Wall Thinning	Steam Generator Tube Integrity Program	IV.D1-26 (R-51)	3.1.1-32	E, 1
Steam Generator Feedwater Nozzle (Thermal Sleeve)	Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (External)	Loss of Material	Water Chemistry Program	VIII.B1-1 (SP-18)	3.4.1-37	A
Steam Generator Feedwater Nozzle (Thermal Sleeve)	Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-1 (SP-18)	3.4.1-37	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Feedwater Nozzle	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Feedwater Nozzle	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	C C
Steam Generator Feedwater Nozzle	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	IV.D1-5 (R-37)	3.1.1-59	A
Steam Generator Feedwater Nozzle	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-11 (R-33)	3.1.1-7	A
Steam Generator Lower Heads	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Lower Heads	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-1 (R-07)	3.1.1-68	C C
Steam Generator Lower Heads	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Lower Heads	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A
Steam Generator Lower Shell	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Lower Shell	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	A A
Steam Generator Lower Shell	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-11 (R-33)	3.1.1-7	A
Steam Generator Primary Closure Bolting	Pressure Boundary	Steel	Air With Reactor Coolant Leakage (External)	Cracking	Bolting Integrity Program	IV.D1-2 (R-10)	3.1.1-52	A
Steam Generator Primary Closure Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Primary Closure Bolting	Pressure Boundary	Steel	System Temperature Up To 340°C (644°F) (External)	Loss of Preload	Bolting Integrity Program	IV.D1-10 (R-32)	3.1.1-52	A
Steam Generator Primary Closure Bolting	Pressure Boundary	Steel	System Temperature Up To 340°C (644°F) (External)	Cumulative Fatigue Damage	TLAA	IV.C2-10 (R-18)	3.1.1-7	A
Steam Generator Primary Manway	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Primary Manway	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-1 (R-07)	3.1.1-68	A A
Steam Generator Primary Manway	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Primary Manway	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Primary Manway Cover	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Primary Manway Insert	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	C
Steam Generator Primary Manway Insert	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-1 (R-07)	3.1.1-68	A A
Steam Generator Primary Manway Insert	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Primary Nozzle	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Primary Nozzle	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-1 (R-07)	3.1.1-68	A A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Primary Nozzle	Pressure Boundary	Steel With Stainless Steel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Primary Nozzle	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A
Steam Generator Primary Nozzle Safe End	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Steam Generator Primary Nozzle Safe End	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Steam Generator Primary Nozzle Safe End	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-1 (R-07)	3.1.1-68	A A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Primary Nozzle Safe End	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Primary Nozzle Safe End	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A
Steam Generator Primary Nozzle Weld	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	IV.E-1 RP-03	3.1.1-85	A
Steam Generator Primary Nozzle Weld	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 2

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Primary Nozzle Weld	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program Nickel Alloy Nozzles and Penetrations Program	IV.D1-4 (R-01)	3.1.1-31	A A A
Steam Generator Primary Nozzle Weld	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	A
Steam Generator Primary Nozzle Weld	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A
Steam Generator Secondary Closure Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-2 (E-41)	3.2.1-45	A
Steam Generator Secondary Closure Bolting	Pressure Boundary	Steel	System Temperature Up To 340°C (644°F) (External)	Loss of Preload	Bolting Integrity Program	IV.D1-10 (R-32)	3.1.1-52	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3 X.1 Item	Note
Steam Generator Secondary Closure Bolting	Pressure Boundary	Steel	System Temperature Up To 340°C (644°F) (External)	Cumulative Fatigue Damage	TLAA	IV.C2-10 (R-18)	3.1.1-7	A
Steam Generator Secondary Handholes	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Secondary Handholes	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	C C
Steam Generator Secondary Manways	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Secondary Manways	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	C C
Steam Generator Shell Penetrations	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Shell Penetrations	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	C C
Steam Generator Shell Penetrations	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-11 (R-33)	3.1.1-7	A
Steam Generator Steam Nozzle	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Steam Nozzle	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	C C
Steam Generator Steam Nozzle	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	IV.D1-5 (R-37)	3.1.1-59	A
Steam Generator Steam Nozzle	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-11 (R-33)	3.1.1-7	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Top Head	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Top Head	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	C C
Steam Generator Top Head	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-11 (R-33)	3.1.1-7	A
Steam Generator Transition Cone	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A
Steam Generator Transition Cone	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	A A
Steam Generator Transition Cone	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-11 (R-33)	3.1.1-7	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Tube Bundle Wrapper	Direct Flow	Steel	Secondary Feedwater/Steam (External)	Loss of Material	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-9 (RP-16)	3.1.1-76	B A
Steam Generator Tube Plugs	Pressure Boundary	Nickel Alloy	Reactor Coolant (External)	Cracking	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-18 (R-40)	3.1.1-73	B A
Steam Generator Tube Plugs	Pressure Boundary	Nickel Alloy	Reactor Coolant (External)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Tube Plugs	Pressure Boundary	Nickel Alloy	Reactor Coolant (External)	Cumulative Fatigue Damage	TLAA	IV.D1-21 (R-46)	3.1.1-6	A
Steam Generator Tube Support Plates	Structural Support	Stainless Steel	Secondary Feedwater/Steam (External)	Cracking	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-14 (RP-14)	3.1.1-74	D C
Steam Generator Tube Support Plates	Structural Support	Stainless Steel	Secondary Feedwater/Steam (External)	Loss of Material	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-15 (RP-15)	3.1.1-74	D C

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Tubes	Heat Transfer Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (External)	Cracking	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-22 (R-48)	3.1.1-72	B A
Steam Generator Tubes	Heat Transfer Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (External)	Cracking	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-23 (R-47)	3.1.1-72	B A
Steam Generator Tubes	Heat Transfer Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (External)	Loss of Material	Water Chemistry Program	VIII.B1-1 (SP-18)	3.4.1-37	C
Steam Generator Tubes	Heat Transfer Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (External)	Loss of Material	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-24 (R-49)	3.1.1-72	B A
Steam Generator Tubes	Heat Transfer Pressure Boundary	Nickel Alloy	Secondary Feedwater/Steam (External)	Reduction of Heat Transfer	Steam Generator Tube Integrity Program Water Chemistry Program	None	None	H, 3
Steam Generator Tubes	Heat Transfer Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cracking	Steam Generator Tube Integrity Program Water Chemistry Program	IV.D1-20 (R-44)	3.1.1-73	B A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Tubes	Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-21 (R-46)	3.1.1-6	A
Steam Generator Tubes	Heat Transfer Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Tubes	Heat Transfer Pressure Boundary	Nickel Alloy	Reactor Coolant (Internal)	Reduction of Heat Transfer	Water Chemistry Program	None	None	H, 4
Steam Generator Tube Sheet	Pressure Boundary	Steel With Nickel Cladding	Secondary Feedwater/Steam (External)	Loss of Material	Steam Generator Tube Integrity Program Water Chemistry Program	VIII.B1-8 (S-07)	3.4.1-37	C
Steam Generator Tube Sheet	Pressure Boundary	Steel With Nickel Cladding	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-8 (R-221)	3.1.1-10	A
Steam Generator Tube Sheet	Pressure Boundary	Steel With Nickel Cladding	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.B2-32 (RP-24)	3.1.1-83	C
Steam Generator Upper Shell	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	IV.D1-3 (R-17)	3.1.1-58	A

Table 3.1.2-4

STEAM GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Steam Generator Upper Shell	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Loss of Material	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.D1-12 (R-34)	3.1.1-16	A A
Steam Generator Upper Shell	Pressure Boundary	Steel	Secondary Feedwater/Steam (Internal)	Cumulative Fatigue Damage	TLAA	IV.D1-11 (R-33)	3.1.1-7	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies a plant-specific program for this line item. The Steam Generator Tube Integrity Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.
2	NUREG-1801 does not include air with borated water leakage environment for nickel alloy components. Similar to V.F-13 for stainless steel, there are no aging effects for nickel alloy in air with borated water leakage. Additionally, the American Welding Society (AWS) "Welding Handbook," (Seventh Edition, Volume 4, 1982, Library of Congress) identifies that nickel chromium alloy materials that are alloyed with iron, molybdenum, tungsten, cobalt or copper in various combinations have improved corrosion resistance.

3 The aging effect/mechanism of reduction of heat transfer due to fouling is not in NUREG-1801 for this component, material, and environment. However, it is applicable to this combination and therefore, the Water Chemistry Program and Steam Generator Tube Integrity Program are used to manage the aging effects for this component, material, and environment combination.

4 The aging effect/mechanism of reduction of heat transfer due to fouling is not in NUREG-1801 for this component, material, and environment. However, it is applicable to this combination and therefore, the Water Chemistry Program is used to manage the aging effects for this component, material, and environment combination.

3.2 AGING MANAGEMENT OF ENGINEERED SAFETY FEATURES

3.2.1 INTRODUCTION

This section provides the results of the aging management review for those components identified in Section 2.3.2, Engineered Safety Features, as being subject to aging management review. The systems, or portions of systems, which are addressed in this section are described in the indicated sections.

- Combustible Gas Control System (2.3.2.1)
- Containment Building Spray System (2.3.2.2)
- Residual Heat Removal System (2.3.2.3)
- Safety Injection System (2.3.2.4)

3.2.2 RESULTS

The following tables summarize the results of the aging management review for Engineered Safety Features.

Table 3.2.2-1 Summary of Aging Management Evaluation – Combustible Gas Control System

Table 3.2.2-2 Summary of Aging Management Evaluation – Containment Building Spray System

Table 3.2.2-3 Summary of Aging Management Evaluation – Residual Heat Removal System

Table 3.2.2-4 Summary of Aging Management Evaluation – Safety Injection System

3.2.2.1 Materials, Environments, Aging Effects Requiring Management and Aging Managements Programs

3.2.2.1.1 Combustible Gas Control System

Materials

The materials of construction for the Combustible Gas Control System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Glass

- Stainless Steel
- Steel

Environments

Components of the Combustible Gas Control System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage

Aging Effects Requiring Management

The following aging effects associated with the Combustible Gas Control System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Combustible Gas Control System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- External Surfaces Monitoring Program (B.2.1.24)

Summary of Aging Management Review Results

Table 3.2.2-1, Summary of Aging Management Evaluation – Combustible Gas Control System, summarizes the results of the aging management review for the Combustible Gas Control System.

3.2.2.1.2 Containment Building Spray System

Materials

The materials of construction for the Containment Building Spray System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Elastomer
- Stainless Steel
- Steel
- Steel with Stainless Steel Cladding

Environments

Components of the Containment Building Spray System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Steam
- Treated Borated Water
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Containment Building Spray System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material
- Loss of Pre-Load
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Containment Building Spray System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.2.2-2, Summary of Aging Management Evaluation – Containment Building Spray System summarizes the results of the aging management review for the Containment Building Spray System.

3.2.2.1.3 Residual Heat Removal System

Materials

The materials of construction for the Residual Heat Removal System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Glass
- Stainless Steel
- Steel

Environments

Components of the Residual Heat Removal System are exposed to the following environments:

- Air-Indoor Uncontrolled

- Air with Borated Water Leakage
- Air with Reactor Coolant Leakage
- Closed Cycle Cooling Water
- Closed Cycle Cooling Water > 140°F
- Lubricating Oil
- Reactor Coolant
- Treated Borated Water
- Treated Borated Water > 140°F

Aging Effects Requiring Management

The following aging effects associated with the Residual Heat Removal System components and commodities require management:

- Cracking
- Cumulative Fatigue Damage
- Loss of Material
- Loss of Pre-Load
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Containment Building Spray System components:

- ASME Section XI ISI Subsections IWB, IWC & IWD Program (B.2.1.1)
- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1. 4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Lubricating Oil Analysis Program (B.2.1.26)

- One-Time Inspection Program (B.2.1.20)
- One-Time Inspection of ASME Code Class 1 Small Bore Piping (B.2.1.23)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.2.2-3, Summary of Aging Management Evaluation – Residual Heat Removal System summarizes the results of the aging management review for the Residual Heat Removal System.

3.2.2.1.4 Safety Injection System

Materials

The materials of construction for the Safety Injection System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Copper Alloy
- Copper Alloy >15% Zn
- Glass
- Gray Cast Iron
- Stainless Steel
- Steel
- Steel with Stainless Steel Cladding

Environments

Components of the Safety Injection System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Air with Reactor Coolant Leakage

- Closed Cycle Cooling Water
- Gas
- Lubricating Oil
- Reactor Coolant
- Reactor Coolant >250 °C (>482 °F)
- Treated Borated Water

Aging Effects Requiring Management

The following aging effects associated with the Safety Injection System components and commodities require management:

- Cracking
- Cumulative Fatigue Damage
- Loss of Fracture Toughness
- Loss of Material
- Loss of Pre-Load
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Safety Injection System components:

- ASME Section XI ISI Subsections IWB, IWC & IWD Program (B.2.1.1)
- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Lubricating Oil Analysis Program (B.2.1.26)

- One-Time Inspection of ASME Code Class 1 Small Bore-Piping Program (B.2.1.23)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.2.2-4, Summary of Aging Management Evaluation – Safety Injection System summarizes the results of the aging management review for the Safety Injection System.

3.2.2.2 AMR results for Which Further Evaluation is recommended by NUREG-1801

NUREG-1800 indicates that further evaluation is necessary for certain aging effects, particularly those that require plant specific programs. Section 3.0 of NUREG-1800 discusses these aging effects that require further evaluation. The following sections are numbered in accordance with the discussions in Section 3.0 of NUREG-1800 and explain Seabrook Station's approach to these areas requiring further evaluation.

3.2.2.2.1 Cumulative Fatigue Damage

Fatigue is a time-limited aging analysis (TLAA) as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c)(1). This TLAA is addressed separately in Section 4.3, "Metal Fatigue Analysis" of this SRP-LR.

At Seabrook Station, the evaluation of metal fatigue as a TLAA for the Residual Heat Removal and Safety Injection System is discussed in Section 4.3.

3.2.2.2.2 Loss of Material due to Cladding Breach

Loss of material due to cladding breach could occur for PWR steel pump casings with stainless steel cladding exposed to treated borated water. The GALL Report references NRC Information Notice 94-63, Boric Acid Corrosion of Charging Pump Casings Caused by Cladding Cracks, and recommends further evaluation of a plant-specific AMP to ensure that the aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.

Item Number 3.2.1-2 is not applicable to Seabrook Station. The Seabrook Station Chemical and Volume Control System Pumps (Charging Pumps), Containment Building Spray Pumps, Residual Heat Removal Pumps, and

Safety Injection Pumps utilize solid stainless steel casings. Therefore, loss of material due to cladding breach is not applicable to Seabrook Station.

3.2.2.2.3 Loss of Material due to Pitting and Crevice Corrosion

1. *Loss of material due to pitting and crevice corrosion could occur for internal surfaces of stainless steel containment isolation piping, piping components, and piping elements exposed to treated water. The existing AMP relies on monitoring and control of water chemistry to mitigate degradation. However, control of water chemistry does not preclude loss of material due to pitting and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of the chemistry control program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is progressing very slowly such that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to pitting and crevice corrosion in stainless steel piping components exposed to treated water in the Containment Building Spray and Demineralized Water systems. The Water Chemistry and One-Time Inspection Programs are described in Appendix B.

2. *Loss of material from pitting and crevice corrosion could occur for stainless steel piping, piping components, and piping elements exposed to soil. The GALL Report recommends further evaluation of a plant-specific AMP to ensure that the aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RSLB-1.*

   Item Number 3.2.1-4 is not applicable to Seabrook Station. The Engineering Safety Features do not contain stainless steel components exposed to soil.

3. *Loss of material from pitting and crevice corrosion could occur for BWR stainless steel and aluminum piping, piping components, and piping elements exposed to treated water. The existing AMP relies on monitoring and control of water chemistry for BWRs to mitigate degradation. However, control of water chemistry does not preclude loss of material due to pitting and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL*

Report recommends further evaluation of programs to verify the effectiveness of the water chemistry control program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is progressing very slowly such that the component's intended function will be maintained during the period of extended operation.

Item Number 3.2.1-5 is applicable to BWRs only and is not used for Seabrook Station.

4. *Loss of material from pitting and crevice corrosion could occur for stainless steel and copper alloy piping, piping components, and piping elements exposed to lubricating oil. The existing program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation to verify the effectiveness of the lubricating oil program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to pitting and crevice corrosion in stainless steel piping components exposed to lubricating oil in the Residual Heat Removal and Safety Injection systems. In addition, Microbiologically-Influenced Corrosion will be managed on the stainless steel piping components exposed to lubricating oil in the Residual Heat Removal and Safety Injection systems.

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to pitting and crevice corrosion in copper alloy piping components and copper alloy heat exchanger components exposed to lubricating oil in the Safety Injection system.

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to pitting and crevice corrosion in stainless steel heat exchanger components exposed to lubricating oil in the Safety Injection system. In addition,

Microbiologically-Influenced Corrosion will be managed for the stainless steel heat exchanger components exposed to lubricating oil in the Safety Injection system.

The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

5. *Loss of material from pitting and crevice corrosion could occur for of partially encased stainless steel tanks exposed to raw water due to cracking of the perimeter seal from weathering. The GALL Report recommends further evaluation to ensure that the aging effect is adequately managed. The GALL Report recommends that a plant-specific AMP be evaluated because moisture and water can egress under the tank if the perimeter seal is degraded. Acceptance criteria are described in Branch Technical Position RSLB-1.*

   Item Number 3.2.1-7 is not applicable to Seabrook Station. The Engineering Safety Features do not contain partially encased stainless steel tanks with breached moisture barrier exposed to raw water.

6. *Loss of material from pitting and crevice corrosion could occur for stainless steel piping, piping components, piping elements, and tanks exposed to internal condensation. The GALL Report recommends further evaluation of a plant-specific AMP to ensure that the aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RSLB-1.*

   Item Number 3.2.1-8 is not applicable to Seabrook Station. The Engineering Safety Features systems do not contain stainless steel piping, piping components, piping elements, and tank internal surfaces exposed to condensation (internal).

3.2.2.2.4 Reduction of Heat Transfer due to Fouling

1. *Reduction of heat transfer due to fouling could occur for steel, stainless steel, and copper alloy heat exchanger tubes exposed to lubricating oil. The existing AMP relies on monitoring and control of lube oil chemistry to mitigate reduction of heat transfer due to fouling. However, control of lube oil chemistry may not always have been adequate to preclude fouling. Therefore, the effectiveness of lube oil chemistry control should be verified to ensure that fouling is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of lube oil chemistry control. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is progressing very slowly*

such that the component's intended function will be maintained during the period of extended operation.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of heat transfer due to fouling in copper alloy heat exchanger tubes exposed to lubricating oil in the Chemical and Volume Control, Diesel Generator, and Safety Injection systems. The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

2. *Reduction of heat transfer due to fouling could occur for stainless steel heat exchanger tubes exposed to treated water. The existing program relies on control of water chemistry to manage reduction of heat transfer due to fouling. However, control of water chemistry may have been inadequate. Therefore, the GALL report recommends that the effectiveness of the chemistry control program should be verified to ensure that reduction of heat transfer due to fouling is not occurring. A one-time inspection is an acceptable method to ensure that reduction of heat transfer is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Item Number 3.2.1-10 is not applicable to Seabrook Station. The Engineering Safety Features do not contain stainless steel heat exchanger tubes exposed to treated water

3.2.2.2.5 Hardening and Loss of Strength due to Elastomer Degradation

Hardening and loss of strength due to elastomer degradation could occur in elastomer seals and components associated with the BWR Standby Gas Treatment System ductwork and filters exposed to air-indoor uncontrolled. The GALL Report recommends further evaluation of a plant specific AMP to ensure that the aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RSLB-1.

Item Number 3.2.1-11 is not applicable to Seabrook Station. This line item is applicable to BWR Plants only.

3.2.2.2.6 Loss of Material due to Erosion

Loss of material due to erosion could occur in the stainless steel high pressure safety injection (HPSI) pump miniflow recirculation orifice exposed to treated borated water. The GALL Report recommends a plant-specific AMP be evaluated for erosion of the orifice due to extended use of the centrifugal HPSI pump for normal charging. The GALL Report references Licensee Event Report (LER) 50-275/94-023 for evidence of erosion. Further

evaluation is recommended to ensure that the aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RSLB-1.

The Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to erosion of the stainless steel high pressure pump mini-flow orifice in the Chemical and Volume Control System. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is described in Appendix B.

3.2.2.2.7 Loss of Material due to General Corrosion and Fouling

Loss of material due to general corrosion and fouling can occur for steel drywell and suppression chamber spray system nozzle and flow orifice internal surfaces exposed to air - indoor uncontrolled. This could result in plugging of the spray nozzles and flow orifices. This aging mechanism and effect will apply since the spray nozzles and flow orifices are occasionally wetted, even though the majority of the time this system is on standby. The wetting and drying of these components can accelerate corrosion and fouling. The GALL Report recommends further evaluation of a plant-specific AMP to ensure that the aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RSLB-1.

Item Number 3.2.1-13 is applicable to BWRs only and is not used for Seabrook Station.

3.2.2.2.8 Loss of Material due to General, Pitting, and Crevice Corrosion

1. *Loss of material due to general, pitting and crevice corrosion could occur for BWR steel piping, piping components, and piping elements exposed to treated water. The existing AMP relies on monitoring and control of water chemistry) for BWRs to mitigate degradation. However, control of water chemistry does not preclude loss of material due to general, pitting, and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of the water chemistry control program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is progressing very slowly such that the component's intended function will be maintained during the period of extended operation.*

   Item Number 3.2.1-14 is applicable to BWRs only and is not used for Seabrook Station.

2. *Loss of material due to general, pitting and crevice corrosion could occur for the internal surfaces of steel containment isolation piping, piping components, and piping elements exposed to treated water. The existing AMP relies on monitoring and control of water chemistry to mitigate degradation. However, control of water chemistry does not preclude loss of material due to general, pitting, and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the water chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of the chemistry control program. A onetime inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is progressing very slowly such that the component's intended function will be maintained during the period of extended operation.*

   Item Number 3.2.1-15 is not applicable to Seabrook Station. The Engineering Safety Features do not contain steel containment isolation piping, piping components, and piping elements internal surfaces exposed to treated water.

3. *Loss of material due to general, pitting and crevice corrosion could occur for steel piping, piping components, and piping elements exposed to lubricating oil. The existing program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation to verify the effectiveness of the lubricating oil program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion in steel piping components exposed to lubricating oil in the Residual Heat Removal and Safety Injection systems.

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion in steel tanks exposed to lubricating oil in the Safety Injection system.

The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

3.2.2.2.9 Loss of Material due to General, Pitting, Crevice, and Microbiologically-Influenced Corrosion (MIC)

Loss of material due to general, pitting, crevice, and MIC could occur for steel (with or without coating or wrapping) piping, piping components, and piping elements buried in soil. The buried piping and tanks inspection program relies on industry practice, frequency of pipe excavation, and operating experience to manage the effects of loss of material from general, pitting, and crevice corrosion and MIC. The effectiveness of the buried piping and tanks inspection program should be verified to evaluate an applicant's inspection frequency and operating experience with NUREG-1800, Rev. 1 3.2-6 September 2005 buried components, ensuring that loss of material is not occurring.

Item Number 3.2.1-17 is not applicable to Seabrook Station. The Engineering Safety Features do not contain steel piping (with or without coating or wrapping), piping components, and piping elements buried in soil.

3.2.2.2.10 Quality Assurance for Aging Management of Non-Safety Related Components

QA provisions applicable to License Renewal are discussed in Section B.1.3.

3.2.2.3 Time-Limited Aging Analysis

The time-limited aging analyses identified below are associated with the Engineered Safety Features components:

- Section 4.3, Metal Fatigue of Piping and Components

3.2.3 CONCLUSION

The Engineered Safety Features systems piping and components subject to aging management review have been identified in accordance with the scoping criteria of 10 CFR 54.4. Aging effects have been identified based on plant and industry operating experience as well as industry literature. Programs to manage these aging effects have been identified in this section, and detailed program descriptions are provided in Appendix B. These activities demonstrate that the aging effects associated with the Engineered Safety Features systems will be adequately managed such that there is reasonable assurance that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-1	Steel and stainless steel piping, piping components, and piping elements in emergency core cooling system	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c)	Yes, TLAA	Fatigue is a TLAA. Further evaluation is documented in Subsection 3.2.2.2.1.
3.2.1-2	Steel with stainless steel cladding pump casing exposed to treated borated water	Loss of material due to cladding breach	A plant-specific aging management program is to be evaluated. Reference NRC Information Notice 94-63, "Boric Acid Corrosion of Charging Pump Casings Caused by Cladding Cracks"	Yes, verify that plant-specific program addresses cladding breach	Not applicable. The Engineering Safety Features systems do not contain steel with stainless steel cladding pump casing exposed to treated borated water. See Subsection 3.2.2.2.2.
3.2.1-3	Stainless steel containment isolation piping and components internal surfaces exposed to treated water	Loss of material due to pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in the Demineralized Water system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to pitting and crevice corrosion of the stainless steel piping components exposed to treated water in the Containment Building Spray and Demineralized Water systems. See Subsection 3.2.2.2.3.1.
3.2.1-4	Stainless steel piping, piping components, and piping elements exposed to soil	Loss of material due to pitting and crevice corrosion	A plant-specific aging management program is to be evaluated.	Yes, plant specific	Not applicable. The Engineering Safety Features systems do not contain stainless steel piping, piping components, and piping elements exposed to soil. See Subsection 3.2.2.2.3.2.
3.2.1-5	BWR Only				

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-6	Stainless steel and copper alloy piping, piping components, and piping elements exposed to lubricating oil	Loss of material due to pitting and crevice corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to pitting and crevice corrosion in stainless steel piping components exposed to lubricating oil in the Residual Heat Removal and Safety Injection systems. In addition, microbiologically-influenced corrosion will be managed for the stainless steel piping components exposed to lubricating oil in the Residual Heat Removal and Safety Injection systems. Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to pitting and crevice corrosion in stainless steel heat exchanger components exposed to lubricating oil in the Safety Injection system. In addition, microbiologically-influenced corrosion will be managed for the stainless steel heat exchanger components exposed to lubricating oil in the Safety Injection system. Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to pitting and crevice corrosion in copper alloy piping components and copper alloy heat exchanger components exposed to lubricating oil in the Safety Injection system. See Subsection 3.2.2.2.3.4.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-7	Partially encased stainless steel tanks with breached moisture barrier exposed to raw water	Loss of material due to pitting and crevice corrosion	A plant-specific aging management program is to be evaluated for pitting and crevice corrosion of tank bottoms because moisture and water can egress under the tank due to cracking of the perimeter seal from weathering.	Yes, plant specific	Not applicable. The Engineering Safety Features systems do not contain partially encased stainless steel tanks with breached moisture barrier exposed to raw water. See Subsection 3.2.2.2.3.5.
3.2.1-8	Stainless steel piping, piping components, piping elements, and tank internal surfaces exposed to condensation (internal)	Loss of material due to pitting and crevice corrosion	A plant-specific aging management program is to be evaluated.	Yes, plant specific	The Engineering Safety Features systems do not contain stainless steel piping, piping components, piping elements, and tank internal surfaces exposed to condensation (internal). See Subsection 3.2.2.2.3.6.
3.2.1-9	Steel, stainless steel, and copper alloy heat exchanger tubes exposed to lubricating oil	Reduction of heat transfer due to fouling	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in the Chemical and Volume Control and Diesel Generator systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage reduction of heat transfer due to fouling in copper alloy heat exchanger tubes exposed to lubricating oil in the Chemical and Volume Control, Diesel Generator, and Safety Injection systems. See Subsection 3.2.2.2.4.1.
3.2.1-10	Stainless steel heat exchanger tubes exposed to treated water	Reduction of heat transfer due to fouling	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Not applicable. The Engineering Safety Features systems do not contain stainless steel heat exchanger tubes exposed to treated water. See Subsection 3.2.2.2.4.2.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-11	BWR Only				
3.2.1-12	Stainless steel high pressure safety injection (charging) pump mini flow orifice exposed to treated borated water	Loss of material due to erosion	A plant-specific aging management program is to be evaluated for erosion of the orifice due to extended use of the centrifugal HPSI pump for normal charging.	Yes, plant specific	Components in the Chemical and Volume Control system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to erosion of the stainless steel high pressure pump mini-flow orifice exposed to treated borated water in the Chemical and Volume Control system. The Engineering Safety Features systems do not contain stainless steel high pressure safety injection (charging) pump mini flow orifice exposed to treated borated water. See Subsection 3.2.2.2.6.
3.2.1-13	BWR Only				
3.2.1-14	BWR Only				
3.2.1-15	Steel containment isolation piping, piping components, and piping elements internal surfaces exposed to treated water	Loss of material due to general, pitting, and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Not applicable. The Engineering Safety Features systems do not contain steel containment isolation piping, piping components, and piping elements internal surfaces exposed to treated water. See Subsection 3.2.2.2.8.2.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-16	Steel piping, piping components, and piping elements exposed to lubricating oil	Loss of material due to general, pitting, and crevice corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion in steel piping components exposed to lubricating oil in the Residual Heat Removal and Safety Injection systems. Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion in steel tanks exposed to lubricating oil in the Safety Injection system. See Subsection 3.2.2.2.8.3.
3.2.1-17	Steel (with or without coating or wrapping) piping, piping components, and piping elements buried in soil	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion	Buried Piping and Tanks Surveillance or Buried Piping and Tanks Inspection	No Yes, detection of aging effects and operating experience are to be further evaluated	Not applicable. The Engineering Safety Features systems do not contain steel piping (with or without coating or wrapping), piping components, and piping elements buried in soil. See Subsection 3.2.2.2.9.
3.2.1-18	BWR Only				
3.2.1-19	BWR Only				
3.2.1-20	BWR Only				

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-21	High-strength steel closure bolting exposed to air with steam or water leakage	Cracking due to cyclic loading, stress corrosion cracking	Bolting Integrity	No	Not applicable. The Engineering Safety Features systems do not contain high-strength steel closure bolting exposed to air with steam or water leakage.
3.2.1-22	Steel closure bolting exposed to air with steam or water leakage	Loss of material due to general corrosion	Bolting Integrity	No	Not applicable. The Engineering Safety Features systems do not contain steel closure bolting exposed to air with steam or water leakage
3.2.1-23	Steel bolting and closure bolting exposed to air-outdoor (external), or air-indoor uncontrolled (external)	Loss of material due to general, pitting, and crevice corrosion	Bolting Integrity	No	Components in the Reactor Coolant system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of material due to general, pitting, and crevice corrosion of the steel bolting exposed to air-indoor uncontrolled in the Combustible Gas Control, Containment Building Spray, Reactor Coolant, Residual Heat Removal, and Safety Injection systems.
3.2.1-24	Steel closure bolting exposed to air-indoor uncontrolled (external)	Loss of preload due to thermal effects, gasket creep, and self-loosening	Bolting Integrity	No	Components in the Reactor Coolant system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of preload due to thermal effects, gasket creep, and self-loosening in steel bolting exposed to air-indoor uncontrolled in the Combustible Gas Control, Containment Building Spray, Reactor Coolant, Residual Heat Removal, and Safety Injection systems.
3.2.1-25	Stainless steel piping, piping components, and piping elements exposed to closed cycle cooling water >60°C (>140°F)	Cracking due to stress corrosion cracking	Closed-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage cracking due to stress corrosion cracking in stainless steel heat exchanger components exposed to closed cycle cooling water in the Residual Heat Removal system.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-26	Steel piping, piping components, and piping elements exposed to closed cycle cooling water	Loss of material due to general, pitting, and crevice corrosion	Closed-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to general, pitting, crevice, and galvanic corrosion (Containment Building Spray system only) in steel piping components exposed to closed cycle cooling water in the Containment Building Spray and Residual Heat Removal systems.
3.2.1-27	Steel heat exchanger components exposed to closed cycle cooling water	Loss of material due to general, pitting, crevice, and galvanic corrosion	Closed-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to general, pitting, crevice, and galvanic corrosion in steel exchanger components exposed to closed cycle cooling water in the Containment Building Spray, and Residual Heat Removal systems.
3.2.1-28	Stainless steel piping, piping components, piping elements, and heat exchanger components exposed to closed-cycle cooling water	Loss of material due to pitting and crevice corrosion	Closed-Cycle Cooling Water System	No	Components in the Chemical and Volume Control, Reactor Coolant, and Spent Fuel Pool Cooling systems have been aligned with this line item based on material, environment, and aging mechanism. Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to pitting and crevice corrosion in the stainless steel heat exchanger components exposed to closed cycle cooling water in the Chemical and Volume Control, Containment Building Spray, Reactor Coolant, Residual Heat Removal, Safety Injection, and Spent Fuel Pool Cooling systems.
3.2.1-29	Copper alloy piping, piping components, piping elements, and heat exchanger components exposed to closed cycle cooling water	Loss of material due to pitting, crevice, and galvanic corrosion	Closed-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to pitting, crevice, and galvanic corrosion of the copper alloy heat exchanger components exposed to closed cycle cooling water in the Safety Injection system.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-30	Stainless steel and copper alloy heat exchanger tubes exposed to closed cycle cooling water	Reduction of heat transfer due to fouling	Closed-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage reduction of heat transfer due to fouling in stainless steel heat exchanger tubes exposed to closed cycle cooling water in the Containment Building Spray and Residual Heat Removal systems. Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage the reduction of heat transfer due to fouling in copper alloy heat exchanger tubes exposed to closed cycle cooling water in the Safety Injection system.
3.2.1-31	External surfaces of steel components including ducting, piping, ducting closure bolting, and containment isolation piping external surfaces exposed to air-indoor uncontrolled (external); condensation (external) and air-outdoor (external)	Loss of material due to general corrosion	External Surfaces Monitoring	No	Components in the Fire Protection and Reactor Coolant systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to general corrosion on the external surfaces of steel components exposed to air-indoor uncontrolled (external) in the Combustible Gas Control, Containment Building Spray, Fire Protection, Reactor Coolant, Residual Heat Removal, and Safety Injection systems.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-32	Steel piping and ducting components and internal surfaces exposed to air-indoor uncontrolled (Internal)	Loss of material due to general corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	No	Components in the Auxiliary Boiler, Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Diesel Generator, Diesel Generator Air Handling, Emergency Feedwater Pump House Air Handling, Fire Protection, Fuel Oil, Fuel Storage Building Air Handling, Instrument Air, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, Service Water, and Service Water Pump House Air Handling systems have been aligned with this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to general corrosion in steel piping components or steel ducting components exposed to air-indoor uncontrolled (internal) in the Auxiliary Boiler, Combustible Gas Control, Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Diesel Generator, Diesel Generator Air Handling, Emergency Feedwater Pump House Air Handling, Fire Protection, Fuel Oil, Fuel Storage Building Air Handling, Instrument Air, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, Service Water, and Service Water Pump House Air Handling systems.
3.2.1-33	Steel encapsulation components exposed to air-indoor uncontrolled (internal)	Loss of material due to general, pitting, and crevice corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	No	Not applicable. The Engineering Safety Features systems do not contain steel encapsulation components exposed to air-indoor uncontrolled (internal)

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-34	Steel piping, piping components, and piping elements exposed to condensation (internal)	Loss of material due to general, pitting, and crevice corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	No	Not applicable. The Engineering Safety Features systems do not contain steel piping, piping components, and piping elements exposed to condensation (internal).
3.2.1-35	Steel containment isolation piping and components internal surfaces exposed to raw water	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Components in the Fire Protection system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Fire Water System Program, B.2.1.16, will be substituted to manage loss of material due to general, pitting, crevice, and microbiologically-influenced corrosion, and fouling of the steel piping components exposed to raw water in the Fire Protection system. The Engineering Safety Features systems do not contain steel containment isolation piping and components internal surfaces exposed to raw water.
3.2.1-36	Steel heat exchanger components exposed to raw water	Loss of material due to general, pitting, crevice, galvanic, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Not applicable. The Engineering Safety Features systems do not contain steel heat exchanger components exposed to raw water.
3.2.1-37	Stainless steel piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion	Open-Cycle Cooling Water System	No	Not applicable. The Engineering Safety Features systems do not contain stainless steel piping, piping components, and piping elements exposed to raw water.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-38	Stainless steel containment isolation piping and components internal surfaces exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Components in the Waste Processing Liquid Drains system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling of the stainless steel containment isolation piping components exposed to raw water in the Waste Processing Liquid Drains system (raw water is radioactive liquid waste drainage). The Engineering Safety Features systems do not contain stainless steel containment isolation piping and components internal surfaces exposed to raw water.
3.2.1-39	Stainless steel heat exchanger components exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Components in the Fire Protection system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Fire Water System Program, B.2.1.16, will be substituted to manage loss of material due to general, pitting, crevice, and microbiologically-influenced corrosion, and fouling of the stainless steel heat exchanger components exposed to raw water in the Fire Protection system. The Engineering Safety Features systems do not contain stainless steel heat exchanger components exposed to raw water.
3.2.1-40	Steel and stainless steel heat exchanger tubes (serviced by open-cycle cooling water) exposed to raw water	Reduction of heat transfer due to fouling	Open-Cycle Cooling Water System	No	Not applicable. The Engineering Safety Features systems do not contain steel and stainless steel heat exchanger tubes exposed to raw water (serviced by open-cycle cooling water).

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-41	Copper alloy >15% Zn piping, piping components, piping elements, and heat exchanger components exposed to closed cycle cooling water	Loss of material due to selective leaching	Selective Leaching of Materials	No	Components in the Diesel Generator system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Selective Leaching of Materials Program (with exceptions), B.2.1.21, will be used to manage loss of material due to selective leaching in copper alloy >15% Zn heat exchanger components exposed to closed cycle cooling water in the Diesel Generator system. The Engineering Safety Features systems do not contain copper alloy >15% Zn piping, piping components, piping elements, and heat exchanger components exposed to closed cycle cooling water
3.2.1-42	Gray cast iron piping, piping components, piping elements exposed to closed cycle cooling water	Loss of material due to selective leaching	Selective Leaching of Materials	No	Not applicable. The Engineering Safety Features systems do not contain gray cast iron piping, piping components, piping elements exposed to closed cycle cooling water.
3.2.1-43	Gray cast iron piping, piping components, and piping elements exposed to soil	Loss of material due to selective leaching	Selective Leaching of Materials	No	Not applicable. The Engineering Safety Features systems do not contain gray cast iron piping, piping components, piping elements exposed to soil.
3.2.1-44	Gray cast iron motor cooler exposed to treated water	Loss of material due to selective leaching	Selective Leaching of Materials	No	Not applicable. The Engineering Safety Features systems do not contain gray cast iron motor cooler exposed to treated water.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-45	Aluminum, copper alloy >15% Zn, and steel external surfaces, bolting, and piping, piping components, and piping elements exposed to air with borated water leakage	Loss of material due to boric acid corrosion	Boric Acid Corrosion	No	Components in the Fire Protection, Reactor Coolant, and Steam Generator systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Boric Acid Corrosion Program, B.2.1.4, will be used to manage loss of material due to boric acid corrosion on the external surfaces of the following steel components exposed to air with borated water leakage. a) Steel bolting is contained in the Combustible Gas Control, Containment Building Spray, Reactor Coolant, Residual Heat Removal, Safety Injection, and Steam Generator systems. b) Steel external surfaces are contained in the Combustible Gas Control, Containment Building Spray, Fire Protection, Residual Heat Removal, and Safety Injection systems. The Boric Acid Corrosion Program, B.2.1.4, will be used to manage the loss of material due to boric acid corrosion on the external surfaces of copper alloy >15% Zn piping components exposed air with borated water leakage in the Safety Injection system.
3.2.1-46	Steel encapsulation components exposed to air with borated water leakage (internal)	Loss of material due to general, pitting, crevice and boric acid corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	No	Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage the loss of material due to general, pitting, and crevice corrosion in steel encapsulation components exposed to air with borated water leakage (internal) in the Containment Building Spray system.
3.2.1-47	Cast austenitic stainless steel piping, piping components, and piping elements exposed to treated borated water >250°C (>482°F)	Loss of fracture toughness due to thermal aging embrittlement	Thermal Aging Embrittlement of CASS	No	Not applicable. The Engineering Safety Features systems do not contain cast austenitic stainless steel piping, piping components, and piping elements exposed to treated borated water >250°C (>482°F).

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-48	Stainless steel or stainless-steel-clad steel piping, piping components, piping elements, and tanks (including safety injection tanks/accumulators) exposed to treated borated water >60°C (>140°F)	Cracking due to stress corrosion cracking	Water Chemistry	No	Components in the Reactor Coolant system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in stainless steel piping components exposed to treated borated water >140°F in the Reactor Coolant and Residual Heat Removal systems, and stainless steel heat exchanger components exposed to treated borated water >140°F in the Residual Heat Removal system.
3.2.1-49	Stainless steel piping, piping components, piping elements, and tanks exposed to treated borated water	Loss of material due to pitting and crevice corrosion	Water Chemistry	No	Components in the Reactor Coolant system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage loss of material due to pitting and crevice corrosion in stainless steel piping components exposed to treated borated water in the Containment Building Spray, Reactor Coolant, Residual Heat Removal, and Safety Injection systems, and stainless steel heat exchanger components exposed to treated borated water in the Containment Building Spray, Reactor Coolant, and Residual Heat Removal systems, and stainless steel tanks exposed to treated borated water in the Containment Building Spray, Reactor Coolant, and Safety Injection systems.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-50	Aluminum piping, piping components, and piping elements exposed to air-indoor uncontrolled (internal/external)	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Components in the Control Building Air Handling, Diesel Generator, Fire Protection, Instrument Air, Miscellaneous Equipment, Feedwater, and Main Steam systems have been aligned to this line item based on material, environment, and aging effect. Aluminum piping components exposed to air-indoor uncontrolled (internal/external) are contained in the Fire Protection system. Aluminum piping components exposed to air-indoor uncontrolled (external) are contained in the Diesel Generator, Instrument Air, Miscellaneous Equipment, Feedwater, and Main Steam systems. Aluminum heat exchanger components exposed to air-indoor uncontrolled (external) are contained in the Control Building Air Handling and Instrument Air systems. Aluminum fan housing exposed to air-indoor uncontrolled (internal/external) is contained in the Control Building Air Handling system. The Engineering Safety Features systems do not contain aluminum piping, piping components, and piping elements exposed to air-indoor uncontrolled (internal/external).

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-51	Galvanized steel ducting exposed to air-indoor controlled (external)	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Components in the Control Building Air Handling system have been aligned to this line item based on material, environment, and aging effect. The Control Building Air Handling system contains galvanized steel ducting components and galvanized steel tank exposed to Air-Indoor Uncontrolled (external). Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-1 galvanized steel in an indoor controlled air (external) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation. The Control Building Air Handling system contains galvanized steel ducting components exposed to Air-Indoor Uncontrolled (internal). The Engineering Safety Features systems do not contain galvanized steel ducting exposed to air - indoor controlled (external).

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-52	Glass piping elements exposed to air-indoor uncontrolled (external), lubricating oil, raw water, treated water, or treated borated water	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-6 glass in an indoor, uncontrolled air (external) environment exhibits no aging effect and that the component or structure will therefore, remain capable of performing its intended functions consistent with the CLB for the period of extended operation. Glass components exposed to air-indoor uncontrolled (internal/external) are in the Combustible Gas Control system. Glass components exposed to air-indoor uncontrolled (external), lubricating oil, and treated borated water are in the Residual Heat Removal system. Glass components exposed to lubricating oil are contained in the Safety Injection system.
3.2.1-53	Stainless steel, copper alloy, and nickel alloy piping, piping components, and piping elements exposed to air-indoor uncontrolled (external)	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Components in the Auxiliary Boiler, Chemical and Volume Control, Chlorination, Containment Air Handling, Containment Enclosure Air Handling, Control Building Air Handling, Demineralized Water, Dewatering, Diesel Generator, Fire Protection, Fuel Handling, Fuel Storage Building Air Handling, Hot Water Heating, Instrument Air, Miscellaneous Equipment , Plant Floor Drain, Potable Water, Primary Component Cooling Water, Service Water, and Vent Gas systems have been aligned with this line item based on material, environment and aging effect. Consistent with NUREG-1801. Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-12 stainless steel in an indoor, uncontrolled air (external) environment exhibits no aging effect and that the component or structure will therefore, remain capable of performing its intended

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					functions consistent with the CLB for the period of extended operation. Stainless steel piping components exposed to air-indoor uncontrolled (external) are contained in the Combustible Gas Control, Containment Building Spray, Demineralized Water, Residual Heat Removal, Safety Injection, and Vent Gas systems and stainless steel piping components in air-indoor uncontrolled (internal) are contained in the Combustible Gas Control and Containment Building Spray systems. Stainless steel heat exchanger components in air-indoor uncontrolled (external) are contained in the Combustible Gas Control, Containment Building Spray, Residual Heat Removal, and Safety Injection systems and stainless steel heat exchanger components exposed to air-indoor uncontrolled (internal) are contained in the Combustible Gas Control system. Stainless steel hydrogen recombiners in air-indoor uncontrolled (internal/external) are contained in the Combustible Gas Control system. Stainless steel screens exposed to air-indoor uncontrolled (external/internal) are contained in the Containment Building Spray system. Stainless steel tanks in air-indoor uncontrolled (external) are contained in the Combustible Gas Control and Containment Building Spray system and stainless steel tanks in air-indoor uncontrolled (internal) are contained in the Combustible Gas Control system. Copper alloy piping components exposed to air indoor uncontrolled (external) are contained in the Auxiliary Boiler, Chemical and Volume Control, Chlorination, Containment Air Handling, Containment Enclosure Air

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Handling, Control Building Air Handling, Demineralized Water, Dewatering, Diesel Generator, Fire Protection, Fuel Handling, Fuel Storage Building Air Handling, Hot Water Heating, Instrument Air, Miscellaneous Equipment , Plant Floor Drain, Potable Water, Primary Component Cooling Water, and Safety Injection systems. Copper alloy heat exchanger components exposed to air-indoor uncontrolled (external) are contained in the Chemical and Volume Control System, Control Building Air Handling, and Diesel Generator systems Copper alloy tanks exposed to air indoor uncontrolled (external) are contained in the Instrument Air system. Copper alloy heating coils exposed to air indoor uncontrolled (external) are contained in the Hot Water Heating system. Copper alloy ducting components exposed to air-indoor uncontrolled (external) are contained in the Auxiliary Boiler system. Copper alloy piping components exposed to air-indoor uncontrolled (internal) are contained in the Chemical and Volume Control, Containment Air Handling, Containment Enclosure Air Handling, Control Building Air Handling, Dewatering, Diesel Generator, Fire Protection, Fuel Storage Building Air Handling, and Service Water systems.
3.2.1-54	Steel piping, piping components, and piping elements exposed to air-indoor controlled (external)	None	None	NA - No AEM or AMP	Not applicable. The Engineering Safety Features do not contain steel piping, piping components, and piping elements exposed to air-indoor controlled (external)

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-55	Steel and stainless steel piping, piping components, and piping elements in concrete	None	None	NA - No AEM or AMP	Not applicable. The Engineering Safety Features do not contain steel and stainless steel piping, piping components, and piping elements in concrete.
3.2.1-56	Steel, stainless steel, and copper alloy piping, piping components, and piping elements exposed to gas	None	None	NA - No AEM or AMP	Components in the Vent Gas system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. Stainless steel piping components exposed to internal Gas environment are contained in the Safety Injection and Vent Gas systems.

Table 3.2.1

Summary of Aging Management Evaluations for the Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-57	Stainless steel and copper alloy <15% Zn piping, piping components, and piping elements exposed to air with borated water leakage	None	None	NA - No AEM or AMP	Components in the Demineralized Water and Vent Gas systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. Stainless steel piping components exposed to air with borated water leakage are contained in the Combustible Gas Control, Containment Building Spray, Demineralized Water, Residual Heat Removal, Safety Injection, and Vent Gas systems. Stainless steel screens exposed to air with borated water leakage (internal/external) are contained in the Containment Building Spray system. Stainless steel heat exchanger components exposed to air with borated water leakage are contained in the Combustible Gas Control, Containment Building Spray, Residual Heat Removal, and Safety Injection systems. Stainless steel hydrogen recombiner components exposed to air with borated water leakage are contained in the Combustible Gas Control system. Stainless steel tanks exposed to air with borated water leakage are contained in the Combustible Gas Control and Containment Building Spray systems.

Table 3.2.2-1

COMBUSTIBLE GAS CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	V.E-4 (EP-25)	3.2.1-23	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	V.E-5 (EP-24)	3.2.1-24	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-2 (E-41)	3.2.1-45	A
Heat Exchanger Components (Cooling Coil inside1-CGC-CP-173 and 174)	Heat Transfer Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	C
Heat Exchanger Components (Cooling Coil inside1-CGC-CP-173 and 174)	Heat Transfer Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	C
Heat Exchanger Components (Cooling Coil inside1-CGC-CP-173 and 174)	Heat Transfer Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	C, 1
Hydrogen Recombiner	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	C

Table 3.2.2-1

COMBUSTIBLE GAS CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Hydrogen Recombiner	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	C
Hydrogen Recombiner	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	C, 1
Instrumentation Element	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Instrumentation Element	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Instrumentation Element	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 1
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A

Table 3.2.2-1

COMBUSTIBLE GAS CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 1
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 1
Piping and Fittings	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Piping and Fittings	Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Piping and Fittings	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B

Table 3.2.2-1

COMBUSTIBLE GAS CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping Element	Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	V.F-6 (EP-15)	3.2.1-52	A
Piping Element	Pressure Boundary	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 2
Piping Element	Pressure Boundary	Glass	Air-Indoor Uncontrolled (Internal)	None	None	V.F-6 (EP-15)	3.2.1-52	A, 3
Pump Casing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Pump Casing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Pump Casing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 1
Tank	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	C
Tank	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	C
Tank	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	C, 1

Table 3.2.2-1

COMBUSTIBLE GAS CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Structural Integrity (Attached)	CASS	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body	Structural Integrity (Attached)	CASS	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body	Structural Integrity (Attached)	CASS	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 1
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 1

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

2 This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

3 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-6 glass in an indoor, uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore, remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	V.E-4 (EP-25)	3.2.1-23	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	V.E-5 (EP-24)	3.2.1-24	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Control Program	V.E-2 (E-41)	3.2.1-45	A
Expansion Joint	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Expansion Joint	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Expansion Joint	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F3-7 (A-17)	3.3.1-11	E, 1
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F3-7 (A-17)	3.3.1-11	E, 2
Heat Exchanger Components (1-CBS-E-16A and 16B Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	C

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-CBS-E-16A and 16B Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	C
Heat Exchanger Components (1-CBS-E-16A and 16B Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	C
Heat Exchanger Components (1-CBS-E-16A and 16B Channel Head Cover)	Pressure Boundary	Steel With Stainless Steel Cladding	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Heat Exchanger Components (1-CBS-E-16A and 16B Channel Head Cover)	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.A-4 (E-28)	3.2.1-45	A
Heat Exchanger Components (1-CBS-E-16A and 16B Channel Head Cover)	Pressure Boundary	Steel With Stainless Steel Cladding	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.A-7 (E-19)	3.2.1-28	B
Heat Exchanger Components (1-CBS-E-16A and 16B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.A-1 (E-26)	3.2.1-31	B
Heat Exchanger Components (1-CBS-E-16A and 16B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.A-4 (E-28)	3.2.1-45	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-CBS-E-16A and 16B Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.A-9 (E-17)	3.2.1-27	B
Heat Exchanger Components (1-CBS-E-16A and 16B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.A-7 (E-19)	3.2.1-28	B
Heat Exchanger Components (1-CBS-E-16A and 16B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	V.A-13 (EP-35)	3.2.1-30	B
Heat Exchanger Components (1-CBS-E-16A and 16B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	C
Heat Exchanger Components (1-CBS-E-16A and 16B Tube Sheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.A-7 (E-19)	3.2.1-28	B
Heat Exchanger Components (1-CBS-E-16A and 16B Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	C
Heat Exchanger Components (1-CBS-P-9A and 9B Pump Cooler Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.A-1 (E-26)	3.2.1-31	B
Heat Exchanger Components (1-CBS-P-9A and 9B Pump Cooler Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.A-4 (E-28)	3.2.1-45	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-CBS-P-9A and 9B Pump Cooler Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.A-9 (E-17)	3.2.1-27	B
Heat Exchanger Components (1-CBS-P-9A and 9B Pump Cooler Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.A-7 (E-19)	3.2.1-28	B
Heat Exchanger Components (1-CBS-P-9A and 9B Pump Cooler Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	V.A-13 (EP-35)	3.2.1-30	B
Heat Exchanger Components (1-CBS-P-9A and 9B Pump Cooler Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	C
Heater Housing (RWST Tank Heater)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.A-1 (E-26)	3.2.1-31	B
Heater Housing (RWST Tank Heater)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.A-4 (E-28)	3.2.1-45	A
Heater Housing (RWST Tank Heater)	Leakage Boundary (Spatial)	Steel	Steam (Internal)	Loss of Material	One-Time Inspection Program Water Chemistry Program	VIII.C-4 (S-06)	3.4.1-2	C C
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Nozzle	Spray	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Nozzle	Spray	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Nozzle	Spray	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 3
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Pressure Boundary Throttle	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	V.C-4 (E-33)	3.2.1-3	C C
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 3
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	V.C-4 (E-33)	3.2.1-3	C C

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.A-1 (E-26)	3.2.1-31	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.A-4 (E-28)	3.2.1-45	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.C-9 (EP-48)	3.2.1-26	B
Piping and Fittings (Encapsulation Vessel Guard Pipe)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Piping and Fittings (Encapsulation Vessel Guard Pipe)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Piping and Fittings (Encapsulation Vessel Guard Pipe)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (Internal)	None	None	V.F-13 (EP-19)	3.2.1-57	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Pump Casing	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	V.C-4 (E-33)	3.2.1-3	C C
Screen	Filter	CASS	Air-Indoor Uncontrolled (Internal/External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Screen	Filter	CASS	Air With Borated Water Leakage (Internal/External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Screen	Filter	Stainless Steel	Air-Indoor Uncontrolled (Internal/External)	None	None	V.F-12 (EP-18)	3.2.1-53	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Screen	Filter	Stainless Steel	Air With Borated Water Leakage (Internal/External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	C
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	C
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Tank	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.G-41 (S-13)	3.4.1-6	A A
Tank (Encapsulation Vessel)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.A-1 (E-26)	3.2.1-31	B
Tank (Encapsulation Vessel)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.A-4 (E-28)	3.2.1-45	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank (Encapsulation Vessel)	Pressure Boundary	Steel	Air With Borated Water Leakage (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-3 (EP-43)	3.2.1-46	B
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Thermowell	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Thermowell	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Thermowell	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	V.C-4 (E-33)	3.2.1-3	C C
Valve Body	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body	Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	V.C-4 (E-33)	3.2.1-3	C C
Valve Body	Pressure Boundary	CASS	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 3
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	V.F-12 (EP-18)	3.2.1-53	A, 3
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.A-27 (EP-41)	3.2.1-49	A
Valve Body	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	One-Time Inspection Program Water Chemistry Program	V.C-4 (E-33)	3.2.1-3	C C

Table 3.2.2-2

CONTAINMENT BUILDING SPRAY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.A-1 (E-26)	3.2.1-31	B
Valve Body	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.A-4 (E-28)	3.2.1-45	A
Valve Body	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.C-9 (EP-48)	3.2.1-26	B

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

2 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

3 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	V.E-4 (EP-25)	3.2.1-23	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	V.E-5 (EP-24)	3.2.1-24	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-2 (E-41)	3.2.1-45	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Cracking	Bolting Integrity Program	IV.C2-7 (R-11)	3.1.1-52	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Loss of Preload	Bolting Integrity Program	IV.C2-8 (R-12)	3.1.1-52	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Cumulative Fatigue Damage	TLAA	IV.C2-10	3.1.1-7	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	A
Heat Exchanger Components (1-RH-E-9A and 9B Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	C
Heat Exchanger Components (1-RH-E-9A and 9B Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	C
Heat Exchanger Components (1-RH-E-9A and 9B Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	C
Heat Exchanger Components (1-RH-E-9A and 9B Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	C
Heat Exchanger Components (1-RH-E-9A and 9B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Heat Exchanger Components (1-RH-E-9A and 9B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Heat Exchanger Components (1-RH-E-9A and 9B Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-6 (E-17)	3.2.1-27	B

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-RH-E-9A and 9B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water >140° F (External)	Cracking	Closed-Cycle Cooling Water System Program	V.D1-23 (EP-44)	3.2.1-25	D
Heat Exchanger Components (1-RH-E-9A and 9B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (1-RH-E-9A and 9B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	V.D1-9 (EP-35)	3.2.1-30	B
Heat Exchanger Components (1-RH-E-9A and 9B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	C
Heat Exchanger Components (1-RH-E-9A and 9B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	C
Heat Exchanger Components (1-RH-E-9A and 9B Tube Sheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water >140° F (External)	Cracking	Closed-Cycle Cooling Water System Program	V.D1-23 (EP-44)	3.2.1-25	D
Heat Exchanger Components (1-RH-E-9A and 9B Tube Sheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (1-RH-E-9A and 9B Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	C

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-RH-E-9A and 9B Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	C
Heat Exchanger Components (1-RH-E-188A and 188B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Heat Exchanger Components (1-RH-E-188A and 188B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Heat Exchanger Components (1-RH-E-188A and 188B Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-6 (E-17)	3.2.1-27	B
Heat Exchanger Components (1-RH-E-188A and 188B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water >140° F (External)	Cracking	Closed-Cycle Cooling Water System Program	V.D1-23 (EP-44)	3.2.1-25	D
Heat Exchanger Components (1-RH-E-188A and 188B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (1-RH-E-188A and 188B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	V.D1-9 (EP-35)	3.2.1-30	B
Heat Exchanger Components (1-RH-E-188A and 188B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	C

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-RH-E-188A and 188B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	C
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor *Uncontrolled* (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	A
Instrumentation Element	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Instrumentation Element	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Instrumentation Element	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program *One-Time Inspection* Program	V.D1-28 (EP-46)	3.2.1-16	B A

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-24 (EP-51)	3.2.1-6	B, 2 A, 2

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.C-9 (EP-48) (E-17)	3.2.1-26	D
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-2 (R-07)	3.1.1-68	A A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25	3.1.1-8	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program One-Time Inspection of ASME Class 1 Small Bore Piping Program Water Chemistry Program	IV.C2-1 (R-02)	3.1.1-70	A B A

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25	3.1.1-8	A
Piping Element	Leakage Boundary (Spatial) Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	V.F-6 (EP-15	3.2.1-52	A
Piping Element	Leakage Boundary (Spatial) Pressure Boundary	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 1
Piping Element	Pressure Boundary	Glass	Lubricating Oil (Internal)	None	None	V.F-7 (EP-16)	3.2.1-52	A
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Borated Water (Internal)	None	None	V.F-9 (EP-30)	3.2.1-52	A
Pump Casing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Pump Casing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Pump Casing	Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	A
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Thermowell	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Thermowell	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Thermowell	Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	A
Valve Body	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body	Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	CASS	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	*Lubricating Oil* Analysis Program One-Time Inspection Program	V.D1-24 (EP-51)	3.2.1-6	B, 2 A, 2
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140° F (Internal)	Cracking	Water Chemistry Program	V.D1-31 (E-12)	3.2.1-48	A

Table 3.2.2-3

RESIDUAL HEAT REMOVAL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Valve Body	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Valve Body	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.C-9 (EP-48)	3.2.1-26	D
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-5 (R-09)	3.1.1-68	A A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25	3.1.1-8	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.
2	Microbiologically Induced Corrosion (MIC) aging mechanism is in addition to the aging mechanisms listed in NUREG 1801.

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	V.E-4 (EP-25)	3.2.1-23	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	V.E-5 (EP-24)	3.2.1-24	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-2 (E-41)	3.2.1-45	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Cracking	Bolting Integrity Program	IV.C2-7 (R-11)	3.1.1-52	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Cumulative Fatigue Damage	TLAA	IV.C2-10	3.1.1-7	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Loss of Preload	Bolting Integrity Program	IV.C2-8 (R-12)	3.1.1-52	A
Filter Element	Filter	Stainless Steel	Lubricating Oil (Internal/External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-24 (EP-51)	3.2.1-6	B A
Filter Housing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-9 (E-28)	3.2.1-45	A
Filter Housing	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-28 (EP-46)	3.2.1-16	B A
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	C
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	C
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Channel Head)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Shell)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	C
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Shell)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	C

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Shell)	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-24 (EP-51)	3.2.1-6	D C
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-18 (EP-45)	3.2.1-6	D C
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Reduction of Heat Transfer	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-8 (EP-47)	3.2.1-9	B A
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-2 (EP-13)	3.2.1-29	B
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	V.A-11 (EP-39)	3.2.1-30	B
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Tube Sheet)	Pressure Boundary	Stainless Steel	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-24 (EP-51)	3.2.1-6	D C
Heat Exchanger Components (1-SI-P-6A and 6B Pump Cooler Tube Sheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-11 (EP-38)	3.2.1-45	A
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-18 (EP-45)	3.2.1-6	B A
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program One-Time Inspection of ASME Class 1 Small Bore Piping Water Chemistry Program	IV.C2-1 (R-02)	3.1.1-70	A B A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Orifice (Class 1)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25	3.1.1-8	A

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Piping and Fittings	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Piping and Fittings	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-28 (EP-46)	3.2.1-16	B A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-2 (R-07)	3.1.1-68	A A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25	3.1.1-8	A
Piping and Fittings (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program One-Time Inspection of ASME Class 1 Small Bore Piping Water Chemistry Program	IV.C2-1 (R-02)	3.1.1-70	A B A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25	3.1.1-8	A
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Piping Element	Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	V.F-6 (EP-15	3.2.1.52	A
Piping Element	Pressure Boundary	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 1
Piping Element	Pressure Boundary	Glass	Lubricating Oil (Internal)	None	None	V.F-7 (EP-16)	3.2.1-52	A
Pump Casing	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-18 (EP-45)	3.2.1-6	B A

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-18 (EP-45)	3.2.1-6	B A
Pump Casing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Pump Casing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Pump Casing	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Tank	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Tank	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-28 (EP-46)	3.2.1-16	D C
Tank	Pressure Boundary	Steel With Stainless Steel Cladding	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Tank	Pressure Boundary	Steel With Stainless Steel Cladding	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Thermowell	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-24 (EP-51)	3.2.1-6	B A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	V.F-15 (EP-22)	3.2.1-56	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	V.D1-30 (EP-41)	3.2.1-49	A

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.E-7 (E-44)	3.2.1-31	B
Valve Body	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.D1-1 (E-28)	3.2.1-45	A
Valve Body	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-28 (EP-46)	3.2.1-16	B A
Valve Body (Class 1)	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Valve Body (Class 1)	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Valve Body (Class 1)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-3 (R-05)	3.1.1-24	E, 2
Valve Body (Class 1)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25	3.1.1-8	A
Valve Body (Class 1)	Pressure Boundary	CASS	Reactor Coolant >250°C (>482°F) (Internal)	Loss of Fracture Toughness	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program	IV.C2-6 (R-08)	3.1.1-55	A

Table 3.2.2-4

SAFETY INJECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body (Class 1)	Pressure Boundary	CASS	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-5 (R-09)	3.1.1-68	A A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25	3.1.1-8	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

2	NUREG-1801 specifies a plant-specific program for this line item. The ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program and Water Chemistry Program are used to manage the aging effect(s) applicable to this component type, material, and environment combination.

3.3 AGING MANAGEMENT OF AUXILIARY SYSTEMS

3.3.1 INTRODUCTION

This section provides the results of the aging management review for those components identified in Section 2.3.3, Auxiliary Systems, as being subject to aging management review. The systems, or portions of systems, which are addressed in this section are described in the indicated sections.

- Auxiliary Boiler (2.3.3.1)
- Boron Recovery System (2.3.3.2)
- Chemical and Volume Control System (2.3.3.3)
- Chlorination System (2.3.3.4)
- Containment Air Handling System (2.3.3.5)
- Containment Air Purge System (2.3.3.6)
- Containment Enclosure Air Handling System (2.3.3.7)
- Containment Online Purge System (2.3.3.8)
- Control Building Air Handling System (2.3.3.9)
- Demineralized Water System (2.3.3.10)
- Dewatering System (2.3.3.11)
- Diesel Generator (2.3.3.12)
- Diesel Generator Air Handling System (2.3.3.13)
- Emergency Feed Water Pump House Air Handling System (2.3.3.14)
- Fire Protection System (2.3.3.15)
- Fuel Handling System (2.3.3.16)
- Fuel Oil System (2.3.3.17)
- Fuel Storage Building Air Handling System (2.3.3.18)
- Hot Water Heating System (2.3.3.19)

- Instrument Air System (2.3.3.20)
- Leak Detection System (2.3.3.21)
- Mechanical Seal Supply System (2.3.3.22)
- Miscellaneous Equipment System (2.3.3.23)
- Nitrogen Gas System (2.3.3.24)
- Oil Collection for Reactor Coolant Pumps System (2.3.3.25)
- Plant Floor Drain System (2.3.3.26)
- Potable Water System (2.3.3.27)
- Primary Auxiliary Building Air Handling System (2.3.3.28)
- Primary Component Cooling Water System (2.3.3.29)
- Radiation Monitoring System (2.3.3.30)
- Reactor Makeup Water System (2.3.3.31)
- Release Recovery System (2.3.3.32)
- Resin Sluicing System (2.3.3.33)
- Roof Drains System (2.3.3.34)
- Sample System (2.3.3.35)
- Screen Wash System (2.3.3.36)
- Service Water System (2.3.3.37)
- Service Water Pump House Air Handling System (2.3.3.38)
- Spent Fuel Pool Cooling System (2.3.3.39)
- Switchyard (2.3.3.40)
- Valve Stem Leak-off System (2.3.3.41)
- Vent Gas System (2.3.3.42)
- Waste Gas System (2.3.3.43)

- Waste Processing Liquid System (2.3.3.44)
- Waste Processing Liquid Drains System (2.3.3.45)

3.3.2 RESULTS

The following tables summarize the results of the aging management review for Auxiliary Systems.

Table 3.3.2-1 Summary of Aging Management Evaluation – Auxiliary Boiler

Table 3.3.2-2 Summary of Aging Management Evaluation – Boron Recovery System

Table 3.3.2-3 Summary of Aging Management Evaluation – Chemical and Volume Control System

Table 3.3.2-4 Summary of Aging Management Evaluation – Chlorination System

Table 3.3.2-5 Summary of Aging Management Evaluation – Containment Air Handling System

Table 3.3.2-6 Summary of Aging Management Evaluation – Containment Air Purge System

Table 3.3.2-7 Summary of Aging Management Evaluation – Containment Enclosure Air Handling System

Table 3.3.2-8 Summary of Aging Management Evaluation – Containment Online Purge System

Table 3.3.2-9 Summary of Aging Management Evaluation – Control Building Air Handling System

Table 3.3.2-10 Summary of Aging Management Evaluation – Demineralized Water System

Table 3.3.2-11 Summary of Aging Management Evaluation – Dewatering System

Table 3.3.2-12 Summary of Aging Management Evaluation – Diesel Generator

Table 3.3.2-13 Summary of Aging Management Evaluation – Diesel Generator Air Handling System

3.3.2.1 Materials, Environments, Aging Effects Requiring Management And Aging Managements Programs

3.3.2.1.1 Auxiliary Boiler System

Materials

The materials of construction for the Auxiliary Boiler System components requiring aging management review are:

- Aluminum
- Copper Alloy
- Copper Alloy >15% Zn
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Auxiliary Boiler System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Fuel Oil
- Soil

Aging Effects Requiring Management

The following aging effects associated with the Auxiliary Boiler System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Auxiliary Boiler System components:

- Aboveground Steel Tanks Program (B.2.1.17)
- Bolting Integrity Program (B.2.1.9)
- Buried Piping and Tanks Inspection Program (B.2.1.22)
- External Surfaces Monitoring Program (B.2.1.24)
- Fuel Oil Chemistry Program (B.2.1.18)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-1, Summary of Aging Management Evaluation – Auxiliary Boiler System, summarizes the results of the aging management review for the Auxiliary Boiler System.

3.3.2.1.2 Boron Recovery System

Materials

The materials of construction for the Boron Recovery System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Stainless Steel
- Steel

Environments

Components of the Boron Recovery System are exposed to the following environments:

- Air-Indoor Uncontrolled

- Air with Borated Water Leakage
- Raw Water
- Steam
- Treated Borated Water

Aging Effects Requiring Management

The following aging effects associated with the Boron Recovery System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Boron Recovery System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-2, Summary of Aging Management Evaluation – Boron Recovery System, summarizes the results of the aging management review for the Boron Recovery System.

3.3.2.1.3 Chemical And Volume Control System

Materials

The materials of construction for the Chemical and Volume Control System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Copper Alloy
- Copper Alloy >15% Zn
- Elastomer
- Glass
- Gray Cast Iron
- Nickel Alloy
- Stainless Steel
- Steel

Environments

Components of the Chemical and Volume Control System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Air with Reactor Coolant Leakage
- Closed Cycle Cooling Water
- Gas
- Lubricating Oil
- Reactor Coolant
- Steam
- Treated Borated Water
- Treated Borated Water >140°F
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Chemical and Volume Control System components and commodities require management:

- Cracking
- Cumulative Fatigue Damage
- Hardening and Loss of Strength
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Chemical and Volume Control System components:

- ASME Section XI Inservice Inspection, Subsections IWB, IWC and IWD Program (B.2.1.1)
- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)
- One-Time Inspection of ASME Code Class 1 Small Bore Piping (B.2.1.23)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-3, Summary of Aging Management Evaluation – Chemical and Volume Control System, summarizes the results of the aging management review for the Chemical and Volume Control System.

3.3.2.1.4 Chlorination System

Materials

The materials of construction for the Chlorination System components requiring aging management review are:

- Copper Alloy
- Fiberglass
- Gray Cast Iron
- Nickel Alloy
- Polymer (PVC and PVDF)
- Stainless Steel
- Steel

Environments

Components of the Chlorination System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Condensation
- Raw Water

Aging Effects Requiring Management

The following aging effects associated with the Chlorination System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Chlorination System components:

- Bolting Integrity Program (B.2.1.9)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-4, Summary of Aging Management Evaluation – Chlorination System, summarizes the results of the aging management review for the Chlorination System.

3.3.2.1.5 Containment Air Handling System

Materials

The materials of construction for the Containment Air Handling System components requiring aging management review are:

- Copper Alloy
- Elastomer
- Galvanized Steel
- Stainless Steel
- Steel

Environments

Components of the Containment Air Handling System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water

- Condensation

Aging Effects Requiring Management

The following aging effects associated with the Containment Air Handling System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Containment Air Handling System components:

- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)

Summary of Aging Management Review Results

Table 3.3.2-5, Summary of Aging Management Evaluation – Containment Air Handling System, summarizes the results of the aging management review for the Containment Air Handling System.

3.3.2.1.6 Containment Air Purge System

Materials

The materials of construction for the Containment Air Purge System components requiring aging management review are:

- Elastomer
- Galvanized Steel
- Steel

Environments

Components of the Containment Air Purge System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage

Aging Effects Requiring Management

The following aging effects associated with the Containment Air Purge System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Containment Air Purge System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)

Summary of Aging Management Review Results

Table 3.3.2-6, Summary of Aging Management Evaluation – Containment Air Purge System, summarizes the results of the aging management review for the Containment Air Purge System.

3.3.2.1.7 Containment Enclosure Air Handling System

Materials

The materials of construction for the Containment Enclosure Air Handling System components requiring aging management review are:

- Copper Alloy
- Copper Alloy >15% Zn
- Elastomer
- Galvanized Steel
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Containment Enclosure Air Handling System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Condensation
- Concrete

Aging Effects Requiring Management

The following aging effects associated with the Containment Enclosure Air Handling System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Containment Enclosure Air Handling System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-7, Summary of Aging Management Evaluation – Containment Enclosure Air Handling System, summarizes the results of the aging management review for the Containment Enclosure Air Handling System.

3.3.2.1.8 Containment Online Purge System

Materials

The materials of construction for the Containment Online Purge System components requiring aging management review are:

- Elastomer
- Galvanized Steel
- Stainless Steel
- Steel

Environments

Components of the Containment Online Purge System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage

Aging Effects Requiring Management

The following aging effects associated with the Containment Online Purge System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Containment Online Purge System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)

Summary of Aging Management Review Results

Table 3.3.2-8, Summary of Aging Management Evaluation – Containment Online Purge System, summarizes the results of the aging management review for the Containment Online Purge System.

3.3.2.1.9 Control Building Air Handling System

Materials

The materials of construction for the Control Building Air Handling System components requiring aging management review are:

- Aluminum
- Cast Austenitic Stainless Steel/CASS
- Copper Alloy
- Copper Alloy >15% Zn
- Elastomer
- Galvanized Steel
- Glass

- Gray Cast Iron
- Polymer (PVC)
- Stainless Steel
- Steel

Environments

Components of the Control Building Air Handling System are exposed to the following environments:

- Air-Indoor Controlled
- Air-Indoor Uncontrolled
- Air-Outdoor
- Closed Cycle Cooling Water
- Condensation
- Gas
- Soil

Aging Effects Requiring Management

The following aging effects associated with the Control Building Air Handling System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Control Building Air Handling System components:

- Bolting Integrity Program (B.2.1.9)

- Buried Piping and Tanks Inspection Program (B.2.1.22)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-9, Summary of Aging Management Evaluation – Control Building Air Handling System, summarizes the results of the aging management review for the Control Building Air Handling System.

3.3.2.1.10 Demineralized Water System

Materials

The materials of construction for the Demineralized Water System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Copper Alloy >15% Zn
- Galvanized Steel
- Stainless Steel
- Steel

Environments

Components of the Demineralized Water System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Concrete
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Demineralized Water System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Demineralized Water System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-10, Summary of Aging Management Evaluation – Demineralized Water System, summarizes the results of the aging management review for the Demineralized Water System.

3.3.2.1.11 Dewatering System

Materials

The materials of construction for the Dewatering System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Copper Alloy
- Copper Alloy >15% Zn
- Elastomer

- Glass
- Polymer (Polypropylene)
- Polymer (PVC)
- Stainless Steel
- Steel

Environments

Components of the Dewatering System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Raw Water

Aging Effects Requiring Management

The following aging effects associated with the Dewatering System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Dewatering System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-11, Summary of Aging Management Evaluation – Dewatering System, summarizes the results of the aging management review for the Dewatering System.

3.3.2.1.12 Diesel Generator

Materials

The materials of construction for the Diesel Generator System components requiring aging management review are:

- Aluminum
- Copper Alloy
- Copper Alloy >15% Zn
- Elastomer
- Glass
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Diesel Generator System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Condensation
- Diesel Exhaust
- Dried Air
- Fuel Oil

- Lubricating Oil
- Raw Water
- Soil

Aging Effects Requiring Management

The following aging effects associated with the Diesel Generator System components and commodities require management:

- Cracking
- Hardening and Loss of Strength
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Diesel Generator System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Buried Piping and Tanks Inspection Program (B.2.1.22)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- Compressed Air Monitoring Program (B.2.1.14)
- External Surfaces Monitoring Program (B.2.1.24)
- Fuel Oil Chemistry Program (B.2.1.18)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)

- Open-Cycle Cooling Water System Program (B.2.1.11)
- Selective Leaching Of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-12, Summary of Aging Management Evaluation – Diesel Generator System, summarizes the results of the aging management review for the Diesel Generator System.

3.3.2.1.13 Diesel Generator Air Handling System

Materials

The materials of construction for the Diesel Generator Air Handling System components requiring aging management review are:

- Elastomer
- Galvanized Steel
- Steel

Environments

Components of the Diesel Generator Air Handling System are exposed to the following environments:

- Air-Indoor Uncontrolled

Aging Effects Requiring Management

The following aging effects associated with the Diesel Generator Air Handling System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material

Aging Management Programs

The following programs manage the aging effects requiring management for the Diesel Generator Air Handling System components:

- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- External Surfaces Monitoring (B.2.1.24)

Summary of Aging Management Review Results

Table 3.3.2-13, Summary of Aging Management Evaluation – Diesel Generator Air Handling System, summarizes the results of the aging management review for the Diesel Generator Air Handling System.

3.3.2.1.14 Emergency Feed Water Pump House Air Handling System

Materials

The materials of construction for the Emergency Feed Water Pump House Air Handling System components requiring aging management review are:

- Elastomer
- Galvanized Steel
- Steel

Environments

Components of the Emergency Feed Water Pump House Air Handling System are exposed to the following environments:

- Air-Indoor Uncontrolled

Aging Effects Requiring Management

The following aging effects associated with the Emergency Feed Water Pump House Air Handling System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material

Aging Management Programs

The following programs manage the aging effects requiring management for the Emergency Feed Water Pump House Air Handling System components:

- External Surfaces Monitoring Program (B.2.1.24)

- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.1.25)

Summary of Aging Management Review Results

Table 3.3.2-14, Summary of Aging Management Evaluation – Emergency Feed Water Pump House Air Handling System, summarizes the results of the aging management review for the Emergency Feed Water Pump House Air Handling System.

3.3.2.1.15 Fire Protection System

Materials

The materials of construction for the Fire Protection System components requiring aging management review are:

- Aluminum
- Copper Alloy
- Copper Alloy >15% Zn
- Elastomer
- Galvanized Steel
- Glass
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Fire Protection System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Air With Borated Water Leakage
- Closed Cycle Cooling Water

- Condensation
- Diesel Exhaust
- Fuel Oil
- Gas
- Lubricating Oil
- Raw Water
- Soil
- Steam

Aging Effects Requiring Management

The following aging effects associated with the Fire Protection System components and commodities require management:

- Cracking
- Hardening and Loss of Strength
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Fire Protection System components:

- Above Ground Steel Tanks Program (B.2.1.17)
- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Buried Piping and Tanks Inspection Program (B.2.1.22)
- External Surfaces Monitoring Program (B.2.1.24)
- Fire Protection Program (B.2.1.15)

- Fire Water System Program (B.2.1.16)
- Fuel Oil Chemistry Program (B.2.1.18)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-15, Summary of Aging Management Evaluation – Fire Protection System, summarizes the results of the aging management review for the Fire Protection System.

3.3.2.1.16 Fuel Handling System

Materials

The materials of construction for the Fuel Handling System components requiring aging management review are:

- Copper Alloy >15%
- Elastomer
- Glass
- Stainless Steel
- Steel

Environments

Components of the Fuel Handling System are exposed to the following environments:

- Air with Borated Water Leakage
- Air-Indoor Uncontrolled

- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Fuel Handling System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Fuel Handling System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-16, Summary of Aging Management Evaluation – Fuel Handling System, summarizes the results of the aging management review for the Fuel Handling System.

3.3.2.1.17 Fuel Oil System

Materials

The materials of construction for the Fuel Oil System components requiring aging management review are:

- Copper Alloy

- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Fuel Oil System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Fuel Oil

Aging Effects Requiring Management

The following aging effects associated with the Fuel Oil System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Fuel Oil System components:

- Aboveground Steel Tanks Program (B.2.1.17)
- Bolting Integrity Program (B.2.1.9)
- External Surfaces Monitoring Program (B.2.1.24)
- Fire Protection Program (B.2.1.15)
- Fuel Oil Chemistry Program (B.2.1.18)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)

Summary of Aging Management Review Results

Table 3.3.2-17, Summary of Aging Management Evaluation – Fuel Oil System, summarizes the results of the aging management review for the Fuel Oil System.

3.3.2.1.18 Fuel Storage Building Air Handling System

Materials

The materials of construction for the Fuel Storage Building Air Handling System components requiring aging management review are:

- Copper Alloy
- Elastomer
- Galvanized Steel
- Stainless Steel
- Steel

Environments

Components of the Fuel Storage Building Air Handling System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Condensation

Aging Effects Requiring Management

The following aging effects associated with the Fuel Storage Building Air Handling System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material

Aging Management Programs

The following programs manage the aging effects requiring management for the Fuel Storage Building Air Handling System components:

- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)

Summary of Aging Management Review Results

Table 3.3.2-18, Summary of Aging Management Evaluation – Fuel Storage Building Air Handling System, summarizes the results of the aging management review for the Fuel Storage Building Air Handling System.

3.3.2.1.19 Hot Water Heating System

Materials

The materials of construction for the Hot Water System components requiring aging management review are:

- Copper Alloy
- Copper Alloy >15% Zn
- Glass
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Hot Water System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Condensation
- Steam
- Treated Water
- Treated Water >140 °F

Aging Effects Requiring Management

The following aging effects associated with the Hot Water System components and commodities require management:

- Cracking
- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Hot Water System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching Of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-19, Summary of Aging Management Evaluation – Hot Water System, summarizes the results of the aging management review for the Hot Water System.

3.3.2.1.20 Instrument Air System

Materials

The materials of construction for the Instrument Air System components requiring aging management review are:

- Aluminum
- Cast Austenitic Stainless Steel/CASS
- Copper Alloy

- Copper Alloy >15% Zn
- Elastomer
- Gray Cast Iron
- Polymer (CPVC and Fluoropolymer)
- Stainless Steel
- Steel

Environments

Components of the Instrument Air System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Air with Borated Water Leakage
- Condensation
- Dried Air
- Lubricating Oil

Aging Effects Requiring Management

The following aging effects associated with the Instrument Air System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Instrument Air System components:

- Bolting Integrity Program (B.2.1.9)

- Boric Acid Corrosion Program (B.2.1.4)
- Compressed Air Monitoring Program (B.2.1.14)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)

Summary of Aging Management Review Results

Table 3.3.2-20, Summary of Aging Management Evaluation – Instrument Air System, summarizes the results of the aging management review for the Instrument Air System.

3.3.2.1.21 Leak Detection System

Materials

The materials of construction for the Leak Detection System components requiring aging management review are:

- Stainless Steel

Environments

Components of the Leak Detection System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air With Borated Water Leakage

Aging Effects Requiring Management

The following aging effects associated with the Leak Detection System components and commodities require management:

- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Leak Detection System components:

- Bolting Integrity Program (B.2.1.9)

Summary of Aging Management Review Results

Table 3.3.2-21, Summary of Aging Management Evaluation – Leak Detection System, summarizes the results of the aging management review for the Leak Detection System.

3.3.2.1.22 Mechanical Seal Supply System

Materials

The materials of construction for the Mechanical Seal Supply System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Stainless Steel
- Steel

Environments

Components of the Mechanical Seal Supply System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Mechanical Seal Supply System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Mechanical Seal Supply System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- One- Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-22, Summary of Aging Management Evaluation – Mechanical Seal Supply System, summarizes the results of the aging management review for the Mechanical Seal Supply System.

3.3.2.1.23 Miscellaneous Equipment

Materials

The materials of construction for the Miscellaneous Equipment System components requiring aging management review are:

- Aluminum
- Copper Alloy >15% Zn
- Elastomer
- Stainless Steel
- Steel

Environments

Components of the Miscellaneous Equipment System are exposed to the following environments:

- Air-Indoor Uncontrolled

- Air with Borated Water Leakage
- Lubricating Oil

Aging Effects Requiring Management

The following aging effects associated with the Miscellaneous Equipment System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Miscellaneous Equipment System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping Ducting Components Program (B.2.1.25)
- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)

Summary of Aging Management Review Results

Table 3.3.2-23, Summary of Aging Management Evaluation – Miscellaneous Equipment System, summarizes the results of the aging management review for the Miscellaneous Equipment System.

3.3.2.1.24 Nitrogen Gas System

Materials

The materials of construction for the Nitrogen Gas System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS

- Stainless Steel
- Steel

Environments

Components of the Nitrogen Gas System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air With Borated Water Leakage
- Gas
- Steam
- Treated Borated Water

Aging Effects Requiring Management

The following aging effects associated with the Nitrogen Gas System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Nitrogen Gas System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- One- Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-24, Summary of Aging Management Evaluation – Nitrogen Gas System, summarizes the results of the aging management review for the Nitrogen Gas System.

3.3.2.1.25 Oil Collection For Reactor Coolant Pumps System

Materials

The materials of construction for the Oil Collection for Reactor Coolant Pumps System components requiring aging management review are:

- Stainless Steel
- Steel

Environments

Components of the Oil Collection for Reactor Coolant Pumps System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Lubricating Oil

Aging Effects Requiring Management

The following aging effects associated with the Oil Collection for Reactor Coolant Pumps System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Oil Collection for Reactor Coolant Pumps System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)

- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)

Summary of Aging Management Review Results

Table 3.3.2-25, Summary of Aging Management Evaluation – Oil Collection for Reactor Coolant Pumps System, summarizes the results of the aging management review for the Oil Collection for Reactor Coolant Pumps System.

3.3.2.1.26 Plant Floor Drain System

Materials

The materials of construction for the Plant Floor Drain System components requiring aging management review are:

- Copper Alloy
- Gray Cast Iron
- Polymer (PVC)
- Stainless Steel
- Steel

Environments

Components of the Plant Floor Drain System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Concrete
- Raw Water
- Soil

Aging Effects Requiring Management

The following aging effects associated with the Plant Floor Drain System components and commodities require management:

- Loss of Material

- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Plant Floor Drain System components:

- Bolting Integrity Program (B.2.1.9)
- Buried Piping and Tanks Inspection Program (B.2.1.22)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-26, Summary of Aging Management Evaluation – Plant Floor Drain System, summarizes the results of the aging management review for the Plant Floor Drain System.

3.3.2.1.27 Potable Water System

Materials

The materials of construction for the Potable Water System components requiring aging management review are:

- Copper Alloy
- Copper Alloy >15% Zn
- Stainless Steel
- Steel

Environments

Components of the Potable Water System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Raw Water

Aging Effects Requiring Management

The following aging effects associated with the Potable Water System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Potable Water System components:

- Bolting Integrity Program (B.2.1.9)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-27, Summary of Aging Management Evaluation – Potable Water System, summarizes the results of the aging management review for the Potable Water System.

3.3.2.1.28 Primary Auxiliary Building Air Handling System

Materials

The materials of construction for the Primary Auxiliary Building Air Handling System components requiring aging management review are:

- Elastomer
- Galvanized Steel
- Gray Cast Iron
- Steel

Environments

Components of the Primary Auxiliary Building Air Handling System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water

Aging Effects Requiring Management

The following aging effects associated with the Primary Auxiliary Building Air Handling System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Primary Auxiliary Building Air Handling System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-28, Summary of Aging Management Evaluation – Primary Auxiliary Building Air Handling System, summarizes the results of the aging management review for the Primary Auxiliary Building Air Handling System.

3.3.2.1.29 Primary Component Cooling Water System

Materials

The materials of construction for the Primary Component Cooling Water System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Copper Alloy
- Copper Alloy >15% Zn
- Glass
- Gray Cast Iron
- Nickel Alloy
- Stainless Steel
- Steel
- Steel with Titanium Cladding
- Titanium

Environments

Components of the Primary Component Cooling Water System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Condensation
- Raw Water
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Primary Component Cooling Water System components and commodities require management:

- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Primary Component Cooling Water System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)
- Open-Cycle Cooling Water System Program (B.2.1.11)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-29, Summary of Aging Management Evaluation – Primary Component Cooling Water System, summarizes the results of the aging management review for the Primary Component Cooling Water System.

3.3.2.1.30 Radiation Monitoring System

Materials

The materials of construction for the Radiation Monitoring System components requiring aging management review are:

- Glass
- Stainless Steel
- Steel

Environments

Components of the Radiation Monitoring System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Radiation Monitoring System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Radiation Monitoring System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-30, Summary of Aging Management Evaluation – Radiation Monitoring System, summarizes the results of the aging management review for the Radiation Monitoring System.

3.3.2.1.31 Reactor Makeup Water System

Materials

The materials of construction for the Reactor Makeup Water System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Glass
- Stainless Steel
- Steel

Environments

Components of the Reactor Makeup Water System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Treated Borated Water
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Reactor Makeup Water System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Reactor Makeup Water System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-31, Summary of Aging Management Evaluation – Reactor Makeup Water System, summarizes the results of the aging management review for the Reactor Makeup Water System.

3.3.2.1.32 Release Recovery System

Materials

The materials of construction for the Release Recovery System components requiring aging management review are:

- Stainless Steel
- Steel

Environments

Components of the Release Recovery System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated water leakage
- Treated Borated Water
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Release Recovery System components and commodities require management:

- Loss of Material

- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Release Recovery System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-32, Summary of Aging Management Evaluation – Release Recovery System, summarizes the results of the aging management review for the Release Recovery System.

3.3.2.1.33 Resin Sluicing System

Materials

The materials of construction for the Resin Sluicing System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Stainless Steel

Environments

Components of the Resin Sluicing System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Treated Borated Water

Aging Effects Requiring Management

The following aging effects associated with the Resin Sluicing System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Resin Sluicing System components:

- Bolting Integrity Program (B.2.1.9)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-33, Summary of Aging Management Evaluation – Resin Sluicing System, summarizes the results of the aging management review for the Resin Sluicing System.

3.3.2.1.34 Roof Drains System

Materials

The materials of construction for the Roof Drains System components requiring aging management review are:

- Gray Cast Iron
- Steel

Environments

Components of the Roof Drains System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Raw Water

Aging Effects Requiring Management

The following aging effects associated with the Roof Drains System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Roof Drains System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-34, Summary of Aging Management Evaluation – Roof Drains System, summarizes the results of the aging management review for the Roof Drains System.

3.3.2.1.35 Sample System

Materials

The materials of construction for the Sample System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Glass
- Polymer (Plastic, Polycarbonate, Polyolefin)
- Stainless Steel
- Steel

Environments

Components of the Sample System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Treated Borated Water
- Treated Borated Water >140 °F
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Sample System components and commodities require management:

- Cracking
- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Sample System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-35, Summary of Aging Management Evaluation – Sample System, summarizes the results of the aging management review for the Sample System.

3.3.2.1.36 Screen Wash System

Materials

The materials of construction for the Screen Wash System components requiring aging management review are:

- Copper Alloy
- Copper Alloy >15% Zn
- Fiberglass
- Gray Cast Iron
- Nickel Alloy
- Stainless Steel
- Steel

Environments

Components of the Screen Wash System are exposed to the following environments:

- Condensation
- Raw Water

Aging Effects Requiring Management

The following aging effects associated with the Screen Wash System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Screen Wash System components:

- Bolting Integrity Program (B.2.1.9)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-36, Summary of Aging Management Evaluation – Screen Wash System, summarizes the results of the aging management review for the Screen Wash System.

3.3.2.1.37 Service Water System

Materials

The materials of construction for the Service Water System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Copper Alloy
- Copper Alloy >15% Zn
- Elastomer
- Galvanized Steel
- Glass
- Nickel Alloy
- Polymer (PVC)
- Stainless Steel
- Steel

Environments

Components of the Service Water System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Air with Borated Water Leakage
- Condensation
- Lubricating Oil
- Raw Water
- Soil

Aging Effects Requiring Management

The following aging effects associated with the Service Water System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Service Water System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Buried Piping and Tanks Inspection Program (B.2.1.22)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Lubricating Oil Analysis Program (B.2.1.26)

- One-Time Inspection Program (B.2.1.20)
- Open-Cycle Cooling Water System Program (B.2.1.11)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.3.2-37, Summary of Aging Management Evaluation – Service Water System, summarizes the results of the aging management review for the Service Water System.

3.3.2.1.38 Service Water Pump House Air Handling System

Materials

The materials of construction for the Service Water Pump House Air Handling System components requiring aging management review are:

- Elastomer
- Galvanized Steel
- Steel

Environments

Components of the Service Water Pump House Air Handling System are exposed to the following environments:

- Air-Indoor Uncontrolled

Aging Effects Requiring Management

The following aging effects associated with the Service Water Pump House Air Handling System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material

Aging Management Programs

The following programs manage the aging effects requiring management for the Service Water Pump House Air Handling System components:

- External Surfaces Monitoring Program (B.2.1.24)

- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)

Summary of Aging Management Review Results

Table 3.3.2-38, Summary of Aging Management Evaluation – Service Water Pump House Air Handling System, summarizes the results of the aging management review for the Service Water Pump House Air Handling System.

3.3.2.1.39 Spent Fuel Pool Cooling System

Materials

The materials of construction for the Spent Fuel Pool Cooling System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Elastomer
- Glass
- Stainless Steel
- Steel

Environments

Components of the Spent Fuel Pool Cooling System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water leakage
- Closed Cycle Cooling Water
- Treated Borated Water

Aging Effects Requiring Management

The following aging effects associated with the Spent Fuel Pool Cooling System components and commodities require management:

- Hardening and Loss of Strength
- Loss of Material

- Loss of Preload
- Reduction of Heat Transfer

Aging Management Programs

The following programs manage the aging effects requiring management for the Spent Fuel Pool Cooling System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-39, Summary of Aging Management Evaluation – Spent Fuel Pool Cooling System, summarizes the results of the aging management review for the Spent Fuel Pool Cooling System.

3.3.2.1.40 Switchyard

Materials

The materials of construction for the Switchyard components requiring aging management review are:

- Aluminum
- Copper Alloy
- Copper Alloy >15%
- Nickel Alloy
- Stainless Steel
- Steel

Environments

Components of the Switchyard are exposed to the following environments:

- Air-Outdoor
- Gas
- Lubricating Oil

Aging Effects Requiring Management

The following aging effects associated with the Switchyard components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Switchyard components:

- Bolting Integrity Program (B.2.1.9)
- External Surfaces Monitoring Program (B.2.1.24)
- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)

Summary of Aging Management Review Results

Table 3.3.2-40, Summary of Aging Management Evaluation – Switchyard, summarizes the results of the aging management review for the Switchyard.

3.3.2.1.41 Valve Stem Leak-Off System

Materials

The materials of construction for the Valve Stem Leak-off System components requiring aging management review are:

- Stainless Steel

Environments

Components of the Valve Stem Leak-off System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Treated Borated Water
- Treated Borated Water >140°F

Aging Effects Requiring Management

The following aging effects associated with the Valve Stem Leak-off System components and commodities require management:

- Cracking
- Loss of Material

Aging Management Programs

The following programs manage the aging effects requiring management for the Valve Stem Leak-off System components:

- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-41, Summary of Aging Management Evaluation – Valve Stem Leak-off System, summarizes the results of the aging management review for the Valve Stem Leak-off System.

3.3.2.1.42 Vent Gas System

Materials

The materials of construction for the Vent Gas System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Stainless Steel

Environments

Components of the Vent Gas System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Condensation
- Gas

Aging Effects Requiring Management

The following aging effects associated with the Vent Gas System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Vent Gas System components:

- Bolting Integrity Program (B.2.1.9)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)

Summary of Aging Management Review Results

Table 3.3.2-42, Summary of Aging Management Evaluation – Vent Gas System, summarizes the results of the aging management review for the Vent Gas System.

3.3.2.1.43 Waste Gas System

Materials

The materials of construction for the Waste Gas System components requiring aging management review are:

- Stainless Steel

- Steel

Environments

Components of the Waste Gas System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Gas
- Treated Borated Water

Aging Effects Requiring Management

The following aging effects associated with the Waste Gas System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Waste Gas System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-43, Summary of Aging Management Evaluation – Waste Gas System, summarizes the results of the aging management review for the Waste Gas System.

3.3.2.1.44 Waste Processing Liquid System

Materials

The materials of construction for the Waste Processing Liquid System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Copper Alloy >15% Zn
- Stainless Steel
- Steel

Environments

Components of the Waste Processing Liquid System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Condensation
- Raw Water
- Steam

Aging Effects Requiring Management

The following aging effects associated with the Waste Processing Liquid System components and commodities require management:

- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Waste Processing Liquid System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)

- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-44, Summary of Aging Management Evaluation – Waste Processing Liquid System, summarizes the results of the aging management review for the Waste Processing Liquid System.

3.3.2.1.45 Waste Processing Liquid Drains System

Materials

The materials of construction for the Waste Processing Liquid Drains System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Waste Processing Liquid Drains System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Concrete
- Raw Water

- Treated Borated Water

Aging Effects Requiring Management

The following aging effects associated with the Waste Processing Liquid Drains System components and commodities require management:

- Loss of Material
- Loss of Pre-Load

Aging Management Programs

The following programs manage the aging effects requiring management for the Waste Processing Liquid Drains System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water System Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.3.2-45, Summary of Aging Management Evaluation – Waste Processing Liquid Drains System, summarizes the results of the aging management review for the Waste Processing Liquid Drains System.

3.3.2.2 AMR Results for Which Further Evaluation is Recommended by the GALL Report

NUREG-1800 indicates that further evaluation is necessary for certain aging effects, particularly those that require plant specific programs. Section 3.0 of NUREG-1800 discusses these aging effects that require further evaluation. The following sections are numbered in accordance with the discussions in Section 3.0 of NUREG-1800 and explain Seabrook Station's approach to these areas requiring further evaluation.

3.3.2.2.1 Cumulative Fatigue Damage

Fatigue is a TLAA as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c). This TLAA is addressed separately in Section 4.3, "Metal Fatigue Analysis" or Section 4.7, "Other Plant-Specific Time-Limited Aging Analyses" of this SRP-LR.

At Seabrook Station, the evaluation of metal fatigue as a TLAA for the Chemical and Volume Control System is discussed in Section 4.3.

At Seabrook Station, the evaluation for crane load cycles as a TLAA for Cranes is discussed in Section 4.7.6.

3.3.2.2.2 Reduction of Heat Transfer due to Fouling

Reduction of heat transfer due to fouling could occur for stainless steel heat exchanger tubes exposed to treated water. The existing program relies on control of water chemistry to manage reduction of heat transfer due to fouling. However, control of water chemistry may have been inadequate. Therefore, the GALL Report recommends that the effectiveness of the water chemistry control program should be verified to ensure that reduction of heat transfer due to fouling is not occurring. A one-time inspection is an acceptable method to ensure that reduction of heat transfer is not occurring and that the component's intended function will be maintained during the period of extended operation.

Item Number 3.3.1-3 is not applicable for Auxiliary Systems components at Seabrook Station. This line item is associated with NUREG-1801 line item VII.E3-6, which is applicable to BWR Reactor Water Cleanup System heat exchangers.

3.3.2.2.3 Cracking due to Stress Corrosion Cracking (SCC)

1. *Cracking due to SCC could occur in the stainless steel piping, piping components, and piping elements of the BWR Standby Liquid Control system that are exposed to sodium pentaborate solution greater than 60°C (>140°F). The existing aging management program relies on monitoring and control of water chemistry to manage the aging effects of cracking due to SCC. However, high concentrations of impurities at crevices and locations of stagnant flow conditions could cause SCC. Therefore, the GALL Report recommends that the effectiveness of the water chemistry control program should be verified to ensure that SCC is not occurring. A one-time inspection of select components at susceptible locations is an acceptable method to ensure that SCC is not occurring and that the component's intended function will be maintained during the period of extended operation.*

Item Number 3.3.1-4 is applicable to BWRs only. This Item Number is not used by Seabrook Station.

2. *Cracking due to SCC could occur in stainless steel and stainless clad steel heat exchanger components exposed to treated water greater than 60°C (>140°F). The GALL Report recommends further evaluation of a plant-specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Item Number 3.3.1.5 is not applicable for Auxiliary System components at Seabrook Station. This line item is associated with NUREG-1801 line items VII.E3-3 and VII.E3-19 which are applicable to BWR Reactor Water Cleanup System heat exchangers.

3. *Cracking due to SCC could occur in stainless steel diesel engine exhaust piping, piping components, and piping elements exposed to diesel exhaust. The GALL Report recommends further evaluation of a plant specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage cracking due to stress corrosion cracking for the stainless steel diesel exhaust piping components exposed to diesel exhaust in the Diesel Generator System and Fire Protection System. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is described in Appendix B.

3.3.2.2.4 Cracking due to Stress Corrosion Cracking and Cyclic Loading

1. *Cracking due to SCC and cyclic loading could occur in stainless steel PWR non-regenerative heat exchanger components exposed to treated borated water greater than 60°C (>140°F) in the chemical and volume control system. The existing aging management program on monitoring and control of primary water chemistry in PWRs to manage the aging effects of cracking due to SCC. However, control of water chemistry does not preclude cracking due to SCC and cyclic loading. Therefore, the effectiveness of the water chemistry control program should be verified to ensure that cracking is not occurring. The GALL Report recommends that a plant-specific aging management program be evaluated to verify the absence of cracking due to SCC and cyclic loading to ensure that these aging effects are managed adequately. An acceptable verification program is to include temperature and*

radioactivity monitoring of the shell side water, and eddy current testing of tubes.

Seabrook Station will implement the Water Chemistry Program, B.2.1.2, and One-Time Inspection Program, B.2.1.20, to manage cracking due to stress corrosion cracking and cyclic loading of the stainless steel heat exchanger components exposed to treated borated water >140°F in the Chemical and Volume Control system. The Water Chemistry effectiveness will be confirmed by the One-Time Inspection Program. The Water Chemistry and One-Time Inspection Programs are described in Appendix B.

2. *Cracking due to SCC and cyclic loading could occur in stainless steel PWR regenerative heat exchanger components exposed to treated borated water greater than 60°C (>140°F). The existing aging management program relies on monitoring and control of primary water chemistry in PWRs to manage the aging effects of cracking due to SCC. However, control of water chemistry does not preclude cracking due to SCC and cyclic loading. Therefore, the effectiveness of the water chemistry control program should be verified to ensure that cracking is not occurring. The GALL Report recommends that a plant-specific aging management program be evaluated to verify the absence of cracking due to SCC and cyclic loading to ensure that these aging effects are managed adequately. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   The Water Chemistry Program, B.2.1.2 will be used to manage cracking due to stress corrosion cracking and cyclic loading of the stainless steel regenerative heat exchanger components exposed to treated borated water greater than 60°C (>140°F) in the Chemical and Volume Control System. The regenerative heat exchanger is of a welded design that prevents heat exchanger disassembly for access to the heat exchanger internals. The Water Chemistry Program effectiveness will be verified by the one-time inspection of a non-regenerative heat exchanger in the Chemical and Volume Control System with stainless steel components with the same environment to assure this aging effect is not occurring. In addition, the integrity of the regenerative heat exchanger is verified by continuous temperature monitoring. The Water Chemistry Program is discussed in Appendix B.

3. *Cracking due to SCC and cyclic loading could occur for the stainless steel pump casing for the PWR high-pressure pumps in the chemical and volume control system. The existing aging management program relies on monitoring and control of primary water chemistry in PWRs to manage the aging effects of cracking due to SCC. However, control of*

water chemistry does not preclude cracking due to SCC and cyclic loading. Therefore, the effectiveness of the water chemistry control program should be verified to ensure that cracking is not occurring. The GALL Report recommends that a plant-specific aging management program be evaluated to verify the absence of cracking due to SCC and cyclic loading to ensure that these aging effects are managed adequately. Acceptance criteria are described in Branch Technical Position RLSB-1.

Seabrook Station will implement the Water Chemistry Program, B.2.1.2, and One-Time Inspection Program, B.2.1.20, to manage cracking due to stress corrosion cracking and cyclic loading of the stainless steel high-pressure pump casings exposed to treated borated water in the Chemical and Volume Control system. The Water Chemistry effectiveness will be confirmed by the One-Time Inspection Program. The Water Chemistry and One-Time Inspection Programs are described in Appendix B.

4. Item Number 3.3.1-10 is not applicable to the Auxiliary Systems for Seabrook Station. There is no high-strength steel closure bolting exposed to air with steam or water leakage.

3.3.2.2.5 Hardening and Loss of Strength due to Elastomer Degradation

1. *Hardening and loss of strength due to elastomer degradation could occur in elastomer seals and components of heating and ventilation systems exposed to air – indoor uncontrolled (internal/external). The GALL Report recommends further evaluation of a plant-specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage hardening and loss of strength due to elastomer degradation of the elastomer components exposed to air-indoor uncontrolled (internal) by in the Containment Building Spray, Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Diesel Generator, Diesel Generator Air Handling, Emergency Feed Water Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, Service Water, Service Water Pump House Air Handling, and Spent Fuel Pool Cooling systems. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is discussed in Appendix B.

Seabrook Station will implement the External Surfaces Monitoring Programs, B.2.1.24, to manage hardening and loss of strength due to elastomer degradation of the elastomer components exposed to air-indoor uncontrolled (external) in the Containment Building Spray, Chemical and Volume Control, Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Dewatering, Diesel Generator, Diesel Generator Air Handling, Emergency Feed Water Pump House Air Handling, Fire Protection System, Fuel Handling, Fuel Storage Building Air Handling, Instrument Air, Miscellaneous Equipment, Primary Auxiliary Building Air Handling, Service Water Pump House Air Handling, and Spent Fuel Pool Cooling systems. The External Surfaces Monitoring Program is discussed in Appendix B.

2. *Hardening loss of strength due to elastomer degradation could occur in elastomer linings of the filters, valves, and ion exchangers in spent fuel pool cooling and cleanup systems (BWR and PWR) exposed to treated water or to treated borated water. The GALL Report recommends that a plant-specific aging management program be evaluated to determine and assesses the qualified life of the linings in the environment to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to hardening and loss of strength of the elastomer components exposed to treated borated water in the Chemical and Volume Control System. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is discussed in Appendix B.

3.3.2.2.6 Reduction of Neutron-Absorbing Capacity and Loss of Material due to General Corrosion

Reduction of neutron-absorbing capacity and loss of material due to general corrosion could occur in the neutron-absorbing sheets of BWR and PWR spent fuel storage racks exposed to treated water or to treated borated water. The GALL Report recommends further evaluation of a plant-specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.

Seabrook Station will implement the Boral Monitoring Program, B.2.2.2, to manage reduction of neutron-absorbing capacity and loss of material due to general corrosion of the Boral Poison sheet in Spent

Fuel Racks – in Treated Water exposed to treated borated water. The Boral Monitoring Program is discussed in Appendix B.

3.3.2.2.7 Loss of Material due to General, Pitting, and Crevice Corrosion

1. *Loss of material due to general, pitting, and crevice corrosion could occur in steel piping, piping components, and piping elements, including the tubing, valves, and tanks in the reactor coolant pump oil collection system, exposed to lubricating oil (as part of the fire protection system). The existing aging management program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the lubricating oil program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation. In addition, corrosion may occur at locations in the reactor coolant pump oil collection tank where water from wash downs may accumulate. Therefore, the effectiveness of the program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage loss of material due to general, pitting, and crevice corrosion, to include determining the thickness of the lower portion of the tank. A one-time inspection is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion. The Lubricating Oil Analysis Program includes a one time thickness measurement on the bottom portion of the steel tanks exposed to lubricating oil in the Oil Collection for Reactor Coolant Pumps System.

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to general, pitting and crevice corrosion of the steel tanks exposed to lubricating oil in the Chemical and Volume Control, Diesel Generator, Instrument Air, and Miscellaneous Equipment systems.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion of the steel piping components exposed to lubricating oil in the Chemical and Volume Control System, Diesel Generator, Fire Protection, Instrument Air, Miscellaneous Equipment, and Service Water systems. In addition, galvanic corrosion is an additional aging mechanism in the steel piping components in the Diesel Generator system.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion of the galvanized steel piping components exposed to lubricating oil in the Service Water System.

The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

Item Number 3.3.1-15 is not applicable at Seabrook Station. There is no steel reactor coolant pump oil collection system piping components exposed to lubricating oil in the Oil Collection for Reactor Coolant Pumps System.

2. *Loss of material due to general, pitting, and crevice corrosion could occur in steel piping, piping components, and piping elements in the BWR reactor water cleanup and shutdown cooling systems exposed to treated water. The existing aging management program relies on monitoring and control of reactor water chemistry to manage the aging effects of loss of material from general, pitting and crevice corrosion. However, high concentrations of impurities at crevices and locations of stagnant flow conditions could cause general, pitting, or crevice corrosion. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage loss of material from general, pitting, and crevice corrosion to verify the effectiveness of the water chemistry program. A one-time inspection of select components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Item Number 3.3.1-17 is applicable to BWRs only. This Item Number is not used by Seabrook Station.

3. *Loss of material due to general (steel only) pitting and crevice corrosion could occur for steel and stainless steel diesel exhaust piping, piping components, and piping elements exposed to diesel exhaust. The GALL Report recommends further evaluation of a plant-specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to general (steel only), pitting, and crevice corrosion of the steel piping components, steel silencer (Diesel Generator System), and stainless steel piping components exposed to diesel exhaust in the Diesel Generator and Fire Protection systems. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is described in Appendix B.

3.3.2.2.8 Loss of Material due to General, Pitting, Crevice, and Microbiologically-Influenced Corrosion (MIC)

Loss of material due to general, pitting, crevice corrosion, and microbiologically-influenced corrosion (MIC) could occur for steel (with or without coating or wrapping) piping, piping components, and piping elements buried in soil. The buried piping and tanks inspection program relies on industry practice, frequency of pipe excavation, and operating experience to manage the effects of loss of material from general, pitting, and crevice corrosion and MIC. The effectiveness of the buried piping and tanks inspection program should be verified to evaluate an applicant's inspection frequency and operating experience with buried components, ensuring that loss of material is not occurring.

Seabrook Station will implement the Buried Piping and Tanks Inspection Program, B.2.1-22, to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion of the steel piping components (with or without coating or wrapping) buried in soil in the Auxiliary Boiler, Control Building Air Handling, Fire Protection, Plant Floor Drain, and Service Water systems. The Buried Piping and Tanks Inspection Program manages buried steel piping and components for loss of material through the use of coatings and wrappings, and periodic inspections. The program relies on preventive measures such as coating and wrapping to mitigate corrosion and periodic inspection of external surfaces to identify coating degradation, if coated, or base metal corrosion, if uncoated. These inspections assure that existing environmental conditions are not causing material degradation that could result in a loss of component intended

functions. The Buried Piping and Tanks Inspection Program is described in Appendix B.

3.3.2.2.9 Loss of Material due to General, Pitting, Crevice, Microbiologically-Influenced Corrosion and Fouling

1. *Loss of material due to general, pitting, crevice, MIC, and fouling could occur for steel piping, piping components, piping elements, and tanks exposed to fuel oil. The existing aging management program relies on the fuel oil chemistry program for monitoring and control of fuel oil contamination to manage loss of material due to corrosion or fouling. Corrosion or fouling may occur at locations where contaminants accumulate. The effectiveness of the fuel oil chemistry control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage loss of material due to general, pitting, crevice, MIC, and fouling to verify the effectiveness of the fuel oil chemistry program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection program, B.2.1.20, to verify the effectiveness of the Fuel Oil Chemistry Program, B.2.1.18, to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling of the steel piping components exposed to fuel oil in the Auxiliary Boiler, Diesel Generator, and Fuel Oil systems. In addition, galvanic corrosion is an additional aging mechanism in the steel piping components in the Auxiliary Boiler System and Fuel Oil System.

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Fuel Oil Chemistry Program, B.2.1.18, to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling of the steel tanks exposed to fuel oil in the Auxiliary Boiler, Diesel Generator, and Fuel Oil systems.

   The Fuel Oil Chemistry and One-Time Inspection Programs are described in Appendix B.

2. *Loss of material due to general, pitting, crevice, MIC, and fouling could occur for steel heat exchanger components exposed to lubricating oil. The existing aging management program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within acceptable limits, thereby preserving an environment that is not*

conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the lube oil program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling of the steel heat exchanger components exposed to lubricating oil in the Chemical and Volume Control and Diesel Generator systems. In addition, galvanic corrosion is an additional aging mechanism in the steel heat exchanger components in the Diesel Generator system. The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

3.3.2.2.10 Loss of Material due to Pitting and Crevice Corrosion

1. *Loss of material due to pitting and crevice corrosion could occur in BWR and PWR steel piping with elastomer lining or stainless steel cladding that are exposed to treated water and treated borated water if the cladding or lining is degraded. The existing aging management program relies on monitoring and control of reactor water chemistry to manage the aging effects of loss of material from pitting and crevice corrosion. However, high concentrations of impurities at crevices and locations of stagnant flow conditions could cause pitting, or crevice corrosion. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage loss of material from pitting and crevice corrosion to verify the effectiveness of the water chemistry program. A one-time inspection of select components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Item Number 3.3.1-22 line item is not applicable at Seabrook Station. NUREG 1801 line VII.A3-9 is not applicable since there is no steel with elastomer lining components exposed to treated borated water in the Spent Fuel Pool Cooing System. NUREG 1801 Line VII.A4-12 is applicable to BWR only.

2. *Loss of material due to pitting and crevice corrosion could occur for stainless steel and aluminum piping, piping components, piping elements, and for stainless steel and steel with stainless steel cladding heat exchanger components exposed to treated water. The existing aging management program relies on monitoring and control of reactor water chemistry to manage the aging effects of loss of material from pitting and crevice corrosion. However, high concentrations of impurities at crevices and locations of stagnant flow conditions could cause pitting, or crevice corrosion. Therefore, the effectiveness of the chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage loss of material from pitting and crevice corrosion to verify the effectiveness of the water chemistry program. A one-time inspection of select components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Item Number 3.3.1-23 is applicable for BWRs only. This Item Number is not used by Seabrook Station.

   Item Number 3.3.1-24 is not applicable for Auxiliary System components at Seabrook Station. This line item is associated with NUREG-1801 line items VII.A4-5, VII.A4-11, VII.E3-7, VII.E3-15, VII.E4-4, and VII.E4-14 which are applicable to BWR Systems only.

3. *Loss of material due to pitting and crevice corrosion could occur for copper alloy HVAC piping, piping components, and piping elements exposed to condensation (external). The GALL Report recommends further evaluation of a plant-specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Components in the Chlorination, Containment Air Handling, Containment Enclosure Air Handling, Control Building Air Handling, Screen Wash, Service Water, and Waste Processing Liquid systems have been aligned to this line item based on material, environment and aging effect.

   Seabrook Station will implement the External Surfaces Monitoring Program, B.2.1.24, to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components exposed to condensation (external) in the Chlorination, Screen Wash, Service Water, and Waste Processing Liquid systems. In addition, galvanic corrosion is an additional aging mechanism in the Screen Wash and Waste Processing Liquid systems.

Seabrook Station will implement the External Surfaces Monitoring Program, B.2.1.24, to manage loss of material due to pitting and crevice corrosion of the copper alloy heat exchanger components exposed to condensation (external) in the Containment Air Handling, Containment Enclosure Air Handling, and Control Building Air Handling systems.

The External Surfaces Monitoring Program is discussed in Appendix B.

Seabrook Station will implement the Bolting Integrity Program, B.2.1.9, to manage loss of material due to pitting and crevice corrosion of the copper alloy bolting exposed to condensation (external) in the Service Water system. The Bolting Integrity Program is discussed in Appendix B.

The Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.F1-16 copper alloy in condensation (External) environment exhibits pitting and crevice corrosion. Therefore, the components having an internal environment of condensation would also see pitting and crevice corrosion as an aging effect.

Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components exposed to condensation (internal) in the Control Building Air Handling System. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is discussed in Appendix B.

4. *Loss of material due to pitting and crevice corrosion could occur for copper alloy piping, piping components, and piping elements exposed to lubricating oil. The existing aging management program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the lubricating oil program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

Copper alloy heat exchangers in the Chemical and Volume Control and Diesel Generator systems have been aligned to this line item based on material, environment, and aging effect.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components exposed to lubricating oil in the Chemical and Volume Control, Diesel Generator, Instrument Air, Miscellaneous Equipment, Service Water, and Switchyard systems, and copper alloy heat exchanger components exposed to lubricating oil in the Chemical and Volume Control and Diesel Generator systems. The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

5. *Loss of material due to pitting and crevice corrosion could occur for HVAC aluminum piping, piping components, and piping elements and stainless steel ducting and components exposed to condensation. The GALL Report recommends further evaluation of a plant-specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   Stainless steel piping components in the Fire Protection, Fuel Storage Building Air Handling, Primary Component Cooling Water, Screen Wash, and Service Water systems and stainless bolting in the Primary Component Cooling Water, Screen Wash and Service Water systems have been aligned to this line item number based on material, environment and aging effect.

   Aluminum piping components in the Diesel Generator, Fire Protection, and Instrument Air systems and aluminum heat exchanger components in the Diesel Generator system have been aligned to this line item number based on material, environment and aging effect.

   Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to pitting and crevice corrosion of the aluminum piping components exposed to condensation in the Fire Protection system. In addition galvanic corrosion is an additional aging mechanism. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is described in Appendix B.

   Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to pitting and crevice corrosion of the

stainless steel HVAC components and stainless steel piping components exposed to condensation in the Containment Air Handling, Containment Enclosure Air Handling, Fire Protection, and Fuel Storage Building Air Handling systems. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is described in Appendix B.

Seabrook Station will implement the External Surfaces Monitoring Program, B.1.2-24, to manage loss of material due to pitting and crevice corrosion of the Aluminum heat exchanger components exposed to condensation (external) in the Control Building Air Handling system. The External Surfaces Monitoring Program is described in Appendix B.

Seabrook Station will implement the External Surfaces Monitoring Program, B.1.2-24, to manage loss of material due to pitting and crevice corrosion of the stainless steel piping components exposed to condensation (external) in the Primary Component Cooling Water and Service Water systems. The External Surfaces Monitoring Program is described in Appendix B.

The Bolting Integrity Program, B.2.1.9, will be used to manage loss of material due to pitting and crevice corrosion of the stainless steel bolting exposed to condensation (external) in the Primary Component Cooling Water, Screen Wash, and Service Water systems. The Bolting Integrity Program is described in Appendix B.

The Compressed Air Monitoring Program, B.2.1.14, will be used to manage loss of material due to pitting, crevice and galvanic corrosion (an additional aging mechanism) of the aluminum piping components and heat exchanger components (Diesel Generator system) exposed to condensation (internal) in the Diesel Generator System and Instrument Air System. The Compressed Air Monitoring Program is described in Appendix B.

6. *Loss of material due to pitting and crevice corrosion could occur for copper alloy fire protection system piping, piping components, and piping elements exposed to internal condensation. The GALL Report recommends further evaluation of a plant-specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria programs are described in Branch Technical Position RLSB-1.*

   Copper alloy piping components in the Diesel Generator and Instrument Air systems have been aligned to this line item number based on material, environment and aging effect.

The Compressed Air Monitoring Program, B.2.1.14, will be used to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components exposed to condensation in the Diesel Generator and Instrument Air systems and copper alloy tanks exposed to condensation in the Instrument Air system. The Compressed Air Monitoring Program is described in Appendix B.

Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components exposed to condensation in the Fire Protection System. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is described in Appendix B.

7. *Loss of material due to pitting and crevice corrosion could occur for stainless steel piping, piping components, and piping elements exposed to soil. The GALL Report recommends further evaluation of a plant specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.*

   The Buried Piping and Tanks Inspection Program, B.2.1.22 will be used to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion (an additional aging mechanism) of the stainless steel piping components exposed to soil in the Diesel Generator system. The Buried Piping and Tanks Inspection program is described in Appendix B.

8. *Loss of material due to pitting and crevice corrosion could occur for stainless steel piping, piping components, and piping elements of the BWR Standby Liquid Control System that are exposed to sodium pentaborate solution. The existing aging management program relies on monitoring and control of water chemistry to manage the aging effects of loss of material due to pitting and crevice corrosion. However, high concentrations of impurities at crevices and locations of stagnant flow conditions could cause loss of material due to pitting and crevice corrosion. Therefore, the GALL Report recommends that the effectiveness of the water chemistry control program should be verified to ensure this aging is not occurring. A one-time inspection of select components at susceptible locations is an acceptable method to ensure that loss of material due to pitting and crevice corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

Item Number 3.3.1-30 is applicable to BWRs only. This item number is not used by Seabrook Station.

3.3.2.2.11 Loss of Material due to Pitting, Crevice, and Galvanic Corrosion

The GALL Report recommends further evaluation of programs to manage the loss of material due to pitting, crevice, and galvanic corrosion of copper alloy piping, piping components, and piping elements that are exposed to treated water. The reviewer reviews the applicant's proposed program on a case-by- case basis to ensure that an adequate program will be in place for the management of these aging effects.

Item Number 3.3.1-31 is applicable to BWRs only. This item number is not used by Seabrook Station.

3.3.2.2.12 Loss of Material due to Pitting, Crevice, and Microbiologically-Influenced Corrosion

1. *Loss of material due to pitting, crevice, and MIC could occur in stainless steel, aluminum, and copper alloy piping, piping components, and piping elements exposed to fuel oil. The existing aging management program relies on the fuel oil chemistry program for monitoring and control of fuel oil contamination to manage loss of material due to corrosion. However, corrosion may occur at locations where contaminants accumulate and the effectiveness of fuel oil chemistry control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the fuel oil chemistry control program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Fuel Oil Chemistry Program, B.2.1.18, to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion of the stainless steel, aluminum, and copper alloy piping components exposed to fuel oil. Stainless steel piping components are in the Auxiliary Boiler, Diesel Generator, and Fuel Oil systems. Aluminum piping components are contained in the Diesel Generator System. In addition, galvanic is an additional aging mechanism. Copper Alloy Components are contained in the Auxiliary Boiler, Diesel Generator, Fire Protection and Fuel Oil systems. In

addition, galvanic corrosion is an additional aging mechanism in copper alloy piping components in the Diesel Generator system. The Fuel Oil Chemistry and One-Time Inspection Programs are described in Appendix B.

2. *Loss of material due to pitting, crevice, and MIC could occur in stainless steel piping, piping components, and piping elements exposed to lubricating oil. The existing program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the lubricating oil program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion of the stainless steel piping components exposed to lubricating oil in the Chemical and Volume Control, Diesel Generator, Fire Protection, Instrument Air, Miscellaneous Equipment, Oil Collection for Reactor Coolant Pumps, and Switchyard systems, stainless steel drip pan, stainless steel flame arrestor, and stainless steel tank are exposed to lubricating oil in the Oil Collection for RC Pumps system, and stainless steel heat exchanger components are exposed to lubricating oil in the Chemical and Volume Control System. The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

3.3.2.2.13 Loss of Material due to Wear

Loss of material due to wear could occur in the elastomer seals and components exposed to Air-Indoor Uncontrolled (internal or external). The GALL Report recommends further evaluation to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.

Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to wear of the elastomer components exposed to

Air-Indoor Uncontrolled (internal) in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Diesel Generator Air Handling, Emergency Feed Water Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, and Service Water Pump House Air Handling systems.

Seabrook Station will implement the External Surfaces Monitoring Program, B.2.1.24, to manage loss of material due to wear of the elastomer components exposed to Air-Indoor Uncontrolled (external) in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Diesel Generator Air Handling, Emergency Feed Water Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, and Service Water Pump House Air Handling systems.

The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components and the External Surfaces Monitoring Programs are discussed in Appendix B.

3.3.2.2.14 Loss of Material due to Cladding Breach

Loss of material due to cladding breach could occur for PWR steel charging pump casings with stainless steel cladding exposed to treated borated water. The GALL Report references NRC Information Notice 94-63, Boric Acid Corrosion of Charging Pump Casings Caused by Cladding Cracks, and recommends further evaluation of a plant-specific aging management program to ensure that the aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.

Item Number 3.3.1-35 is not applicable at Seabrook Station. The Chemical and Volume Control System pumps do not have stainless steel cladding.

3.3.2.2.15 Quality Assurance for Aging Management of Nonsafety-Related Components

QA provisions applicable to License Renewal are discussed in Section B.1.3.

3.3.2.3 Time-Limited Aging Analyses

The time-limited aging analyses identified below are associated with the Auxiliary Systems components:

- Section 4.3, Metal Fatigue of Piping and Components
- Section 4.6, Crane Load Cycle Limits

3.3.3 CONCLUSION

The Auxiliary System piping and components subject to aging management review have been identified in accordance with the scoping criteria of 10 CFR 54.4. Aging effects have been identified based on plant and industry operating experience as well as industry literature. Programs to manage these aging effects have been identified in this section, and detailed program descriptions are provided in Appendix B. These activities demonstrate that the aging effects associated with the Auxiliary Systems will be adequately managed such that there is reasonable assurance that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-1	Steel cranes - structural girders exposed to air-indoor uncontrolled (external)	Cumulative fatigue damage	TLAA to be evaluated for structural girders of cranes. See the Standard Review Plan, Section 4.7 for generic guidance for meeting the requirements of 10 CFR 54.21(c)(1).	Yes, TLAA	Fatigue is a TLAA; further evaluation is documented in Subsection 3.3.2.2.1.
3.3.1-2	Steel and stainless steel piping, piping components, piping elements, and heat exchanger components exposed to air-indoor uncontrolled, treated borated water or treated water	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c)	Yes, TLAA	Fatigue is a TLAA; further evaluation is documented in Subsection 3.3.2.2.1.
3.3.1-3	Stainless steel heat exchanger tubes exposed to treated water	Reduction of heat transfer due to fouling	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Not applicable for Auxiliary Systems components at Seabrook Station. This line item is associated with NUREG-1801 line item VII.E3-6, which is applicable to BWR Reactor Water Cleanup System heat exchangers. See subsection 3.3.2.2.2.
3.3.1-4	BWR Only				
3.3.1-5	Stainless steel and stainless clad steel heat exchanger components exposed to treated water >60°C (>140°F)	Cracking due to stress corrosion cracking	A plant specific aging management program is to be evaluated.	Yes, plant specific	Not applicable for Auxiliary Systems components at Seabrook Station. This line item is associated with NUREG-1801 line items VII.E3-3 and VII.E3-19, which is applicable to BWR Reactor Water Cleanup System heat exchangers. See subsection 3.3.2.2.3.2.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-6	Stainless steel diesel engine exhaust piping, piping components, and piping elements exposed to diesel exhaust	Cracking due to stress corrosion cracking	A plant specific aging management program is to be evaluated.	Yes, plant specific	Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage cracking due to stress corrosion cracking of the stainless steel diesel engine exhaust piping components in the Diesel Generator and Fire Protection systems. See subsection 3.3.2.2.3.3.
3.3.1-7	Stainless steel non-regenerative heat exchanger components exposed to treated borated water >60°C (>140°F)	Cracking due to stress corrosion cracking and cyclic loading	Water Chemistry and a plant-specific verification program. An acceptable verification program is to include temperature and radioactivity monitoring of the shell side water, and eddy current testing of tubes.	Yes, plant specific	Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2 and the One-Time Inspection Program, B.2.1.20, will be used to manage cracking dues to stress corrosion cracking and cyclic loading of the stainless steel non-regenerative heat exchanger components exposed to treated borated water 60°C (>140°F) in the Chemical and Volume Control System. See subsection 3.3.2.2.4.1.
3.3.1-8	Stainless steel regenerative heat exchanger components exposed to treated borated water >60°C (>140°F)	Cracking due to stress corrosion cracking and cyclic loading	Water Chemistry and a plant specific verification program. The AMP is to be augmented by verifying the absence of cracking due to stress corrosion cracking and cyclic loading. A plant specific aging management program is to be evaluated.	Yes, plant specific	The Water Chemistry Program, B.2.1.2 will be used to manage cracking due to stress corrosion cracking and cyclic loading of the stainless steel regenerative heat exchanger components exposed to treated borated water 60°C (>140°F) in the Chemical and Volume Control System. The regenerative heat exchanger is of a welded design that prevents heat exchanger disassembly for access to the heat exchanger internals. The Water Chemistry program effectiveness will be verified by the one-time inspection of another non-regenerative heat exchanger in the Chemical and Volume Control System with stainless steel components with the same the same environment to assure this aging effect is not occurring. In addition, the integrity of the regenerative heat exchanger is verified by continuous temperature monitoring. See subsection 3.3.2.2.4.2.
3.3.1-9	Stainless steel high-pressure pump casing in PWR	Cracking due to stress corrosion cracking and cyclic	Water Chemistry and a plant specific verification program.	Yes, plant specific	Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2 and the One-Time Inspection Program, B.2.1.20, will be used to manage cracking due to stress corrosion cracking and

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	chemical and volume control system	loading	The AMP is to be augmented by verifying the absence of cracking due to stress corrosion cracking and cyclic loading. A plant specific aging management program is to be evaluated.		cyclic loading of stainless steel high-pressure pump casings exposed to treated borated water in the Chemical and Volume Control system. See subsection 3.3.2.2.4.3.
3.3.1-10	High-strength steel closure bolting exposed to air with steam or water leakage.	Cracking due to stress corrosion cracking, cyclic loading	Bolting Integrity The AMP is to be augmented by appropriate inspection to detect cracking if the bolts are not otherwise replaced during maintenance.	Yes, if the bolts are not replaced during maintenance	Not Applicable. There is no high strength steel closure bolting exposed to air with steam or water leakage in the Auxiliary Systems at Seabrook Station. See subsection 3.3.2.2.4.4.
3.3.1-11	Elastomer seals and components exposed to air-indoor uncontrolled (internal/external)	Hardening and loss of strength due to elastomer degradation	A plant specific aging management program is to be evaluated.	Yes, plant specific	Consistent with NUREG-1801 with exceptions. Components in the Containment Building Spray system have been aligned to this line item due to material, environment, and aging effect. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to hardening and loss of strength of the elastomer components exposed to air-indoor uncontrolled (internal) in the Containment Building Spray, Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Diesel Generator, Diesel Generator Air Handling, Emergency Feed Water Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, Service Water Pump House Air Handling, and Spent Fuel Pool Cooling systems.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to hardening and loss of strength of the elastomer components exposed to air-indoor uncontrolled (external) in the Containment Building Spray, Chemical and Volume Control, Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On Line Purge, Control Building Air Handling, Dewatering, Diesel Generator Air Handling, Diesel Generator, Emergency Feed Water Pump House Air Handling, Fire Protection, Fuel Handling, Fuel Storage Building Air Handling, Instrument Air, Miscellaneous Equipment, Primary Auxiliary Building Air Handling, Service Water Pump House Air Handling, and Spent Fuel Pool Cooling systems. See subsection 3.3.2.2.5.1.
3.3.1-12	Elastomer lining exposed to treated water or treated borated water	Hardening and loss of strength due to elastomer degradation	A plant-specific aging management program is to be evaluated.	Yes, plant specific	Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to hardening and loss of strength of the elastomer components exposed to treated borated water in the Chemical and Volume Control system. See subsection 3.3.2.2.5.2.
3.3.1-13	Boral, boron steel spent fuel storage racks neutron-absorbing sheets exposed to treated water or treated borated water	Reduction of neutron-absorbing capacity and loss of material due to general corrosion	A plant specific aging management program is to be evaluated.	Yes, plant specific	Consistent with NUREG-1801. Seabrook Station will implement the Boral Monitoring Program, B.2.2.2, to manage reduction of neutron- absorbing capacity and loss of material due to general corrosion of the Boral Poison sheet in Spent Fuel Racks - in Treated Water exposed to treated borated water. See Subsection 3.3.2.2.6.
3.3.1-14	Steel piping, piping component, and piping elements exposed to lubricating oil	Loss of material due to general, pitting, and crevice corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consist with NUREG-1801 with exceptions. Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions) B.2.1.26, to manage loss of material due to general, pitting and crevice corrosion of the steel tanks exposed to

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					lubricating oil in the Diesel Generator, Instrument Air, and Miscellaneous Equipment systems. Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion of the steel piping components in the Chemical and Volume Control System, Diesel Generator, Fire Protection, Instrument Air, Miscellaneous Equipment, and Service Water systems. In addition, galvanic corrosion is an additional aging mechanism in the steel piping components in the Diesel Generator system. Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion of the galvanized steel piping components in the Service Water System. See subsection 3.3.2.2.7.1.
3.3.1-15	Steel reactor coolant pump oil collection system piping, tubing, and valve bodies exposed to lubricating oil	Loss of material due to general, pitting, and crevice corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Not applicable at Seabrook Station. There is no steel reactor coolant pump oil collection system piping components exposed to lubricating oil in the Oil Collection for Reactor Coolant Pumps System. See subsection 3.3.2.2.7.1.
3.3.1-16	Steel reactor coolant pump oil collection system tank exposed to lubricating oil	Loss of material due to general, pitting, and crevice corrosion	Lubricating Oil Analysis and One-Time Inspection to evaluate the thickness of the lower portion of the tank	Yes, detection of aging effects is to be evaluated	Chemical and Volume Control system has been aligned to this line item number based on material, environment and aging effect. Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion and a one time thickness measurement of the bottom of the steel tanks exposed to lubricating oil in the Oil Collection for the Reactor Coolant Pumps

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					system. Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion of the steel tanks exposed to lubricating oil in the Chemical and Volume Control System. See subsection 3.3.2.2.7.1.
3.3.1-17	BWR Only				
3.3.1-18	Stainless steel and steel diesel engine exhaust piping, piping components, and piping elements exposed to diesel exhaust	Loss of material/ general (steel only), pitting and crevice corrosion	A plant specific aging management program is to be evaluated.	Yes, plant specific	Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to general (steel only), pitting and crevice corrosion of the steel and stainless steel piping components and steel silencer component (Diesel Generator system) exposed to diesel exhaust in the Diesel Generator and Fire Protection systems. See subsection 3.3.2.2.7.3.
3.3.1-19	Steel (with or without coating or wrapping) piping, piping components, and piping elements exposed to soil	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion	Buried Piping and Tanks Surveillance Or Buried Piping and Tanks Inspection	No Yes, detection of aging effects and operating experience are to be further evaluated	Consistent with NUREG-1801 with exceptions. The Buried Piping and Tanks Inspection Program (with exceptions), B.2.1.22, will be used to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion of the steel piping components (with or without coating or wrapping) exposed to soil in the Auxiliary Boiler, Control Building Air Handling, Fire Protection, Plant Floor Drain, and Service Water systems. See subsection 3.3.2.2.8.
3.3.1-20	Steel piping, piping components, piping elements, and tanks exposed to fuel oil	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion,	Fuel Oil Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated)	Consistent with NUREG-1801 with exceptions. Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Fuel Oil Chemistry Program (with exceptions), B.2.1.18, to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
		and fouling			fouling of the following steel components exposed to fuel oil: *a)* Steel piping components exposed to fuel oil in the Auxiliary Boiler, Diesel Generator, and Fuel Oil systems. In addition, galvanic corrosion is an additional aging mechanism in the steel piping components in the Auxiliary Boiler System and Fuel Oil System. *b)* Steel tanks exposed to fuel oil in the Auxiliary Boiler, Diesel Generator, and Fuel Oil systems. See subsection 3.3.2.2.9.1.
3.3.1-21	Steel heat exchanger components exposed to lubricating oil	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801 with exceptions. Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling of the steel heat exchanger components exposed to lubricating oil in the Chemical and Volume Control and Diesel Generator systems. In addition, galvanic corrosion is an additional aging mechanism in the steel heat exchanger components in the Diesel Generator system. See subsection 3.3.2.2.9.2.
3.3.1-22	Steel with elastomer lining or stainless steel cladding piping, piping components, and piping elements exposed to treated water and treated borated water	Loss of material due to pitting and crevice corrosion (only for steel after lining/cladding degradation)	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Line item 3.3.1-22 is not applicable at Seabrook Station. NUREG 1801 line VII.A3-9 is not applicable since there is no steel with elastomer lining components exposed to treated borated water in the Spent Fuel Pool Cooing System. NUREG 1801 LINE VII.A4-12 is applicable to BWR only. See subsection 3.3.2.2.10.1
3.3.1-23	BWR Only				
3.3.1-24	Stainless steel and aluminum piping, piping components, and piping elements	Loss of material due to pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Not applicable for Auxiliary System components at Seabrook Station. This line item is associated with NUREG-1801 line items VII.A4-5, VII.A4-11, VII.E3-7, VII.E3-15, VII.E4-4, and VII.E4-14 which are applicable to BWR components.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	exposed to treated water				See subsection 3.3.2.2.10.2.
3.3.1-25	Copper alloy HVAC piping, piping components, piping elements exposed to condensation (external)	Loss of material due to pitting and crevice corrosion	A plant-specific aging management program is to be evaluated.	Yes, plant specific	Components in the Chlorination, Containment Air Handling, Containment Enclosure Air Handling, Control Building Air Handling, Screen Wash, Service Water, and Waste Processing Liquid systems have been aligned to this line item based on material, environment and aging effect. Consistent with NUREG-1801 with exceptions. Seabrook Station will implement the External Surfaces Monitoring Program (with exceptions), B.2.1.24, to manage loss of material due to pitting and crevice corrosion of the following copper alloy components exposed to condensation (external): a) Copper alloy piping components exposed to condensation (external) in the Chlorination, Screen Wash, Service Water, and Waste Processing Liquid systems. In addition, galvanic corrosion is an additional aging mechanism in the Screen Wash and Waste Processing Liquid systems. b) Copper alloy heat exchanger components exposed to condensation (external) in the Containment Air Handling, Containment Enclosure Air Handling, and Control Building Air Handling systems. Consistent with NUREG-1801. Seabrook Station will implement the Bolting Integrity Program, B.2.1.9, to manage loss of material due to pitting and crevice corrosion of the copper alloy bolting exposed to condensation (external) in the Service Water system. The Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.F1-16 copper alloy in condensation (External) environment exhibits pitting and crevice corrosion. Therefore, the components having an internal environment of condensation would also see pitting and crevice

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					corrosion as an aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components exposed to condensation (internal) in the Control Building Air Handling System. See subsection 3.3.2.2.10.3.
3.3.1-26	Copper alloy piping, piping components, and piping elements exposed to lubricating oil	Loss of material due to pitting and crevice corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Copper alloy heat exchanger components in the Chemical and Volume Control and Diesel Generator systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components, and copper alloy heat exchanger components exposed to lubricating oil. a) Copper alloy piping components in the Chemical and Volume Control, Diesel Generator, Instrument Air, Miscellaneous Equipment, Service Water, and Switchyard systems. b) Copper alloy heat exchanger components in the Chemical and Volume Control System and Diesel Generator Systems. See subsection 3.3.2.2.10.4.
3.3.1-27	Stainless steel HVAC ducting and aluminum HVAC piping, piping components and piping elements exposed to condensation	Loss of material due to pitting and crevice corrosion	A plant-specific aging management program is to be evaluated.	Yes, plant specific	Stainless steel piping components in the Fire Protection, Fuel Storage Building Air Handling, Primary Component Cooling Water System, Screen Wash, and Service Water systems and stainless steel bolting in the Primary Component Cooling Water, Screen Wash and Service Water systems have been aligned to this line item number based on material, environment and aging effect.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Aluminum piping components in the Diesel Generator, Fire Protection and Instrument Air systems and aluminum heat exchanger components in the Diesel Generator system have been aligned to this line item number based on material, environment and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to pitting and crevice corrosion of the aluminum piping components exposed to condensation in the Fire Protection system. In addition galvanic corrosion is an additional aging mechanism. Consistent with NUREG-1801. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of material due to pitting, and crevice corrosion of the stainless steel bolting exposed to condensation (external) in the Primary Component Cooling Water, Screen Wash and Service Water systems. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to pitting and crevice corrosion of the stainless steel HVAC components and stainless steel piping components exposed to condensation (internal) in the Containment Air Handling, Containment Enclosure Air Handling, and Fuel Storage Building Air Handling systems. Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to pitting and crevice corrosion of the aluminum heat exchanger components exposed to condensation (external) in the Control Building Air Handling System. Consistent with NUREG-1801 with exceptions. The External

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to pitting and crevice corrosion of the stainless steel piping components exposed to condensation (external) in the Primary Component Cooling Water, Screen Wash, and Service Water systems. Consistent with NUREG-1801. The Compressed Air Monitoring Program, B.2.1.14, will be used to manage loss of material due to pitting, crevice and galvanic corrosion (an additional aging mechanism) of the aluminum piping components and heat exchanger components (Diesel Generator system) exposed to condensation (internal) in the Diesel Generator and Instrument Air systems. See subsection 3.3.2.2.10.5.
3.3.1-28	Copper alloy fire protection piping, piping components, and piping elements exposed to condensation (internal)	Loss of material due to pitting and crevice corrosion	A plant-specific aging management program is to be evaluated.	Yes, plant specific	Copper alloy piping components in the Diesel Generator and Instrument Air systems and copper alloy tanks in the Instrument Air system have been aligned to this line item number based on material, environment and aging effect. Consistent with NUREG-1801. The Compressed Air Monitoring Program, B.2.1.14, will be used to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components exposed to condensation in the Diesel Generator and Instrument Air systems and copper alloy tanks exposed to condensation in the Instrument Air system. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to pitting and crevice corrosion of the copper alloy piping components exposed to condensation in the Fire Protection System. See subsection 3.3.2.2.10.6.
3.3.1-29	Stainless steel piping, piping	Loss of material due to pitting and crevice	A plant-specific aging management	Yes, plant specific	Consistent with NUREG-1801 with exceptions. The Buried Piping and Tanks Inspection Program (with exceptions), B.2.1.22, will be

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	components, and piping elements exposed to soil	corrosion	program is to be evaluated.		used to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion (an additional aging mechanism) of the stainless steel piping components exposed to soil in the Diesel Generator system. See subsection 3.3.2.2.10.7.
3.3.1-30	BWR Only				
3.3.1-31	BWR Only				
3.3.1-32	Stainless steel, aluminum and copper alloy piping, piping components, and piping elements exposed to fuel oil	Loss of material due to pitting, crevice, and microbiologically influenced corrosion	Fuel Oil Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Fuel Oil Chemistry Program (with exceptions), B.2.1.18, to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion of the stainless steel, aluminum, and copper alloy piping components exposed to fuel oil a) Stainless steel piping components are in the Auxiliary Boiler, Diesel Generator, and Fuel Oil systems b) Aluminum piping components are in the Diesel Generator system. In addition, galvanic is an additional aging mechanism c) Copper alloy piping components are in the Auxiliary Boiler, Diesel Generator, Fire Protection, and Fuel Oil systems. In addition, galvanic corrosion is an additional aging mechanism in the copper alloy piping components in the Diesel Generator system. See subsection 3.3.2.2.12.1.
3.3.1-33	Stainless steel piping, piping components, and piping elements exposed to lubricating oil	Loss of material due to pitting, crevice, and microbiologically influenced corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in the Chemical and Volume Control and Oil Collection for Reactor Coolant Pumps systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion of the following

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					stainless steel components exposed to lubricating oil: *a)* Stainless steel piping components exposed to lubricating oil in the Chemical and Volume Control, Diesel Generator, Fire Protection, Instrument Air, Miscellaneous Equipment, Oil Collection for Reactor Coolant Pumps, and Switchyard systems. *b)* Stainless steel drip pans, stainless steel flame arrestors, and stainless steel tanks exposed to lubricating oil in the Oil Collection for Reactor Coolant Pumps system. c) Stainless steel heat exchanger components exposed to lubricating oil are contained in the Chemical and Volume Control system. See subsection 3.3.2.2.12.2.
3.3.1-34	Elastomer seals and components exposed to air-indoor uncontrolled (internal or external)	Loss of material due to Wear	A plant specific aging management program is to be evaluated.	Yes, plant specific	Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to wear of the elastomer components exposed to air-indoor uncontrolled (internal) in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Diesel Generator Air Handling, Emergency Feed Water Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, and Service Water Pump House Air Handling systems The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to wear of the elastomer components exposed to air-indoor uncontrolled (external) in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Diesel Generator Air Handling, Emergency Feed Water Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, and Service Water Pump House Air Handling systems. See subsection 3.3.2.2.13.

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Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-35	Steel with stainless steel cladding pump casing exposed to treated borated water	Loss of material due to cladding breach	A plant-specific aging management program is to be evaluated. Reference NRC Information Notice 94-63, "Boric Acid Corrosion of Charging Pump Casings Caused by Cladding Cracks."	Yes, verify plant-specific program addresses cladding breach	Line item 3.3.1-35 is not applicable at Seabrook Station. The Chemical and Volume Control System pumps do not have stainless steel cladding. See subsection 3.3.2.2.14.
3.3.1-36	BWR Only				
3.3.1-37	BWR Only				
3.3.1-38	BWR Only				
3.3.1-39	BWR Only				
3.3.1-40	Steel tanks in diesel fuel oil system exposed to air-outdoor (external)	Loss of material due to general, pitting, and crevice corrosion	Aboveground Steel Tanks	No	Components in the Auxiliary Boiler and Fire systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Aboveground Steel Tanks Program, B.2.1.17, will be used to manage loss of material due to general, pitting, and crevice corrosion of the steel tanks exposed to air-outdoor (external) in the Auxiliary Boiler, Fire Protection, and Fuel Oil systems.
3.3.1-41	High-strength steel closure bolting exposed to air with steam or water leakage	Cracking due to cyclic loading, stress corrosion cracking	Bolting Integrity	No	Not applicable at Seabrook Station. There is no high strength steel closure bolting in the Auxiliary Systems.

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Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-42	Steel closure bolting exposed to air with steam or water leakage	Loss of material due to general corrosion	Bolting Integrity	No	All steel bolting was aligned with line item 3.3.1-43 that has an external environment of Air-Indoor Uncontrolled, which includes pitting and crevice corrosion and uses the Bolting Integrity Program for managing these aging effects and therefore, Seabrook Station did not use steel bolting in this environment.
3.3.1-43	Steel bolting and closure bolting exposed to air-indoor uncontrolled (external) or air-outdoor (external)	Loss of material due to general, pitting, and crevice corrosion	Bolting Integrity	No	Consistent with NUREG-1801. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of material due to general, pitting, and crevice corrosion of the steel bolting exposed to air-indoor uncontrolled in the Auxiliary Boiler, Chemical and Volume Control, Containment Air Purge, Containment Enclosure Air Handling, Containment On Line Purge, Control Building Air Handling, Diesel Generator, Fire Protection, Fuel Handling, Hot Water Heating, Instrument Air, Mechanical Seal Supply, Miscellaneous Equipment, Nitrogen Gas, Plant Floor Drain, Potable Water, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, Radiation Monitoring, Release Recovery, Roof Drains, Sample, Spent Fuel Pool Cooling, Waste Gas, and Waste Processing Liquid Drains systems and steel bolting exposed to air outdoor in the Auxiliary Boiler, Fuel Oil, and Switchyard systems.
3.3.1-44	Steel compressed air system closure bolting exposed to condensation	Loss of material due to general, pitting, and crevice corrosion	Bolting Integrity	No	Steel bolting in the Chlorination, Circulating Water, Hot Water Heating, Primary Component Cooling Water, Screen Wash, Service Water, and Waste Processing Liquid systems have been aligned to this line item number based on material, environment and aging effect. Consistent with NUREG-1801. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of material due to general, pitting, and crevice corrosion of the steel bolting exposed to condensation in the Chlorination, Circulating Water, Hot Water Heating, Primary Component Cooling Water, Screen Wash, Service Water, and Waste Processing Liquid systems. In addition, galvanic corrosion is an additional aging mechanism in the Service Water and Waste Processing Liquid systems. Steel bolting in the Instrument Air System was aligned with line item 3.3.1-43 that has an external environment of air-indoor

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					uncontrolled which includes general, pitting and crevice corrosion and uses the Bolting Integrity Program for managing these aging effects. Therefore, Seabrook Station did not use steel bolting in condensation in the Instrument Air system bolting.
3.3.1-45	Steel closure bolting exposed to air-indoor uncontrolled (external)	Loss of preload due to thermal effects, gasket creep, and self loosening	Bolting Integrity	No	Consistent with NUREG-1801.The Bolting Integrity Program, B.2.1.9, will be used to manage loss of preload due to thermal effects, gasket creep, and self-loosening of the steel bolting exposed to air-indoor uncontrolled (external) in the Auxiliary Boiler, Chemical and Volume Control, Chlorination, Containment Air Purge, Containment Enclosure Air Handling, Containment On Line Purge, Control Building Air Handling, Diesel Generator, Fire Protection, Fuel Handling, Hot Water Heating, Instrument Air, Mechanical Seal Supply, Miscellaneous Equipment, Nitrogen Gas, Plant Floor Drain, Potable Water, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, Radiation Monitoring, Release Recovery, Roof Drains, Sample, Service Water, Spent Fuel Pool Cooling, Waste Gas, and Waste Processing Liquid Drains systems.
3.3.1-46	Stainless steel and stainless clad steel piping, piping components, piping elements, and heat exchanger components exposed to closed cycle cooling water >60°C (>140°F)	Cracking due to stress corrosion cracking	Closed-Cycle Cooling Water System	No	Not applicable at Seabrook Station. NUREG-1801 line items VII.C2-11, VII.E3-2, VII.E3-13, and VII.E4-11 were not used at Seabrook Station.
3.3.1-47	Steel piping, piping components, piping elements, tanks, and heat exchanger components exposed to closed cycle cooling water	Loss of material due to general, pitting, and crevice corrosion	Closed-Cycle Cooling Water System	No	Components in the Steam Generator Blowdown system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to general, pitting, crevice corrosion of the steel piping components and tanks exposed to closed cycle cooling water.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Steel piping components are contained in the Chemical and Volume Control, Containment Enclosure Air Handling, Control Building Air Handling, Diesel Generator, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, Spent Fuel Pool Cooling, Steam Generator Blowdown, and Waste Processing Liquid Drains systems. Steel tanks are contained in the Control Building Air Handling, Diesel Generator, Primary Component Cooling Water, and Waste Processing Liquid Drains systems. In addition, galvanic corrosion is an additional aging mechanism in the steel piping components in the Control Building Air Handling, Diesel Generator, Primary Component Cooling Water, and Spent Fuel Pool Cooling systems.
3.3.1-48	Steel piping, piping components, piping elements, tanks, and heat exchanger components exposed to closed cycle cooling water	Loss of material due to general, pitting, crevice, and galvanic corrosion	Closed-Cycle Cooling Water System	No	Components in Reactor Coolant System have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to general, pitting, crevice, and galvanic corrosion of the steel heat exchanger components exposed to closed-cycle cooling water in the Chemical and Volume Control, Diesel Generator, Mechanical Seal Supply, Primary Component Cooling Water (galvanic not applicable since components not in contact with more noble material), Reactor Coolant, Sample, Spent Fuel Pool Cooling, and Waste Processing Liquid Drains systems.
3.3.1-49	Stainless steel; steel with stainless steel cladding heat exchanger components exposed to closed cycle cooling water	Loss of material due to microbiologically influenced corrosion	Closed-Cycle Cooling Water System	No	Not applicable for Auxiliary Systems components at Seabrook Station. This line item is associated with NUREG-1801 line item VII.E3-1 and VII.E4-1, which are applicable to BWR systems only.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-50	Stainless steel piping, piping components, and piping elements exposed to closed cycle cooling water	Loss of material due to pitting and crevice corrosion	Closed-Cycle Cooling Water System	No	Components in the Chemical and Volume Control and Control Building Air Handling systems were aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to pitting and crevice corrosion of the following stainless components exposed to closed-cycle cooling water: a) Stainless steel piping components are contained in the Chemical and Volume Control, Containment Enclosure Air Handling, Control Building Air Handling, Diesel Generator, Primary Component Cooling Water, Radiation Monitoring, Spent Fuel Pool Cooling, and Waste Processing Liquid Drains systems. b) Stainless steel tanks are contained in the Control Building Air Handling system. c) Stainless steel heat exchanger components are contained in the Chemical and Volume Control and Primary Component Cooling Water systems.
3.3.1-51	Copper alloy piping, piping components, piping elements, and heat exchanger components exposed to closed cycle cooling water	Loss of material due to pitting, crevice, and galvanic corrosion	Closed-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage loss of material due to pitting, crevice, and galvanic corrosion of the copper alloy piping components and copper alloy heat exchanger components exposed to closed cycle cooling water. Copper alloy piping components are contained in the , Containment Enclosure Air Handling, Control Building Air Handling, Diesel Generator, and Primary Component Cooling Water systems. Copper alloy heat exchanger components are contained in the Chemical and Volume Control, Containment Air Handling, Containment Enclosure Air Handling, Control Building Air Handling, and Diesel Generator systems. In addition, a) Copper alloy heat exchanger components in the Containment Air Handling, Control Building Air Handling, and Diesel Generator systems are not in contact with a more noble material and

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					therefore, galvanic corrosion is not applicable. b) Copper alloy heat exchanger components, copper alloy filter housings, and copper alloy valves in the Containment Enclosure Air Handling system are not in contact with a more noble material and therefore, galvanic corrosion is not applicable. c) Copper alloy piping components in the Control Building Air Handling and Primary Component Cooling Water systems are not in contact with a more noble material and therefore, galvanic corrosion is not applicable.
3.3.1-52	Steel, stainless steel, and copper alloy heat exchanger tubes exposed to closed cycle cooling water	Reduction of heat transfer due to fouling	Closed-Cycle Cooling Water System	No	Components in the Reactor Coolant system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water System Program (with exceptions), B.2.1.12, will be used to manage reduction of heat transfer due to fouling of the stainless steel and copper alloy heat exchanger tubes exposed to closed-cycle cooling water. Stainless steel heat exchanger tubes are contained in the Chemical and Volume Control, Primary Component Cooling Water, Reactor Coolant, and Spent Fuel Pool Cooling systems. Copper alloy heat exchanger tubes are contained in the Chemical and Volume Control, Containment Air Handling, Containment Enclosure Air Handling, Control Building Air Handling, and Diesel Generator systems. There are no steel heat exchanger tubes exposed to closed-cycle cooling water in the Auxiliary Systems.
3.3.1-53	Steel compressed air system piping, piping components, and piping elements exposed to condensation (internal)	Loss of material due to general and pitting corrosion	Compressed Air Monitoring	No	Components in the Instrument Air system have been aligned to this line item based on material, environment, and aging effect Consistent with NUREG-1801. The Compressed Air Monitoring Program, B.2.1.14, will be used to manage loss of material due to general and pitting corrosion of the steel compressed air system piping components, steel heat exchanger components, and steel tanks exposed to condensation (internal) in the Instrument Air system. In addition, a) Crevice corrosion is an additional aging mechanism of the steel compressed air system piping components, steel heat exchanger components and steel tanks.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					b) Galvanic corrosion is an additional aging mechanism of the steel compressed air system piping components and steel heat exchanger components.
3.3.1-54	Stainless steel compressed air system piping, piping components, and piping elements exposed to internal condensation	Loss of material due to pitting and crevice corrosion	Compressed Air Monitoring	No	Components in the Instrument Air system have been aligned to this line item based on material, environment, and aging effect Consistent with NUREG-1801. The Compressed Air Monitoring Program, B.2.1.14, will be used to manage loss of material due to pitting and crevice corrosion of the stainless steel compressed air system piping components and stainless steel heat exchanger components(Instrument Air System) exposed to condensation (internal) in the Diesel Generator and Instrument Air systems. Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.D-4, stainless steel in a condensation (Internal) environment exhibits loss of material due to pitting and crevice corrosion. Therefore, stainless steel in a condensation (external) environment will exhibit the same aging effects/mechanisms. The Compressed Air Monitoring Program, B.2.1.14, will be used to manage loss of material due to pitting and crevice corrosion of the stainless steel compressed air piping components exposed to condensation (external) in the Diesel Generator and Instrument Air systems. Components in the Containment Enclosure Air Handling, Vent Gas, and Main Steam systems have been aligned to this item number based on material, environment and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to pitting and crevice corrosion of the following stainless steel components exposed to condensation (internal): a) Stainless steel piping components in the Containment

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Enclosure Air Handling, Vent Gas, and Main Steam systems, and b) Stainless Steel tanks in the Vent Gas system. Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.D-4 stainless steel in a condensation (Internal) environment exhibits loss of material due to pitting and crevice corrosion. Therefore, stainless steel in a condensation (external) environment will exhibit the same aging effects/mechanisms. Components in the Hot Water Heating and Waste Processing Liquid systems have been aligned to this item number based on material, environment and aging effect. Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be substituted to manage loss of material due to pitting and crevice corrosion for stainless steel piping components exposed to condensation (external) in the Hot Water Heating and Waste Processing Liquid systems.
3.3.1-55	Steel ducting closure bolting exposed to air-indoor uncontrolled (external)	Loss of material due to general corrosion	External Surfaces Monitoring	No	Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to general corrosion of steel ducting closure bolting exposed to air-indoor uncontrolled (external) in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On Line Purge, Diesel Generator Air Handling, Emergency Feed Water Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, and Service Water Pump House Air Handling systems.
3.3.1-56	Steel HVAC ducting and components external surfaces exposed to air-indoor uncontrolled	Loss of material due to general corrosion	External Surfaces Monitoring	No	Components in the Diesel Generator system and Auxiliary Boiler system were aligned with this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The External

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	(external)				Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to general corrosion of the steel HVAC ducting and components external surfaces exposed to air-indoor uncontrolled (external) in the Auxiliary Boiler, Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On Line Purge, Control Building Air Handling, Diesel Generator Air Handling, Diesel Generator, Emergency Feed Water Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, and Service Water Pump House Air Handling systems. Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.F4-1steel in an indoor uncontrolled air (external) environment exhibits loss of material due to general corrosion. Therefore, steel in an indoor uncontrolled air (internal) environment will exhibit the same aging effects/mechanisms. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to general corrosion of the steel fan housing exposed to air-indoor uncontrolled (internal) in the Diesel Generator system.
3.3.1-57	Steel piping and components external surfaces exposed to air-indoor uncontrolled (External)	Loss of material due to general corrosion	External Surfaces Monitoring	No	Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to general corrosion of the steel piping components external surfaces exposed to air-indoor uncontrolled (external) in the Instrument Air system.
3.3.1-58	Steel external surfaces exposed to air-indoor uncontrolled (external), air-outdoor (external), and condensation	Loss of material due to general corrosion	External Surfaces Monitoring	No	Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to general corrosion of the steel external surfaces exposed to air-indoor uncontrolled (external), air-outdoor (external),and condensation (external). Steel external components exposed to air indoor uncontrolled (external) are in the Auxiliary Boiler, Boron Recovery, Chemical

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	(external)				and Volume Control, Chlorination, Containment Air Purge, Containment Enclosure Air Handling, Demineralized Water, Dewatering, Diesel Generator, Fire Protection, Fuel Handling, Fuel Oil, Fuel Storage Building Air Handling, Hot Water Heating, Mechanical Seal Supply, Miscellaneous Equipment, Nitrogen Gas, Oil Collection for RC Pumps, Plant Floor Drain, Potable Water, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, Reactor Make-Up Water, Release Recovery, Roof Drains, Sample, Spent Fuel Pool Cooling, Waste Gas, Waste Processing Liquid, and Waste Processing Liquid Drains systems. Steel external components exposed to air outdoor (external) are contained in the Instrument Air system. In addition pitting and crevice are additional aging mechanisms. Steel external surfaces exposed to condensation are contained in the Chlorination, Hot Water Heating, Primary Component Cooling Water, Screen Wash, Service Water, and Waste Processing Liquid systems. In addition, pitting, crevice, and galvanic corrosion are additional aging mechanisms in the Chlorination, Screen Wash, Service Water System, and Waste Processing Liquid systems. In addition pitting and crevice are additional aging mechanisms in the Hot Water Heating and Primary Component Cooling Water systems.
3.3.1-59	Steel heat exchanger components exposed to air-indoor uncontrolled (external) or air-outdoor (external)	Loss of material due to general, pitting, and crevice corrosion	External Surfaces Monitoring	No	Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to general, pitting, and crevice corrosion of the steel heat exchanger components exposed to air-indoor uncontrolled (external) in the Diesel Generator and Fire Protection systems.
3.3.1-60	Steel piping, piping components, and piping elements exposed to air-outdoor (external)	Loss of material due to general, pitting, and crevice corrosion	External Surfaces Monitoring	No	Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to general, pitting, and crevice corrosion of the following steel components exposed to air-outdoor a) Steel piping components exposed to air-outdoor in the Auxiliary Boiler, Control Building Air Handling, Diesel Generator, Fire

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Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Protection, Fuel Oil, Service Water, and Switchyard systems. In addition, galvanic corrosion is an additional aging mechanism in the Fuel Oil and Service Water systems and, b) Galvanized steel piping components exposed to air-outdoor in the Fire Protection and Service Water systems. In addition galvanic corrosion is an additional aging mechanism in the Service Water System.
3.3.1-61	Elastomer fire barrier penetration seals exposed to air-outdoor or air-indoor uncontrolled	Increased hardness, shrinkage and loss of strength due to weathering	Fire Protection	No	Not applicable to the Auxiliary Systems at Seabrook Station. Increased hardness, shrinkage and loss of strength of elastomers exposed to air-indoor uncontrolled and air-outdoor is managed by the Fire Protection Program, B.2.1.15 and the Structures Monitoring Program, B.2.1.31 at Seabrook Station (See Section 3.5).
3.3.1-62	Aluminum piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting and crevice corrosion	Fire Protection	No	Not applicable at Seabrook Station. There are no aluminum piping components exposed to raw water in the Auxiliary Systems at Seabrook Station
3.3.1-63	Steel fire rated doors exposed to air-outdoor or air-indoor uncontrolled	Loss of material due to Wear	Fire Protection	No	Not applicable to the Auxiliary Systems at Seabrook Station. Wear of steel fire doors exposed to air-outdoor or air-indoor uncontrolled is managed by the Fire Protection Program, B.2.1.15 at Seabrook Station. (See Section 3.5)
3.3.1-64	Steel piping, piping components, and piping elements exposed to fuel oil	Loss of material due to general, pitting, and crevice corrosion	Fire Protection and Fuel Oil Chemistry	No	Consistent with NUREG-1801 with exceptions. The Fire Protection Program, B.2.1.15, and the Fuel Oil Chemistry Program (with exceptions), B.2.1.18, will be used to manage loss of material due to general, pitting, and crevice corrosion of the steel piping components exposed to fuel oil in the Fire Protection and Fuel Oil systems. In addition, galvanic and microbiologically influenced corrosion, and fouling are additional aging mechanisms in the Fire Protection and Fuel Oil systems.
3.3.1-65	Reinforced concrete structural fire barriers – walls, ceilings and floors exposed to air-indoor uncontrolled	Concrete cracking and spalling due to aggressive chemical attack, and reaction with aggregates	Fire Protection and Structures Monitoring Program	No	Not applicable to the Auxiliary Systems at Seabrook Station however, cracking and spalling, aggressive chemical attack of reinforced concrete structural fire barriers exposed to indoor air is managed by the Fire Protection Program, B.2.1.15, and Structural Monitoring Program, B.2.1.31, at Seabrook Station. (In Section 3.5).

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Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-66	Reinforced concrete structural fire barriers –walls, ceilings and floors exposed to air-outdoor	Concrete cracking and spalling due to freeze thaw, aggressive chemical attack, and reaction with aggregates	Fire Protection and Structures Monitoring Program	No	Not applicable at Seabrook Station. There are no reinforced concrete structural fire barriers – walls, ceiling and floors exposed to air-outdoor and subject to cracking and spalling due to freeze thaw.
3.3.1-67	Reinforced concrete structural fire barriers – walls, ceilings and floors exposed to air-outdoor or air-indoor uncontrolled	Loss of material due to corrosion of embedded steel	Fire Protection and Structures Monitoring Program	No	Not applicable to the Auxiliary Systems at Seabrook Station however, loss of material of reinforced concrete structural fire barriers exposed to air is managed by the Fire Protection Program, B.2.1.15, and Structural Monitoring Program, B.2.1.31, at Seabrook Station. (In Section 3.5)
3.3.1-68	Steel piping, piping components, and piping elements exposed to raw water	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling	Fire Water System	No	Steel tanks and steel vortex plate in the Fire Protection system were aligned with this line item based on material, environment, and aging effect. Consistent with the NUREG 1801. The Fire Water System Program, B.2.1.16, will be used to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling of the steel piping components, steel tanks and steel vortex plate exposed to raw water in the Fire Protection System. In addition, galvanic corrosion is an additional aging mechanism in the steel piping components in the Fire Protection system. Components in the Chlorination, Dewatering, Plant Floor Drain, Potable Water, Roof Drains, Screen Wash, Waste Processing Liquid, and Waste Processing Liquid Drains systems, have been aligned to this item number based on material, environment and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion and fouling (except Potable Water System) of the following steel components

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					exposed to raw water. a) Steel piping components in the Chlorination, Dewatering, Plant Floor Drain, Potable Water, Roof Drains, Screen Wash, Waste Processing Liquid, and Waste Processing Liquid Drains systems. In addition, galvanic corrosion is an additional aging mechanism for the Chlorination, Dewatering, Plant Floor Drain, Potable Water, Screen Wash, Waste Processing Liquid, and Waste Processing Liquid Drains systems, and fouling is not applicable to Potable Water system. b) Steel tanks in the Plant Floor Drain and Potable Water systems.
3.3.1-69	Stainless steel piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting and crevice corrosion, and fouling	Fire Water System	No	Consistent with the NUREG 1801. The Fire Water System Program, B.2.1.16, will be used to manage loss of material due to pitting and crevice corrosion, and fouling of the stainless steel piping components exposed to raw water in the Fire Protection system. In addition, microbiologically influenced corrosion is an additional aging mechanism in the Fire protection system. Components in the Plant Floor Drain, Potable Water, and Waste Processing Liquid Drains systems have been aligned to this item number based on material, environment and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to pitting and crevice corrosion, and fouling of the stainless steel piping components exposed to raw water in the Plant Floor Drain System, Potable Water System, and Waste Processing Liquid Drains System. In addition, microbiologically influenced corrosion is an additional aging mechanism for the Plant Floor Drain, Potable Water, and Waste Processing Liquid Drains systems, and fouling is not applicable to the Potable Water system.
3.3.1-70	Copper alloy piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion,	Fire Water System	No	Consistent with the NUREG 1801. The Fire Water System Program, B.2.1.16, will be used to manage loss of material due to pitting, crevice, microbiologically influenced corrosion, and fouling of the copper alloy piping components exposed to raw water in the Fire Protection system.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
		and fouling			Components in the Potable Water System have been aligned to this item number based on material, environment and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion of the copper alloy piping components exposed to raw water in the Potable Water system. In addition, *a)* galvanic corrosion is an additional aging mechanism in the Potable Water system, fouling is not applicable to the Potable Water system.
3.3.1-71	Steel piping, piping components, and piping elements exposed to moist air or condensation (Internal)	Loss of material due to general, pitting, and crevice corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	No	Consistent with the NUREG 1801.The Compressed Air Monitoring Program, B.2.1.14, will be substituted to manage loss of material due to general, pitting, and crevice corrosion of the steel piping components exposed to condensation in the Diesel Generator system. In addition galvanic corrosion is an additional aging mechanism. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to general, pitting, and crevice corrosion of the steel piping components exposed to condensation in the Fire Protection System. In addition galvanic corrosion is an additional aging mechanism.
3.3.1-72	Steel HVAC ducting and components internal surfaces exposed to condensation (Internal)	Loss of material due to general, pitting, crevice, and (for drip pans and drain lines) microbiologically influenced corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	No	Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion for the following steel components exposed to condensation (internal). *a)* Galvanized steel tanks in Control Building Air Handling system. *b)* Steel drip pans in the Control Building Air Handling system.
3.3.1-73	Steel crane structural girders in load handling	Loss of material due to general corrosion	Inspection of Overhead Heavy Load and Light Load	No	Not applicable to the Auxiliary Systems at Seabrook Station however, loss of material of steel crane structural girders is managed by the Inspection of Overhead Heavy Load and Light

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	system exposed to air-indoor uncontrolled (external)		(Related to Refueling) Handling Systems		Load (Related to Refueling) Handling Systems Program, B.2.1.13, and Structural Monitoring Program, B.2.1.31, at Seabrook Station. (In Section 3.5).
3.3.1-74	Steel cranes – rails exposed to air-indoor uncontrolled (external)	Loss of material due to Wear	Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems	No	Not applicable to the Auxiliary Systems at Seabrook Station however, wear of crane rails exposed to air is managed by the Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems Program, B.2.1.13, and Structural Monitoring Program, B.2.1.31, at Seabrook Station. (In Section 3.5)
3.3.1-75	Elastomer seals and components exposed to raw water	Hardening and loss of strength due to elastomer degradation; loss of material due to erosion	Open-Cycle Cooling Water System	No	Components in the Circulating Water and Dewatering systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG 1801 with exceptions. The Open-Cycle Cooling Water System Program (with exceptions), B.2.1.11, will be used to manage hardening and loss of strength due to elastomer degradation and loss of material due to erosion of the elastomer components exposed to raw water in the Service Water and Circulating Water systems. Consistent with NUREG 1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage hardening and loss of strength due to elastomer degradation and loss of material due to erosion for elastomer components exposed to raw water in the Dewatering system. The raw water in the Dewatering system is ground water and therefore, the Open-Cycle Cooling Water System Program is not applicable.
3.3.1-76	Steel piping, piping components, and piping elements (without lining/coating or with degraded	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, fouling, and	Open-Cycle Cooling Water System	No	Components in the Circulating Water system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Open-Cycle Cooling Water System Program (with exceptions), B.2.1.11, will

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	lining/coating) exposed to raw water	lining/coating degradation			be used to manage loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, fouling, and lining/coating degradation of the steel piping components exposed to raw water in the Service Water and Circulating Water systems. In addition, galvanic corrosion is an additional aging mechanism for the Service Water and Circulating Water systems.
3.3.1-77	Steel heat exchanger components exposed to raw water	Loss of material due to general, pitting, crevice, galvanic, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Components in the Fire Protection system have been aligned to this item number based on material, environment and aging effect. Consistent with NUREG 1801. The Fire Water System Program, B.2.1.16, will be substituted to manage loss of material due to general, pitting, crevice, galvanic, and microbiologically influenced corrosion, and fouling of the steel heat exchanger components exposed to raw water in the Fire Protection system. There are no steel heat exchanger components in the Service Water system exposed to raw water.
3.3.1-78	Stainless steel, nickel alloy, and copper alloy piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting and crevice corrosion	Open-Cycle Cooling Water System	No	Components in the Circulating Water system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Open-Cycle Cooling Water System Program (with exceptions), B.2.1.11, will be used to manage loss of material due to pitting and crevice corrosion of the nickel alloy piping components exposed to raw water in the Service Water and Circulating Water systems. In addition, fouling and microbiologically influenced corrosion are additional mechanisms for the Service Water and Circulating Water systems. Components in the Chlorination and Screen Wash systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG 1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					substituted to manage loss of material due to pitting and crevice corrosion of the nickel alloy piping components exposed to raw water in the Chlorination and Screen Wash systems. In addition, microbiologically influenced corrosion and fouling are additional aging mechanisms for the Chlorination and Screen Wash systems. The copper alloy piping components were not aligned to NUREG 1801 line item VII.C3-2 in the Auxiliary Systems. The stainless steel piping components were not aligned to NUREG 1801 line item VII.C3-7 in the Auxiliary Systems.
3.3.1-79	Stainless steel piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting and crevice corrosion, and fouling	Open-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Open-Cycle Cooling Water System Program (with exceptions), B.2.1.11, will be used to manage loss of material due to pitting and crevice corrosion, and fouling of the stainless steel piping components exposed to raw water in the Service Water system. In addition, microbiologically influenced corrosion is an additional aging mechanism for the Service Water system. Components in the Dewatering, Screen Wash, and Service Water systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG 1801. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of material due to pitting and crevice corrosion, and fouling of the stainless steel bolting exposed to raw water in the Service Water system. In addition, microbiologically influenced corrosion is an additional aging mechanism in the Service Water system. Consistent with NUREG 1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to pitting and crevice corrosion, and fouling of the stainless steel piping components exposed to raw water in the Dewatering, Service Water, and

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Screen Wash systems and stainless steel tanks in the Dewatering system. In addition, microbiologically influenced corrosion is an additional aging mechanism in the Dewatering and Screen Wash systems. Fouling in the Service Water system is not applicable since the raw rater is potable water.
3.3.1-80	Stainless steel and copper alloy piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion	Open-Cycle Cooling Water System	No	Components in the Boron Recovery and Waste Processing Liquid systems have been aligned to this line item based on material, environment and aging effect. Consistent with NUREG 1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to pitting, crevice, and microbiologically induced corrosion of the stainless steel piping components and stainless steel tanks exposed to raw water in the Boron Recovery and Waste Processing Liquid systems. In addition, fouling is an additional aging mechanism in the Boron Recovery and Waste Processing Liquid systems. The raw water environment associated with the Boron Recovery and Waste Processing Liquid systems is radioactive liquid waste and therefore, Open-Cycle Cooling Water System Program is not applicable. Consistent with NUREG 1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to pitting, crevice, and microbiologically induced corrosion of the copper alloy piping components exposed to raw water in the Waste Processing Liquid system. In addition, fouling and galvanic corrosion are additional aging mechanisms for this line item. The raw water environment associated with the Waste Processing Liquid system is radioactive liquid waste and therefore, Open-Cycle Cooling Water System Program is not applicable. Components in the Primary Structures were aligned to this line based on material, environment, and aging effect.

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Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Consistent with NUREG-1801. The Structures Monitoring Program, B.2.1.31, will be substituted for the Open Cycle Cooling Water System Program to manage loss of material due to pitting, crevice, and microbiologically induced corrosion of the stainless steel structural components exposed to Raw Water in the Primary Structures. There are no copper alloy piping components exposed to raw water to align with NUREG-1801 line VII.H2-11 in the Diesel Generator system. There is no stainless steel piping components exposed to raw water to align with NUREG-1801 line VII.H2-18 in the Diesel Generator system.
3.3.1-81	Copper alloy piping, piping components, and piping elements, exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Components in the Circulating Water system have been aligned to this line item due to material, environment, and aging effect. Consistent with NUREG 1801 with exceptions. The Open-Cycle Cooling Water System Program (with exceptions), B.2.1.11, will be used to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling of the copper alloy piping components exposed to raw water in the Service Water and Circulating Water systems. Components in the Chlorination, Dewatering, Plant Floor Drain, and Screen Wash systems have been aligned to this item number based on material, environment and aging effect. Consistent with NUREG 1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be substituted to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling of the copper alloy piping components exposed to raw water in the Chlorination, Dewatering, Plant Floor Drain, and Screen Wash system. In addition, galvanic corrosion is an additional aging mechanism in the Dewatering and Screen Wash systems.

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-82	Copper alloy heat exchanger components exposed to raw water	Loss of material due to pitting, crevice, galvanic, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Open-Cycle Cooling Water System Program (with exceptions), B.2.1.11, will be used to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling of the copper alloy heat exchanger components exposed to raw water in the Diesel Generator system. In addition, galvanic corrosion is not applicable since heat exchanger components are not in contact with a more noble material.
3.3.1-83	Stainless steel and copper alloy heat exchanger tubes exposed to raw water	Reduction of heat transfer due to fouling	Open-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Open-Cycle Cooling Water System Program (with exceptions), B.2.1.11, will be used to manage reduction of heat transfer due to fouling of the copper alloy heat exchanger tubes exposed to raw water in the Diesel Generator system. Components in the Fire Protection system have been aligned to this item number based on material, environment and aging effect. Consistent with NUREG 1801. The Fire Water System Program, B.2.1.16, will be substituted to manage loss of heat transfer due to fouling of the stainless steel heat exchanger tubes exposed to raw water in the Fire Protection system.
3.3.1-84	Copper alloy >15% Zn piping, piping components, piping elements, and heat exchanger components exposed to raw water, treated water, or closed cycle cooling water	Loss of material due to selective leaching	Selective Leaching of Materials	No	Consistent with NUREG-1801 with exceptions. The Selective Leaching of Materials Program (with exceptions), B.2.1.21, will be used to manage loss of material due to selective leaching of the following Copper alloy >15% Zn components: *a)* Copper alloy >15% Zn piping components exposed to closed-cycle cooling water in the Containment Enclosure Air Handling, Control Building Air Handling, Diesel Generator, and Primary Component Cooling Water systems. *b)* Copper alloy >15% Zn piping components exposed to treated water in the Demineralized Water, Fuel Handling, and Hot Water Heating systems. *c)* Copper alloy >15% Zn heater coil exposed to treated water in the Hot Water Heating system. *d)* Copper alloy >15% Zn piping components exposed to raw water in the Dewatering, Fire Protection, Potable Water, Service

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Water, Screen Wash, and Waste Processing Liquid systems. *e)* Copper alloy >15 % Zn heat exchanger components exposed to closed-cycle cooling water are in the Control Building Air Handling System.
3.3.1-85	Gray cast iron piping, piping components, and piping elements exposed to soil, raw water, treated water, or closed-cycle cooling water	Loss of material due to selective leaching	Selective Leaching of Materials	No	Consistent with NUREG-1801 with exceptions. The Selective Leaching of Materials Program (with exceptions), B.2.1.21, will be used to manage loss of material due to selective leaching of the *following gray cast iron components:* *a)* Gray cast iron piping components exposed to raw water in the Chlorination, Fire Protection, Plant Floor Drain, Roof Drains, and Screen Wash systems. *b)* Gray cast iron piping components exposed to closed cycle cooling water in the Containment Enclosure Air Handling, Control Building Air Handling, Diesel Generator, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, and Waste Processing Liquid Drains systems. *c)* Gray cast iron piping components, heat exchanger components, and tanks exposed to treated water in the Hot Water Heating system. *d)* Gray cast iron piping components exposed to soil in the Fire Protection system. e) Gray cast iron heat exchanger components exposed to raw water in the Fire Protection System.
3.3.1-86	Structural steel (new fuel storage rack assembly) exposed to air-indoor uncontrolled (external)	Loss of material due to general, pitting, and crevice corrosion	Structures Monitoring Program	No	Consistent with NUREG-1801. The Structures Monitoring Program, B.2.1.31, will be used to manage loss of material due to general pitting and crevice corrosion of the steel new fuel storage rack support exposed to air indoor uncontrolled in Supports.
3.3.1-87	Boraflex spent fuel storage racks neutron absorbing sheets exposed to treated borated water	Reduction of neutron-absorbing capacity due to boraflex degradation	Boraflex Monitoring	No	Not applicable to the Auxiliary Systems at Seabrook Station. The Boraflex racks are not credited for the neutron-absorbing capacity in the criticality analyses and therefore Boraflex will not be manage for reduction of neutron-absorbing.

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-88	Aluminum and copper alloy >15% Zn piping, piping components, and piping elements exposed to air with borated water leakage	Loss of material due to Boric acid corrosion	Boric Acid Corrosion	No	Components in the Auxiliary Steam Condensate, Chemical and Volume Control, Hot Water Heating, and Service Water systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Boric Acid Corrosion Program, B.2.1.4, will be used to manage loss of material due to boric acid corrosion of the following aluminum and copper alloy >15% Zn components exposed to air with borated water leakage: *a)* Copper alloy >15% Zn piping components in the Auxiliary Steam Condensate, Chemical and Volume Control, Containment Enclosure Air Handling, Demineralized Water, Dewatering, Fire Protection, Fuel Handling, Hot Water Heating, Instrument Air, Miscellaneous Equipment, Primary Component Cooling Water, and Service Water systems. *b)* Copper alloy >15% Zn bolting in the Service Water system, *c)* Copper alloy >15% Zn heater coil in the Hot Water Heating system, *d)* Aluminum piping components in the Instrument Air and Miscellaneous Equipment systems. e) Copper alloy >15% Zn heat exchanger components in the Chemical and Volume Control System.
3.3.1-89	Steel bolting and external surfaces exposed to air with borated water leakage	Loss of material due to Boric acid corrosion	Boric Acid Corrosion	No	Consistent with NUREG-1801. The Boric Acid Corrosion Program, B.2.1.4, will be used to manage loss of material due to boric acid corrosion of the following steel components exposed to air with borated water leakage: *a)* Steel external surfaces exposed to air with borated water leakage in the Boron Recovery, Chemical and Volume Control, Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On Line Purge, Dewatering, Diesel Generator, Fire Protection, Fuel Handling, Fuel Storage Building Air Handling, Hot Water Heating, Instrument Air, Mechanical Seal Supply, Miscellaneous Equipment, Nitrogen Gas, Oil Collection for Reactor Coolant Pumps, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, Reactor Make-Up Water, Release Recovery, Roof Drains, Sample, Service Water, Spent Fuel Pool Cooling, Waste Gas, Waste Processing

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Liquid, and Waste Processing Liquid Drains systems. *b)* Galvanized steel ducting components exposed to air with borated water leakage in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On Line Purge, Fuel Storage Building Air Handling, and Primary Auxiliary Building Air Handling systems. *c)* Steel ducting bolting exposed to air with borated water leakage in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Containment On-Line Purge, Fuel Storage Building Air Handling, and Primary Auxiliary Building Air Handling systems. d) Steel bolting exposed to air with borated water leakage in the Chemical and Volume Control, Containment Air Purge, Containment Enclosure Air Handling, Containment On Line Purge, Diesel Generator, Fire Protection, Fuel Handling, Hot Water Heating, Instrument Air, Mechanical Seal Supply, Miscellaneous Equipment, Nitrogen Gas, Primary Auxiliary Building Air Handling, Primary Component Cooling Water, Radiation Monitoring, Release Recovery, Roof Drains, Sample, Service Water, Spent Fuel Pool Cooling, Waste Gas, and Waste Processing Liquid Drains systems.
3.3.1-90	Stainless steel and steel with stainless steel cladding piping, piping components, piping elements, tanks, and fuel storage racks exposed to treated borated water >60°C (>140°F)	Cracking due to stress corrosion cracking	Water Chemistry	No	Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking of the stainless steel piping components exposed to treated borated water >60°C (>140°F) in the Chemical and Volume Control, Sample, and Valve Stem Leak-Off systems and stainless steel tanks in the Chemical and Volume Control system. In addition The Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking of the stainless steel fuel storage rack support exposed to treated borated water >60°C (>140°F) in Section 3.5, table 3.5.2.6, Supports.
3.3.1-91	Stainless steel and steel with stainless steel cladding piping, piping components, and piping elements	Loss of material due to pitting and crevice corrosion	Water Chemistry	No	Components in the Auxiliary Steam, Chemical and Volume Control System, Sample, Spent Fuel Pool Cooling, and Waste Processing Liquid Drains systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Water Chemistry Program,

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	exposed to treated borated water				B.2.1.2, will be used to manage loss of material due to pitting and crevice corrosion of the following stainless steel components exposed to treated borated water: *a)* Stainless steel piping components exposed to treated borated water in the Auxiliary Steam, Boron Recovery, Chemical and Volume Control, Nitrogen Gas, Reactor Make-Up Water, Release Recovery, Resin Sluicing, Sample, Spent Fuel Pool Cooling, Valve Stem Leak-Off, Waste Gas, and Waste Processing Liquid Drains systems, *b)* Stainless steel heat exchanger components exposed to treated borated water in the Chemical and Volume Control, Spent Fuel Pool Cooling, and Waste Processing Liquid Drains system, *c)* Stainless steel tanks exposed to treated borated water in the Chemical and Volume Control, Sample, Spent Fuel Pool Cooling, and Waste Processing Liquid Drains, and *d)* Stainless steel bolting exposed to treated borated water in the Spent Fuel Pool Cooling system.
3.3.1-92	Galvanized steel piping, piping components, and piping elements exposed to air-indoor uncontrolled	None	None	NA - No AEM or AMP	Consistent with NUREG- 1801. The following galvanized components exposed to air-indoor uncontrolled have been aligned to this item number based on material, environment and aging effect: *a)* Galvanized steel piping components exposed to air-indoor uncontrolled in the Fire Protection system. *b)* Galvanized steel damper housing in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling, Control Building Air Handling, Diesel Generator, Emergency Feedwater Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, and Service Water Pump House Air Handling systems. *c)* Galvanized ducting closure bolting exposed to air-indoor uncontrolled in the Control Building Air Handling system. *d)* Galvanized drip pans exposed to air-indoor uncontrolled in the Demineralized Water system. *e)* Galvanized steel ducting in the Containment Air Handling, Containment Air Purge, Containment Enclosure Air Handling Containment On Line Purge, Control Building Air Handling, Diesel

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Generator, Emergency Feedwater Pump House Air Handling, Fuel Storage Building Air Handling, Primary Auxiliary Building Air Handling, and Service Water Pump House Air Handling systems. *f)* Galvanized steel Air Conditioning Housing in the Containment Enclosure Air Handling system. *g)* Galvanized Filter Housing in the Containment Enclosure Air Handling and Service Water Pump House Air Handling systems.
3.3.1-93	Glass piping elements exposed to air, air-indoor uncontrolled (external), fuel oil, lubricating oil, raw water, treated water, and treated borated water	None	None	NA - No AEM or AMP	Consistent with NUREG- 1801. Glass piping elements exposed to air-indoor uncontrolled (external) are in the Chemical and Volume Control, Control Building Air Handling, Dewatering, Diesel Generator, Fire Protection, Fuel Handling, Hot Water Heating, Primary Component Cooling Water, Radiation Monitoring, Reactor Make-Up Water, Sample, and Spent Fuel Pool Cooling systems. Glass piping elements exposed to lubricating oil are in the Chemical and Volume Control, Diesel Generator, and Service Water systems. Glass piping elements exposed to treated borated water are in the Chemical and Volume Control and Spent Fuel Pool Cooling systems. Glass piping elements exposed to treated water are in the Chemical and Volume Control, Fuel Handling, Hot Water Heating, Radiation Monitoring, Reactor Make-Up Water, and Sample systems. Glass piping elements exposed to raw water are in the Dewatering, Fire Protection, and Service Water systems.
3.3.1-94	Stainless steel and nickel alloy piping, piping components, and piping elements exposed to air-indoor uncontrolled	None	None	NA - No AEM or AMP	Consistent with NUREG- 1801. Stainless steel damper housings, stainless steel drip pans, stainless steel filter housing, stainless steel ducting closure bolting exposed to air-indoor uncontrolled (external) in the Containment Air Handling, Containment Enclosure Air Handling, Control

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	(external)				Building Air Handling, and Fuel Storage Building Air Handling systems, have been aligned to this item number based on material, environment and aging effect. The following stainless steel and nickel alloy components exposed to air-indoor uncontrolled (external) have been aligned to this item number based on material, environment and aging effect: *a)* Stainless steel piping components exposed to air-indoor uncontrolled (external) in the Auxiliary Boiler, Boron Recovery, Chemical and Volume Control, Chlorination, Containment Air Handling, Containment Enclosure Air Handling, Containment On-Line Purge, Control Building Air Handling, Demineralized Water, Dewatering, Diesel Generator, Fire Protection, Fuel Handling, Fuel Storage Building Air Handling, Hot Water Heating, Instrument Air, Leak Detection, Mechanical Seal Supply, Miscellaneous Equipment, Nitrogen Gas, Oil Collection for Reactor Coolant Pumps, Plant Floor Drain, Potable Water, Primary Component Cooling Water, Radiation Monitoring, Reactor Make-Up Water, Release Recovery, Resin Sluicing, Sample, Service Water, Spent Fuel Pool Cooling, Valve Stem Leak-Off, Vent Gas, Waste Gas, Waste Processing Liquid, and Waste Processing Liquid Drains systems, and *b)* Stainless steel heat exchanger components exposed to air-indoor uncontrolled (external) in the Chemical and Volume Control, Instrument Air , Mechanical Seal Supply, Radiation Monitoring, Sample Spent Fuel Pool Cooling, and Waste Processing Liquid Drains systems. *c)* Stainless steel tanks exposed to air-indoor uncontrolled (external) in the Boron Recovery, Chemical and Volume Control, Control Building Air Handling, Dewatering, Instrument Air, Mechanical Seal Supply, Oil Collection for Reactor Coolant Pumps, Reactor Make-Up Water, Sample, Spent Fuel Pool Cooling, Vent Gas, Waste Processing Liquid, and Waste Processing Liquid Drains systems. *d)* Stainless steel drip pans and stainless steel flame arrestors exposed to air-indoor uncontrolled (external) in the Oil Collection for Reactor Coolant Pumps system.

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					e) Stainless steel damper housings exposed to air-indoor uncontrolled (external) are in the Containment Air Handling system, stainless steel drip pans exposed to air-indoor uncontrolled (external) are in the Containment Air Handling and Containment Enclosure Air Handling system, stainless steel filter housings exposed to air-indoor uncontrolled are in the Containment Air Handling, Containment Enclosure Air Handling, *Control Building Air Handling, and Fuel Storage Air Handling* systems, and stainless steel ducting closure bolting exposed to air-indoor uncontrolled (external) are in the Fuel Storage Building Air Handling system. *f)* Nickel alloy piping components in the Chemical and Volume Control, Chlorination, and Primary Component Cooling Water systems. Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation. Therefore, the following stainless steel components exposed to air-indoor uncontrolled (internal) have been aligned to this item number based on material, environment and aging effect: *a)* Stainless steel damper housings air-indoor uncontrolled (internal) in the Containment Air Handling, Containment Enclosure Air Handling, and Fuel Storage Building Air Handling systems. *b)* Stainless steel filter housings air-indoor uncontrolled (internal) in the Containment Air Handling system. *c) Stainless steel piping components air-indoor uncontrolled* (internal) in the Containment Air Handling, Containment Enclosure Air Handling, Containment On Line Purge, Control Building Air Handling, Dewatering, Diesel Generator, Fire Protection, Fuel Storage Building Air Handling, Leak Detection, Primary Component Cooling Water, and Radiation Monitoring systems.

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Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-95	Steel and aluminum piping, piping components, and piping elements exposed to air-indoor controlled (external)	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. The following steel and aluminum components exposed to air-indoor controlled (external) have been aligned to this item number based on material, environment and aging effect: a) Steel damper housing in the Control Building Air Handling system. b) Steel drip pan in the Control Building Air Handling system. c) Steel filter housing in the Control Building Air Handling system. d) Steel piping components in the Control Building Air Handling system. e) Steel tank in the Control Building Air Handling system. f) Aluminum fan housing in the Control Building Air Handling system. Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-16 steel in an indoor controlled air (external) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation. Steel damper housing and steel piping components exposed to air-indoor controlled (internal) are in the Control Building Air Handling system.
3.3.1-96	Steel and stainless steel piping, piping components, and piping elements in concrete	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. The following steel and stainless steel components exposed to concrete have been aligned to this item number based on material, environment and aging effect:: *a)* Galvanized steel drip pans exposed to concrete in the Demineralized Water system. *b)* Galvanized damper housings exposed to concrete in the Containment Enclosure Air Handling system. *c)* I piping components exposed to concrete in the Plant Floor Drain system. d) Carbon steel and stainless steel piping exposed to concrete in the Waste Processing Liquid Drains system.

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Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1-97	Steel, stainless steel, aluminum, and copper alloy piping, piping components, and piping elements exposed to gas	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. The following steel, stainless steel, aluminum, and copper alloy piping, piping components, and piping elements exposed to gas have been aligned to this item number based on material, environment and aging effect:: a) Steel piping components exposed to gas are contained in the Fire Protection, Nitrogen Gas, Switchyard, and Waste Gas systems b) Steel heat exchanger components are exposed to gas in the Chemical and Volume Control system. c) Steel compressor housing exposed to gas are contained in the Control Building Air Handling system. d) Stainless steel piping components exposed to gas are contained in the Chemical and Volume Control, Fire Protection, Nitrogen Gas, Switchyard, Vent Gas, and Waste Gas systems. e) Stainless steel heat exchanger components exposed to gas are contained in the Chemical and Volume Control system. f) Aluminum piping components exposed to gas are contained in the Switchyard system. g) Copper alloy piping components exposed to gas are contained in the Control Building Air Handling, Fire Protection, and Switchyard systems. h) Copper alloy heat exchanger components are exposed to gas in the Control Building Air Handling system.
3.3.1-98	Steel, stainless steel, and copper alloy piping, piping components, and piping elements exposed to dried air	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. *a)* Stainless steel piping components exposed to dried air are contained in the Diesel Generator and Instrument Air systems. *b)* Stainless steel tanks exposed to dried air are contained in the Instrument Air system. *c)* Steel piping components and steel tanks exposed to dried air are contained in the Diesel Generator and Instrument Air systems. *d)* Copper alloy piping components exposed to dried air are contained in the Diesel Generator and Instrument Air systems.
3.3.1-99	Stainless steel and copper alloy <15% Zn piping, piping components, and piping elements	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Components in the Auxiliary Steam, Auxiliary Steam Condensate, Auxiliary Steam Heating, Feedwater, Main Steam, and Steam Generator Blowdown systems have been aligned to this line item based on material, environment, and aging effect.

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
	exposed to air with borated water leakage				The following stainless steel and copper alloy <15% Zn components exposed to air with borated water leakage have been aligned to this item number based on material, environment and aging effect:: *a)* Stainless steel piping components exposed to air with borated water leakage in the Auxiliary Steam, Auxiliary Steam Condensate, Recovery, Chemical and Volume Control, Containment Air Handling, Containment Enclosure Air Handling, Containment On-Line Purge, Demineralized Water, Dewatering, Diesel Generator, Feedwater, Fire Protection, Fuel Handling, Fuel Storage Building Air Handling, Hot Water Heating, Instrument Air, Leak Detection, Main Steam, Mechanical Seal Supply, Miscellaneous Equipment, Nitrogen Gas, Oil Collection for Reactor Coolant Pumps, Primary Component Cooling Water, Radiation Monitoring, Reactor Make-Up Water, Release Recovery, Resin Sluicing, Sample, Service Water, Spent Fuel Pool Cooling, Steam Generator Blowdown, Valve Stem Leak-Off, Vent Gas, Waste Gas, Waste Processing Liquid, and Waste Processing Liquid Drains systems. *b)* Stainless steel drip pans and stainless steel flame arrestors exposed to air with borated water leakage in the Oil Collection for Reactor Coolant Pump system. *c)* Stainless steel heat exchanger components exposed to air with borated water leakage in the Auxiliary Steam Heating, Chemical and Volume Control, Mechanical Seal Supply, Radiation Monitoring, Sample, Spent Fuel Pool Cooling, Waste Processing Liquid Drains, and Steam Generator Blowdown systems. *d)* Stainless steel tanks exposed to air with borated water leakage in the Boron Recovery, Chemical and Volume Control, Dewatering, Mechanical Seal Supply, Oil Collection for Reactor Coolant Pumps, Reactor Make-Up Water, Sample, Spent Fuel Pool Cooling, Vent Gas, Waste Processing Liquid, and Waste Processing Liquid Drains systems *e)* Stainless steel ducting closure bolting and stainless steel filter housings exposed to air with borated water leakage in the Fuel Storage Building Air Handling system,

Table 3.3.1

Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					f) Stainless steel damper housing and stainless steel filter housing exposed to air with borated water leakage in the Containment Air Handling system. *g)* Copper alloy piping components exposed to air with borated water leakage in the Auxiliary Steam Condensate, , Chemical and Volume Control, Containment Air Handling, Containment Enclosure Air Handling, Dewatering, Fire Protection, , Fuel Storage Building Air Handling, Instrument Air, Primary Component Cooling Water, and Service Water systems. *h)* Copper alloy heater coil exposed to air with borated water leakage in the Hot Water Heating system. *i)* Copper alloy heat exchanger components exposed to air with borated water leakage in the Diesel Generator system.

Table 3.3.2-1

AUXILIARY BOILER

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	Bolting Integrity Program	VII.I-1 (AP-28)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Instrumentation Element	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Instrumentation Element	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B

Table 3.3.2-1

AUXILIARY BOILER

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Filter Housing	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Filter Housing	Pressure Boundary	Copper Alloy >15% Zn	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-3 (AP-44)	3.3.1-32	B A
Filter Housing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Filter Housing	Pressure Boundary	Gray Cast Iron	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A
Flame Arrestor	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Flame Arrestor	Pressure Boundary	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	B
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A

Table 3.3.2-1

AUXILIARY BOILER

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Copper Alloy	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-3 (AP-44)	3.3.1-32	B A
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Piping and Fittings	Pressure Boundary	Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VII.H1-9 (A-01)	3.3.1-19	B
Piping and Fittings	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A
Pump Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A
Tank	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	Aboveground Steel Tanks Program	VII.H1-11 (A-95)	3.3.1-40	A

Table 3.3.2-1

AUXILIARY BOILER

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Pressure Boundary	Stainless Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-6 (AP-54)	3.3.1-32	B A
Valve Body	Pressure Boundary	Aluminum	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Pressure Boundary	Aluminum	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	None	None	G
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-3 (AP-44)	3.3.1-32	B A
Valve Body	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Pressure Boundary	Gray Cast Iron	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A

Table 3.3.2-1

AUXILIARY BOILER

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Valve Body	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-2

BORON RECOVERY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Heater Housing	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heater Housing	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heater Housing	Leakage Boundary (Spatial)	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	A A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-2

BORON RECOVERY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3 X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 1
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 1
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 1

Table 3.3.2-2

BORON RECOVERY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	CASS	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 1
Valve Body	Leakage Boundary (Spatial)	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 1
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with the Boron Recovery System. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Loss of Preload	Bolting Integrity Program	IV.C2-8 (R-12)	3.1.1-52	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	Air With Reactor Coolant Leakage (External)	Cracking	Bolting Integrity Program	IV.C2-7 (R-11)	3.1.1-52	A
Bolting (Class 1)	Pressure Boundary	Stainless Steel	System Temperature up to 340°C (644°F)	Cumulative Fatigue Damage	TLAA	IV.C2-10 (R-18)	3.1.1-7	A
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A
Filter Housing	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A
Filter Housing	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Cumulative Fatigue Damage	TLAA	VII.E1-18 (A-34)	3.3.1-2	A
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Filter Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Filter Housing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-19 (AP-30)	3.3.1-14	B A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F1-7 (A-73)	3.3.1-11	E, 4

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Hose	Pressure Boundary	Elastomer	Lubricating Oil (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Treated Borated Water (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.A3-1 (A-15)	3.3.1-12	E, 5
Flexible Hose	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	VII.J-14 (AP-16)	3.3.1-94	A
Flexible Hose	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 1
Flexible Hose	Pressure Boundary	Nickel Alloy	Gas (Internal)	None	None	None	None	G, 2
Flexible Hose	Pressure Boundary	Nickel Alloy	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flexible Hose	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-15 (AP-59)	3.3.1-33	B A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Heat Exchanger Components (CS-E-2 Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-2 Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-2 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-2 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-2 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program	VII.E1-5 (A-84)	3.3.1-8	E, 6
Heat Exchanger Components (CS-E-2 Shell)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-2 Shell)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-2 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-2 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-2 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program	VII.E1-5 (A-84)	3.3.1-8	E, 6
Heat Exchanger Components (CS-E-2 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-2 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-2 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (External)	Cracking	Water Chemistry Program	VII.E1-5 (A-84)	3.3.1-8	E, 6
Heat Exchanger Components (CS-E-2 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-2 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-2 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program	VII.E1-5 (A-84)	3.3.1-8	E, 6
Heat Exchanger Components (CS-E-2 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-2 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-2 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (External)	Cracking	Water Chemistry Program	VII.E1-5 (A-84)	3.3.1-8	E, 6
Heat Exchanger Components (CS-E-2 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-2 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-2 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program	VII.E1-5 (A-84)	3.3.1-8	E, 6
Heat Exchanger Components (CS-E-3 Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-3 Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-3 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-3 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-3 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-3 Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-3 Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-E-3 Shell,)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.E1-6 (A-63)	3.3.1-48	B
Heat Exchanger Components (CS-E-3 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (CS-E-3 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.C2-3 (AP-63)	3.3.1-52	B
Heat Exchanger Components (CS-E-3 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-3 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-3 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-3 Tube Sheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B

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CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-3 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-3 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-3 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-4 Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-4 Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-4 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-4 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-4 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7

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CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-4 Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-E-4 Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-E-4 Shell)	Pressure Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.E1-6 (A-63)	3.3.1-48	B
Heat Exchanger Components (CS-E-4 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (CS-E-4 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.C2-3 (AP-63)	3.3.1-52	B
Heat Exchanger Components (CS-E-4 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-4 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-4 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7

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CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-4 Tube Sheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (CS-E-4 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-4 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-4 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-5A and 5B Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-5A and 5B Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-5A and 5B Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-5A and 5B Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C

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CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-5A and 5B Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-5A and 5B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-E-5A and 5B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-E-5A and 5B Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.E1-6 (A-63)	3.3.1-48	B
Heat Exchanger Components (CS-E-5A and 5B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (CS-E-5A and 5B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.C2-3 (AP-63)	3.3.1-52	B
Heat Exchanger Components (CS-E-5A and 5B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-5A and 5B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-5A and 5B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-5A and 5B Tube Sheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B
Heat Exchanger Components (CS-E-5A and 5B Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-5A and 5B Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-5A and 5B Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-6 Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-6 Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-6 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-6 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-6 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-6 Shell)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-6 Shell)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-6 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-6 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-6 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-6 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A

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CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-6 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-6 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (External)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-6 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-6 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-6 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-6 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-6 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-6 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (External)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7

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Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-6 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-6 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-6 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-7 Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-7 Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-7 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-7 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-7 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7

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Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-7 Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-E-7 Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-E-7 Shell)	Pressure Boundary	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	C
Heat Exchanger Components (CS-E-7 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Gas (External)	None	None	VII.J-19 (AP-22)	3.3.1-97	C
Heat Exchanger Components (CS-E-7 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-7 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-7 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-7 Tube Sheet)	Pressure Boundary	Stainless Steel	Gas (External)	None	None	VII.J-19 (AP-22)	3.3.1-97	C
Heat Exchanger Components (CS-E-7 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-7 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-7 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-8 Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-8 Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-8 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-8 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-8 Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-8 Shell)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-8 Shell)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-8 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-8 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-8 Shell)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-8 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-8 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-8 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (External)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-8 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-8 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-8 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-8 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-8 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-8 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (External)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-8 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-8 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-8 Tube Sheet)	Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-63 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-63 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-63 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-63 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-63 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-63 Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-E-63 Shell)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-E-63 Shell)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.E1-6 (A-63)	3.3.1-48	B

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-64 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-64 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-64 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-64 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-64 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-64 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-64 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-64 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-64 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-18)	3.3.1-91	C
Heat Exchanger Components (CS-E-64 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-65 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-65 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-65 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-65 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-18)	3.3.1-91	C
Heat Exchanger Components (CS-E-65 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-65 Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-65 Shell)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-E-65 Shell)	Leakage Boundary (Spatial)	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	C C
Heat Exchanger Components (CS-E-138 Channel Head)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-E-138 Channel Head)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CE-E-138 Channel Head)	Leakage Boundary (Spatial)	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	C C
Heat Exchanger Components (CS-E-139 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-139 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-139 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	V.D1-4 (E-19)	3.2.1-28	B

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-139 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-E-139 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-E-139 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-4 (A-100)	3.3.1-2	A
Heat Exchanger Components (CS-E-139 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (CS-E-139 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-9 (A-69)	3.3.1-7	E, 7
Heat Exchanger Components (CS-E-166 Channel Head)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-E-166 Channel Head)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-E-166 Channel Head)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.E1-6 (A-63)	3.3.1-48	B
Heat Exchanger Components (CS-E-166 Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-E-166 Shell)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-E-166 Shell)	Leakage Boundary (Spatial)	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	C
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Channel Head)	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Channel Head)	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Channel Head)	Pressure Boundary	CASS	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	D
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Shell)	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Shell)	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Shell)	Pressure Boundary	CASS	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-15 (AP-59)	3.3.1-33	D C

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	D C
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Reduction of Heat Transfer	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-8 (EP-47)	3.2.1-9	B A
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.E1-2 (AP-34)	3.3.1-51	B
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.C2-2 (AP-80)	3.3.1-52	B
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Tube Sheet)	Pressure Boundary	CASS	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-15 (AP-59)	3.3.1-33	D C
Heat Exchanger Components (CS-P-2A and 2B Pump Oil Cooler Tube Sheet)	Pressure Boundary	CASS	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	D
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Channel Head)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Channel Head)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Channel Head)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.E1-6 (A-63)	3.3.1-48	B
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Shell)	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-5 (AP-39)	3.3.1-21	B A
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	D C
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Reduction of Heat Transfer	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-8 (EP-47)	3.2.1-9	B A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-P-128 Fluid Drive Cooler Tube Sheet)	Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	D C
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Channel Head)	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Channel Head)	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Channel Head)	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-5 (AP-39)	3.3.1-21	B A
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Shell)	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Shell)	Pressure Boundary	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	C
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Shell)	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	D C

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	D C
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (External)	Reduction of Heat Transfer	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-8 (EP-47)	3.2.1-9	B A
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	D C
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Lubricating Oil (Internal)	Reduction of Heat Transfer	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-8 (EP-47)	3.2.1-9	B A
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Tube Sheet)	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	D C
Heat Exchanger Components (CS-P-128 Pump Oil Cooler Tube Sheet)	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	D C
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	B A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program	V.D1-14 (E-24)	3.2.1-12	E, 5
Piping And Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping And Fittings	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Piping And Fittings	Pressure Boundary	Copper Alloy	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-12 (AP-47)	3.3.1-26	B A
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping And Fittings	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Piping And Fittings	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-15 (AP-59)	3.3.1-33	B A
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Cumulative Fatigue Damage	TLAA	VII.E1-18	3.3.1-2	A
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Piping And Fittings	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping And Fittings	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-19 (AP-30)	3.3.1-14	B A
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A
Piping And Fittings (Class 1< 4 Inches)	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Piping And Fittings (Class 1< 4 Inches)	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A
Piping And Fittings (Class 1< 4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program One-Time Inspection of ASME Class 1 Small Bore Piping	IV.C2-1 (R-02)	3.1.1-70	A A B
Piping and Fittings (Class 1 <4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping And Fittings (Class 1< 4 Inches)	Pressure Boundary Throttle	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 3
Piping Element	Leakage Boundary (Spatial)	Glass	Lubricating Oil (Internal)	None	None	VII.J-10 (AP-15)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Borated Water (Internal)	None	None	VII.J-12 (AP-52)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Water (Internal)	None	None	VII.J-13 (AP-51)	3.3.1-93	A
Pump Casing	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Pressure Boundary	CASS	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Pump Casing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Cumulative Fatigue Damage	TLAA	VII.E1-18	3.3.1-2	A
Pump Casing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Pump Casing	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-19 (AP-30)	3.3.1-14	B A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A
Pump Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Cumulative Fatigue Damage	TLAA	VII.E1-18	3.3.1-2	A
Pump Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Pump Casing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	*Lubricating Oil* Analysis Program One-Time Inspection Program	VII.E1-19 (AP-30)	3.3.1-14	B A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing (High Head Centrifugal Charging Pump)	Pressure Boundary	Stainless Steel	Air-Indoor *Uncontrolled* (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing (High Head Centrifugal Charging Pump)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing (High Head Centrifugal Charging Pump)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A
Pump Casing (High Head Centrifugal Charging Pump)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Pump Casing (High Head Centrifugal Charging Pump)	Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VII.E1-7 (A-76)	3.3.1-9	E, 7
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Tank	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-27 (A-82)	3.3.1-16	B A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Thermowell	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-15 (AP-59)	3.3.1-33	B A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140°F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	CASS	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A

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CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Valve Body	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-15 (AP-59)	3.3.1-33	B A

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CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Cumulative Fatigue Damage	TLAA	VII.E1-16 (A-57)	3.3.1-2	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Cumulative Fatigue Damage	TLAA	VII.E1-18	3.3.1-2	A

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CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.E1-1 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Valve Body	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.E1-19 (AP-30)	3.3.1-14	B A
Valve Body	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	IV.E-2 (RP-04)	3.1.1-86	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	IV.E-3 (RP-05)	3.1.1-86	A

Table 3.3.2-3

CHEMICAL AND VOLUME CONTROL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cracking	ASME Section XI Inservice Inspection Subsections IWB IWC and IWD Program Water Chemistry Program	IV.C2-5 (R-09)	3.1.1-68	A A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Cumulative Fatigue Damage	TLAA	IV.C2-25 (R-223)	3.1.1-8	A
Valve Body (Class 1)	Pressure Boundary	Stainless Steel	Reactor Coolant (Internal)	Loss of Material	Water Chemistry Program	IV.C2-15 (RP-23)	3.1.1-83	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 does not include air with borated water leakage environment for nickel alloy components. Similar to V.F-13 for stainless steel, there are no aging effects for nickel alloy in air with borated water leakage. Additionally, the American Welding Society (AWS) "Welding Handbook," (Seventh Edition, Volume 4, 1982, Library of Congress) identifies that nickel chromium alloy materials that are alloyed with iron, molybdenum, tungsten, cobalt or copper in various combinations have improved corrosion resistance.
2	NUREG-1801 does not include gas environment for nickel alloy components. Similar to VII.J-19 for stainless steel in Gas environment, there are no aging effects for nickel alloy in gas environment.

3 This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

4 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

5 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

6 NUREG-1801 specifies the Water Chemistry and a plant-specific program for this line item. The Water Chemistry and continuous temperature monitoring is used to manage the aging effect(s) applicable to this component type, material, and environment combination. In addition, the one-time inspection of another non-regenerative heat exchanger with stainless steel components in the same environment will verify that this aging effect is not occurring.

7 NUREG-1801 specifies Water Chemistry and a plant-specific program for this line item. The Water Chemistry and One-Time Inspection Programs are used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-4

CHLORINATION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.D-1 (A-103)	3.3.1-44	A
Filter Housing	Leakage Boundary (Spatial)	Polymer (PVC)	Condensation (External)	None	None	None	None	F, 1
Filter Housing	Leakage Boundary (Spatial)	Polymer (PVC)	Raw Water (Internal)	None	None	None	None	F, 1
Instrumentation Element	Leakage Boundary (Spatial)	Polymer (PVDF)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 1
Instrumentation Element	Leakage Boundary (Spatial)	Polymer (PVDF)	Raw Water (Internal)	None	None	None	None	F, 1
Piping and Fittings	Leakage Boundary (Spatial)	Fiberglass	Condensation (External)	None	None	None	None	F, 5

Table 3.3.2-4

CHLORINATION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Fiberglass	Raw Water (Internal)	None	None	None	None	F, 5
Piping and Fittings	Leakage Boundary (Spatial)	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	VII.J-14 (AP-16)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Nickel Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-13 (AP-53)	3.3.1-78	E, 2
Piping and Fittings	Leakage Boundary (Spatial)	Polymer (PVC)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 1
Piping and Fittings	Leakage Boundary (Spatial)	Polymer (PVC)	Raw Water (Internal)	None	None	None	None	F, 1
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 3
Pump Casing	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-4

CHLORINATION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 3
Valve Body	Leakage Boundary (Spatial)	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-12 (A-46)	3.3.1-25	E, 4
Valve Body	Leakage Boundary (Spatial)	Copper Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9 (A-44)	3.3.1-81	E, 2
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 3
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C1-11 (A-51)	3.3.1-85	B
Valve Body	Leakage Boundary (Spatial)	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	VII.J-14 (AP-16)	3.3.1-94	A

Table 3.3.2-4

CHLORINATION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Nickel Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-13 (AP-53)	3.3.1-78	E, 2
Valve Body	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 3

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Unlike metals, Polymers do not display corrosion rates. Rather than depending on an oxide layer for protection, they depend on chemical resistance to the environment to which they are exposed. The plastic is either completely resistant to the environment or it deteriorates. Therefore, acceptability for the use of Polymers within a given environment is a design driven criterion. Once the appropriate material is chosen, the system will have no aging effects. This is consistent with Plant operating experience.

2 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with the Chlorination System. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

3 NUREG-1801 specifies the Fire Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with the Chlorination system. Therefore, the Fire Water System Program is not applicable to this environment.

4 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

5 Fiberglass components in Condensation environment (external) or Raw Water environment (internal) are not exposed to high levels of ultraviolet radiation, high temperatures, or ozone, and therefore have no aging effects that require aging management. This is consistent with plant operating experience.

Table 3.3.2-5

CONTAINMENT AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Air Conditioner Housing (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Housing)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-2 (A-10)	3.3.1-56	B
Air Conditioner Housing (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Housing)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Air Conditioner Housing (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Housing)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Damper Housing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C

Table 3.3.2-5

CONTAINMENT AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Damper Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	C, 1
Drip Pan	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Drip Pan	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F3-1 (A-09)	3.3.1-27	E, 2
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting Closure Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-4 (A-105)	3.3.1-55	B
Ducting Closure Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-5

CONTAINMENT AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-2 (A-10)	3.3.1-56	B
Fan Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Filter Housing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	C, 1
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-2 (A-10)	3.3.1-56	B
Filter Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-5

CONTAINMENT AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F3-7 (A-17)	3.3.1-11	E, 3
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-5 (A-73)	3.3.1-34	E, 3
Flexible Connector	Pressure Boundary	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary	Elastomer	Air With Borated Water Leakage (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F3-7 (A-17)	3.3.1-11	E, 2
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F3-6 (A-18)	3.3.1-34	E, 2

Table 3.3.2-5

CONTAINMENT AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Cooling Coil Header)	Pressure Boundary	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-16 (A-46)	3.3.1-25	E, 3
Heat Exchanger Components (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Cooling Coil Header)	Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F3-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-16 (A-46)	3.3.1-25	E, 3
Heat Exchanger Components (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Condensation (External)	Reduction of Heat Transfer	External Surfaces Monitoring Program	None	None	G
Heat Exchanger Components (1-CAH-AC-1A, 1B,1C, 1D, 1E, & 1F Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F3-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.F3-12 (AP-80)	3.3.1-52	B

Table 3.3.2-5

CONTAINMENT AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Cooling Coil Fins)	Heat Transfer	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-16 (A-46)	3.3.1-25	E, 3
Heat Exchanger Components (1-CAH-AC-1A, 1B, 1C, 1D, 1E, & 1F Cooling Coil Fins)	Heat Transfer	Copper Alloy	Condensation (External)	Reduction of Heat Transfer	External Surfaces Monitoring Program	None	None	G
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 1

Table 3.3.2-5

CONTAINMENT AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F3-1 (A-09)	3.3.1-27	E, 2
Thermowell	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-2 (A-10)	3.3.1-56	B

Table 3.3.2-5

CONTAINMENT AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Thermowell	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 1
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.
2	NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

3 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-6

CONTAINMENT AIR PURGE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Damper Housing	Fire Barrier	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Fire Barrier	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Fire Barrier	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-2 (A-10)	3.3.1-56	B
Damper Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D

Table 3.3.2-6

CONTAINMENT AIR PURGE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	*Boric Acid Corrosion* Program	VII.I-10 (A-79)	3.3.1-89	A
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting Closure Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-4	3.3.1-55	B
Ducting Closure Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F3-7 (A-17)	3.3.1-11	E, 1

Table 3.3.2-6

CONTAINMENT AIR PURGE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-5 (A-73)	3.3.1-34	E, 1
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air With Borated Water Leakage (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F3-7 (A-17)	3.3.1-11	E, 2
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	VII.F3-6 (A-18)	3.3.1-34	E, 2

Table 3.3.2-6

CONTAINMENT AIR PURGE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B

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

F Material not in NUREG-1801 for this component.

G Environment not in NUREG-1801 for this component and material.

H Aging effect not in NUREG-1801 for this component, material and environment combination.

I Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.

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

Plant Specific Notes:

1 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

2 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Air Conditioner Housing (EAH-AC-2A & 2B Housing)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Air Conditioner Housing (EAH-AC-2A & 2B Housing)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Air Conditioner Housing (EAH-AC-2A & 2B Housing)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Air Conditioner Housing (EAH-AC-83A, 83B, 84A, 84B, 85A & 85B Housing)	Leakage Boundary (Spatial)	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Air Conditioner Housing (EAH-AC-83A, 83B, 84A, 84B, 85A & 85B Housing)	Leakage Boundary (Spatial)	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Air Conditioner Housing (EAH-AC-83A, 83B, 84A, 84B, 85A & 85B Housing)	Leakage Boundary (Spatial)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Fire Barrier	Galvanized Steel	Concrete (External)	None	None	VII.J-21 (AP-3)	3.3.1-96	C
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Damper Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Drip Pan	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Drip Pan	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-1 (A-09)	3.3.1-27	E, 2
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Ducting	Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Ducting	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Ducting Closure Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-4 (A-105)	3.3.1-55	B
Ducting Closure Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	C
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Fan Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Filter Housing	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Filter Housing	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Filter Housing	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F2-13 (AP-12)	3.3.1-51	B
Filter Housing	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F2-15 (AP-43)	3.3.1-84	B

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Filter Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal	None	None	VII.J-15 (AP-17)	3.3.1-94	C, 1
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Filter Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F2-7 (A-17)	3.3.1-11	E, 3

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-5 (A-73)	3.3.1-34	E, 3
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air With Borated Water Leakage (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-7 (A-17)	3.3.1-11	E, 2
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-6 (A-18)	3.3.1-34	E, 2
Heat Exchanger Components (EAH-AC-2A & 2B Cooling Coil Header)	Pressure Boundary	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-14 (A-46)	3.3.1-25	E, 3

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (EAH-AC-2A & 2B Cooling Coil Header)	Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (EAH-AC-2A & 2B Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-14 (A-46)	3.3.1-25	E, 3
Heat Exchanger Components (EAH-AC-2A & 2B Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Condensation (External)	Reduction of Heat Transfer	External Surfaces Monitoring Program	None	None	G
Heat Exchanger Components (EAH-AC-2A & 2B Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (EAH-AC-2A & 2B Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.F2-10 (AP-80)	3.3.1-52	B
Heat Exchanger Components (EAH-AC-2A & 2B Cooling Coil Fins)	Heat Transfer	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-14 (A-46)	3.3.1-25	E, 3
Heat Exchanger Components (EAH-AC-2A & 2B Cooling Coil Fins)	Heat Transfer	Copper Alloy	Condensation (External)	Reduction of Heat Transfer	External Surfaces Monitoring Program	None	None	G
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 1
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F2-13 (AP-12)	3.3.1-51	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.D-4 (AP-81)	3.3.1-54	E, 4
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F2-18 (A-25)	3.3.1-47	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F3-18 (A-50)	3.3.1-85	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 1
Valve Body	Leakage Boundary (Spatial)	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F2-13 (AP-12)	3.3.1-51	B
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-7

CONTAINMENT ENCLOSURE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

2 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

3 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

4 NUREG-1801 specifies the Compressed Air Monitoring Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The component that is aligned with this line item is associated with the Containment Enclosure Air Handling System and therefore, the Compressed Air Monitoring Program is not applicable.

Table 3.3.2-8

CONTAINMENT ONLINE PURGE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3 X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Damper Housing	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-2 (A-10)	3.3.1-56	B
Damper Housing	Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Ducting	Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Structural Integrity (Attached)	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Ducting	Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C

Table 3.3.2-8

CONTAINMENT ONLINE PURGE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Ducting Closure Bolting	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-4 (A-105)	3.3.1-55	B
Ducting Closure Bolting	Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Flexible Connector	Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F3-7 (A-17)	3.3.1-11	E, 2
Flexible Connector	Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-5 (A-73)	3.3.1-34	E, 2
Flexible Connector	Structural Integrity (Attached)	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Structural Integrity (Attached)	Elastomer	Air With Borated Water Leakage (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F3-7 (A-17)	3.3.1-11	E, 3
Flexible Connector	Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F3-6 (A-18)	3.3.1-34	E, 3
Piping and Fittings	Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-8

CONTAINMENT ONLINE PURGE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-2 (A-10)	3.3.1-56	B
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Valve Body	Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-8

CONTAINMENT ONLINE PURGE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F3-2 (A-10)	3.3.1-56	B
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.
2	NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

3 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Air Conditioner Housing (CBA-AC-3A, 3B and 78)	Leakage Boundary (Spatial) Pressure Boundary	Galvanized Steel	Air-Indoor Controlled (External)	None	None	V.F-1 (EP-14)	3.2.1-51	A
Air Conditioner Housing (CBA-AC-3A, 3B and 78)	Leakage Boundary (Spatial) Pressure Boundary	Galvanized Steel	Air-Indoor Controlled (Internal)	None	None	V.F-1 (EP-14)	3.2.1-51	A, 6
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Compressor Housing (CBA-E-230A &B Chiller Unit Compressor)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-2 (A-10)	3.3.1-56	B
Compressor Housing (CBA-E-230A&B Chiller Unit Compressor)	Pressure Boundary	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	C

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Damper Housing	Fire Barrier Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Controlled (External)	None	None	V.F-1 (EP-14)	3.2.1-51	A
Damper Housing	Fire Barrier Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Controlled (Internal)	None	None	V.F-1 (EP-14)	3.2.1-51	A, 6
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Fire Barrier Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Galvanized Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Damper Housing	Pressure Boundary	Steel	Air-Indoor Controlled (External)	None	None	VII.J-20 (AP-2)	3.3.1-95	C
Damper Housing	Pressure Boundary	Steel	Air-Indoor Controlled (Internal)	None	None	VII.J-20 (AP-2)	3.3.1-95	C, 5
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Drip Pan	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Controlled (External)	None	None	VII.J-20 (AP-2)	3.3.1-95	C
Drip Pan	Leakage Boundary (Spatial) Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F1-3 (A-08)	3.3.1-72	B
Dryer Housing	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Dryer Housing	Pressure Boundary	Copper Alloy >15% Zn	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Controlled (External)	None	None	V.F-1 (EP-14)	3.2.1-51	A

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Controlled (Internal)	None	None	V.F-1 (EP-14)	3.2.1-51	A, 6
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting Closure Bolting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Fan Housing	Pressure Boundary	Aluminum	Air-Indoor Controlled (External)	None	None	VII.J-1 (AP-36)	3.3.1-95	C
Fan Housing	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	C
Fan Housing	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (Internal)	None	None	V.F-2 (EP-3)	3.2.1-50	C
Fan Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Controlled (External)	None	None	V.F-1 (EP-14)	3.2.1-51	A

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Fan Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Controlled (Internal)	None	None	V.F-1 (EP-14)	3.2.1-51	A, 6
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-2 (A-10)	3.3.1-56	B
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Fan Housing	Pressure Boundary	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	D
Filter Element	Filter	Stainless Steel	Air-Outdoor (Internal/External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Filter Housing	Pressure Boundary	Galvanized Steel	Air - Indoor Controlled (External)	None	None	V.F-1 (EP-14)	3.2.1-51	A
Filter Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Controlled (Internal)	None	None	V.F-1 (EP-14)	3.2.1-51	A, 6
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	C, 1

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Steel	Air-Indoor Controlled (External)	None	None	VII.J-20 (AP-2)	3.3.1-95	C
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-2 (A-10)	3.3.1-56	B
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Filter Housing	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-20 (A-25)	3.3.1-47	B
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Controlled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Controlled (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Controlled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Controlled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F1-7 (A-17)	3.3.1-11	E, 8
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-5 (A-73)	3.3.1-34	E, 8
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F1-7 (A-17)	3.3.1-11	E, 9
Flexible Connector	Pressure Boundary Structural Integrity (Attached)	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F1-6 (A-18)	3.3.1-34	E, 9
Flexible Hose	Pressure Boundary	Copper Alloy > 15% ZN	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Pressure Boundary	Copper Alloy > 15% ZN	Gas(Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A
Flexible Hose	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15	3.3.1-94	A
Flexible Hose	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Heat Exchanger Components (CBA-E-228A & B Cooling Coil Header)	Pressure Boundary	Copper Alloy >15% Zn	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-16 (A-46)	3.3.1-25	E, 8
Heat Exchanger Components (CBA-E-228A & B Cooling Coil Header)	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (CBA-E-228A & B Cooling Coil Header)	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F1-17 (AP-43)	3.3.1-84	D
Heat Exchanger Components (CBA-E-228A & B Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-16 (A-46)	3.3.1-25	E, 8
Heat Exchanger Components (CBA-E-228A & B Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CBA-E-228A & B Cooling Coil)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.F1-12 (AP-80)	3.3.1-52	B
Heat Exchanger Components (CBA-AC-228A & B Fins)	Heat Transfer	Aluminum	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-14 (AP-74)	3.3.1-27	E, 8
Heat Exchanger Components (CBA-AC-228A & B Fins)	Heat Transfer	Aluminum	Condensation (External)	Reduction of Heat Transfer / Fouling	External Surfaces Monitoring Program	None	None	F
Heat Exchanger Components (CBA-E-229A & B Cooling Coil Header)	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-16 (A-46)	3.3.1-25	E, 8
Heat Exchanger Components (CBA-E-229A & B Cooling Coil Header)	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (CBA-E-229A & B Cooling Coil Header)	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F1-17 (AP-43)	3.3.1-84	D
Heat Exchanger Components (CBA-E-229A & B Cooling Coil)	Leakage Boundary (Spatial)	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-16 (A-46)	3.3.1-25	E, 8
Heat Exchanger Components (CBA-E-229A & B Cooling Coil)	Leakage Boundary (Spatial)	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Condenser Fins)	Heat Transfer	Aluminum	Air Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	C
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Condenser Fins)	Heat Transfer	Aluminum	Air Indoor Uncontrolled (External)	Reduction of Heat Transfer	External Surfaces Monitoring Program	None	None	F
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Condenser Header)	Heat Transfer Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Condenser Header)	Heat Transfer Pressure Boundary	Copper Alloy	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	C
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Condenser Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Condenser Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	C

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Evaporator Shell)	Heat Transfer Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Evaporator Shell)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Evaporator Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Evaporator Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.F1-12 (AP-80)	3.3.1-52	B
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Evaporator Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	C
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Evaporator Tubesheet)	Pressure Boundary	Copper Alloy	Air – Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	C

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CBA-E-230A & B Chiller Unit Evaporator Tubesheet)	Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-8 (AP-34)	3.3.1-51	B
Heater Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-2 (A-10)	3.3.1-56	B
Heater Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-15 (AP-12)	3.3.1-51	B
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F1-17 (AP-43)	3.3.1-84	B
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Controlled (External)	None	None	None	None	G, 10
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air-Indoor Controlled (External)	None	None	None	None	G, 11
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping And Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 7
Piping And Fittings	Leakage Boundary (Spatial)	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-15 (AP-12)	3.3.1-51	B
Piping And Fittings	Leakage Boundary (Spatial)	Copper Alloy	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F1-16 (A-46)	3.3.1-25	E, 4, 8
Piping And Fittings	Pressure Boundary	Copper Alloy	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping And Fittings	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-2 (A-10)	3.3.1-56	B
Piping And Fittings	Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-20 (A-25)	3.3.1-47	B
Piping And Fittings	Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F3-18 (A-50)	3.3.1-85	B
Piping And Fittings	Leakage Boundary (Spatial)	Polymer (PVC)	Air-Indoor Controlled (External)	None	None	None	None	F, 2
Piping And Fittings	Leakage Boundary (Spatial)	Polymer (PVC)	Condensation (Internal)	None	None	None	None	F, 2
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Controlled (External)	None	None	None	None	G, 10
Piping And Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping And Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping And Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping And Fittings	Pressure Boundary	Stainless Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Piping And Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Controlled (External)	None	None	VII.J-20 (AP-2)	3.3.1-95	A
Piping And Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Controlled (Internal)	None	None	VII.J-20 (AP-2)	3.3.1-95	A, 5
Piping And Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-2 (A-10)	3.3.1-56	B
Piping And Fittings	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Piping And Fittings	Pressure Boundary	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	B

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping And Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-20 (A-25)	3.3.1-47	B
Piping And Fittings	Pressure Boundary	Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VII.C1-18 (A-01)	3.3.1-19	B
Piping Element	Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Pressure Boundary	Glass	Closed Cycle Cooling Water (Internal)	None	None	None	None	G, 3
Piping Element	Pressure Boundary	Glass	Gas (Internal)	None	None	None	None	G, 3
Pump Casing	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Pressure Boundary	CASS	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Tank	Leakage Boundary (Spatial)	Galvanized Steel	Air-Indoor Controlled (External)	None	None	V.F-1 (EP-14)	3.2.1-51	C
Tank	Leakage Boundary (Spatial)	Galvanized Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F1-3 (A-08)	3.3.1-72	B

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	D
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Controlled (External)	None	None	VII.J-20 (AP-2)	3.3.1-95	C
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-2 (A-10)	3.3.1-56	B
Tank	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-20 (A-25)	3.3.1-47	B
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Controlled (External)	None	None	None	None	G, 10
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F1-16 (A-46)	3.3.1-25	E, 4, 8
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Controlled (External)	None	None	None	None	G, 12
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 7

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-15 (AP-12)	3.3.1-51	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F1-17 (AP-43)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F1-16 (A-46)	3.3.1-25	E, 4, 8
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Gray Cast Iron	Air-Indoor Controlled (External)	None	None	VII.J-20 (AP-2)	3.3.1-95	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-20 (A-25)	3.3.1-47	B

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F3-18 (A-50)	3.3.1-85	B
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Controlled (External)	None	None	None	None	G, 10
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Valve Body	Pressure Boundary	Stainless Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B

Table 3.3.2-9

CONTROL BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Controlled (External)	None	None	VII.J-20 (AP-2)	3.3.1-95	A
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-2 (A-10)	3.3.1-56	B
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Valve Body	Pressure Boundary	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F1-20 (A-25)	3.3.1-47	B

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

2 Unlike metals, Polymers do not display corrosion rates. Rather than depending on an oxide layer for protection, they depend on chemical resistance to the environment to which they are exposed. The plastic is either completely resistant to the environment or it deteriorates. Therefore, acceptability for the use of Polymers within a given environment is a design driven criterion. Once the appropriate material is chosen, the system will have no aging effects. This is consistent with Plant operating experience.

3 This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

4 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.F1-16 copper alloy in condensation (External) environment exhibits loss of material due to pitting and crevice corrosion. Therefore, copper alloy in condensation (Internal) environment will exhibit the same aging effects/mechanisms.

5 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-16 steel in an indoor controlled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

6 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-1 galvanized steel in an indoor controlled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

7 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-3 copper alloy in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

8 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

9 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

10 NUREG-1801 does not include air-indoor controlled for stainless steel components. Similar to VII.J-15 for stainless steel in air-indoor uncontrolled, there are no aging effects for stainless steel in air-indoor controlled.

11 NUREG-1801 does not include air-indoor controlled for copper alloy components. Similar to V.F-3 for copper alloy in air-indoor uncontrolled, there are no aging effects for copper alloy in air-indoor controlled.

12 NUREG-1801 does not include air-indoor controlled for copper alloy >15% Zn components. Similar to V.F-3 for copper alloy in air-indoor uncontrolled, there are no aging effects for copper alloy >15% Zn in air-indoor controlled.

Table 3.3.2-10

DEMINERALIZED WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Drip Pan	Leakage Boundary (Spatial)	Galvanized Steel	Concrete (External)	None	None	VII.J-21 (AP-3)	3.3.1-96	C
Drip Pan	Leakage Boundary (Spatial)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Filter Housing	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Filter Housing	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Filter Housing	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	A A
Filter Housing	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-7 (AP-32)	3.3.1-84	B
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-10

DEMINERALIZED WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A

Table 3.3.2-10

DEMINERALIZED WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	V.C-4 (E-33)	3.2.1-3	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A

Table 3.3.2-10

DEMINERALIZED WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	A A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-7 (AP-32)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body (Containment Isolation)	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A

Table 3.3.2-10

DEMINERALIZED WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body (Containment Isolation)	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body (Containment Isolation)	Pressure Boundary	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	V.C-4 (E-33)	3.2.1-3	A A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (EP-19)	3.2.1-57	A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	V.C-4 (E-33)	3.2.1-3	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-11

DEWATERING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Filter Housing	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Filter Housing	Leakage Boundary (Spatial)	CASS	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F2-7 (A-17)	3.3.1-11	E, 6
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Raw Water (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-1 (AP-75)	3.3.1-75	E, 5
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-2 (AP-76)	3.3.1-75	E, 5

Table 3.3.2-11

DEWATERING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air - Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air - Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Instrumentation Element	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Instrumentation Element	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Instrumentation Element	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 7

Table 3.3.2-11

DEWATERING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Orifice	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Orifice	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9 (A-44)	3.3.1-81	E, 5
Orifice	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-13 (A-47)	3.3.1-84	B
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	VII.C1-9 (A-44)	3.3.1-81	E, 5
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-11

DEWATERING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 1
Piping Element	Leakage Boundary (Spatial)	Glass	Raw Water (Internal)	None	None	VII.J-11 (AP-50)	3.3.1-93	A
Pump Casing	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Leakage Boundary (Spatial)	CASS	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Pump Casing	Leakage Boundary (Spatial)	Polymer (Polypropylene)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 2
Pump Casing	Leakage Boundary (Spatial)	Polymer (Polypropylene)	Air With Borated Water Leakage (External)	None	None	None	None	F, 2

Table 3.3.2-11

DEWATERING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Polymer (Polypropylene)	Raw Water (Internal)	None	None	None	None	F, 2
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Valve Body	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-11

DEWATERING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	CASS	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 4
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9 (A-44)	3.3.1-81	E, 5
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-13 (A-47)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial)	Polymer (PVC and Polypropylene)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 2

Table 3.3.2-11

DEWATERING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Polymer (PVC and Polypropylene)	Air With Borated Water Leakage (External)	None	None	None	None	F, 2
Valve Body	Leakage Boundary (Spatial)	Polymer (PVC and Polypropylene)	Air-Indoor Uncontrolled (Internal)	None	None	None	None	F, 2
Valve Body	Leakage Boundary (Spatial)	Polymer (PVC and Polypropylene)	Raw Water (Internal)	None	None	None	None	F, 2
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 3
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

2 Unlike metals, Polymers do not display corrosion rates. Rather than depending on an oxide layer for protection, they depend on chemical resistance to the environment to which they are exposed. The plastic is either completely resistant to the environment or it deteriorates. Therefore, acceptability for the use of Polymers within a given environment is a design driven criterion. Once the appropriate material is chosen, the system will have no aging effects. This is consistent with Plant operating experience.

3 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

4 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-3 copper alloy in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

5 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with ground water. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

6 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

7 NUREG-1801 specifies the Fire Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with ground water. Therefore, the Fire Water System Program is not applicable to this environment.

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Dryer Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Dryer Housing	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.H2-21 (A-23)	3.3.1-71	E, 6
Expansion Joint	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Expansion Joint	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Expansion Joint	Pressure Boundary	Stainless Steel	Diesel Exhaust (Internal)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-1 (AP-33)	3.3.1-6	E, 7
Expansion Joint	Pressure Boundary	Stainless Steel	Diesel Exhaust (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-2 (A-27)	3.3.1-18	E, 7
Expansion Joint	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-17 (AP-59)	3.3.1-33	B A
Fan Housing	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-1 (A-10)	3.3.1-56	B
Fan Housing	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F4-1 (A-10)	3.3.1-56	E, 1, 8
Filter Element	Filter	Stainless Steel	Condensation (Internal/External)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Filter Element	Filter	Stainless Steel	Dried Air (Internal/External)	None	None	VII.J-18 (AP-20)	3.3.1-98	A

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Element	Filter	Stainless Steel	Fuel Oil (Internal/External)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-16 (AP-54)	3.3.1-32	B A
Filter Element	Filter	Stainless Steel	Lubricating Oil (Internal/External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-17 (AP-59)	3.3.1-33	B A
Filter Housing	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Filter Housing	Pressure Boundary	Aluminum	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.F4-10 (AP-74)	3.3.1-27	E, 9
Filter Housing	Pressure Boundary	Aluminum	Dried Air (Internal)	None	None	None	None	G, 5
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Filter Housing	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping *and Ducting* Components Program	V.A-19 (E-29)	3.2.1-32	B
Filter Housing	Pressure Boundary	Steel	Dried Air (Internal)	None	None	VII.J-22 (AP-4)	3.3.1-98	A
Filter Housing	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-24 (A-30)	3.3.1-20	B A
Filter Housing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	*Lubricating Oil* Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	B A
Flame Arrestor	Leakage Boundary (Spatial)	Aluminum	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Flame Arrestor	Leakage Boundary (Spatial)	Aluminum	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-7 (AP-35)	3.3.1-32	B A

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F4-6 (A-17)	3.3.1-11	E, 10
Flexible Hose	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F4-6 (A-17)	3.3.1-11	E, 7
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Elastomer	Closed Cycle Cooling Water (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Pressure Boundary	Elastomer	Condensation (Internal)	Hardening and Loss of Strength	Compressed Air Monitoring Program	None	None	G
Flexible Hose	Pressure Boundary	Elastomer	Lubricating Oil (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible Hose	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Heat Exchanger Components (DG-MM-888A & 888B After Cooler Tubes)	Heat Transfer Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	Reduction of Heat Transfer	External Surfaces Monitoring Program	None	None	F
Heat Exchanger Components (DG-MM-888A & 888B After Cooler Tubes)	Heat Transfer Pressure Boundary	Aluminum	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.F4-10 (AP-74)	3.3.1-27	E, 9
Heat Exchanger Components (DG-MM-888A & 888B After Cooler Tubes)	Heat Transfer Pressure Boundary	Aluminum	Condensation (Internal)	Reduction of Heat Transfer	Compressed Air Monitoring Program	None	None	F
Heat Exchanger Components DG-E-41A & 41B Channel Head)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.H2-3 (AP-41)	3.3.1-59	B
Heat Exchanger Components (DG-E-41A & 41B Channel Head)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F4-8 (A-63)	3.3.1-48	B
Heat Exchanger Components (DG-E-41A & 41B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.H2-3 (AP-41)	3.3.1-59	B

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (DG-E-412A & 41B Shell)	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-5 (AP-39)	3.3.1-21	B A
Heat Exchanger Components (DG-E-41A & 41B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-10 (AP-47)	3.3.1-26	D C
Heat Exchanger Components (DG-E-41A & 41B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (External)	Reduction of Heat Transfer	Lubricating Oil Analysis Program One-Time Inspection Program	V.D1-8 (EP-47)	3.2.1-9	B A
Heat Exchanger Components (DG-E-41A & 41B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F3-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (DG-E-41A & 41B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	V.D1-3 (EP-37)	3.2.1-41	B
Heat Exchanger Components (DG-E-41A & 41B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.F3-12 (AP-80)	3.3.1-52	B
Heat Exchanger Components (DG-E-41A & 41B Tubesheet)	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-10 (AP-47)	3.3.1-26	D C

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (DG-E-41A & 41B Tubesheet)	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F3-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (DG-E-41A & 41B Tubesheet)	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	V.D1-3 (EP-37)	3.2.1-41	B
Heat Exchanger Components (DG-E-42A & 42B Channel Head)	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Heat Exchanger Components (DG-E-42A & 42B Channel Head)	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	C
Heat Exchanger Components (DG-E-42A & 42B Channel Head)	Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-3 (A-65)	3.3.1-82	B
Heat Exchanger Components (DG-E-42A & 42B Channel Head Cover)	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Heat Exchanger Components (DG-E-42A & 42B Channel Head Cover)	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	C
Heat Exchanger Components (DG-E-42A & 42B Channel Head Cover)	Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-3 (A-65)	3.3.1-82	B

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DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components DG-E-42A & 42B Channel Head Door)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.H2-3 (AP-41)	3.3.1-59	B
Heat Exchanger Components (DG-E-42A & 42B Channel Head Door)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (DG-E-42A & 42B Channel Head Door)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Heat Exchanger Components DG-E-42A & 42B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.H2-3 (AP-41)	3.3.1-59	B
Heat Exchanger Components (DG-E-42-A & -B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (DG-E-42-A & -B Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F4-8 (A-63)	3.3.1-48	B
Heat Exchanger Components (DG-E-42A & 42B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F3-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (DG-E-42A & 42B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.F3-12 (AP-80)	3.3.1-52	B

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Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (DG-E-42A & 42B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-3 (A-65)	3.3.1-82	B
Heat Exchanger Components (DG-E-42A & 42B Tubes)	Heat Transfer Pressure Boundary	Copper Alloy	Raw Water (Internal)	Reduction of Heat Transfer	Open-Cycle Cooling Water System Program	VII.C1-6 (A-72)	3.3.1-83	B
Heat Exchanger Components (DG-E-42A & 42B Tubesheet)	Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F3-8 (AP-34)	3.3.1-51	B
Heat Exchanger Components (DG-E-42A & 42B Tubesheet)	Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-3 (A-65)	3.3.1-82	B
Heater Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heater Housing	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-23 (A-25)	3.3.1-47	B
Heater Housing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	B A
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-8 (AP-12)	3.3.1-51	B
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.H2-12 (AP-43)	3.3.1-84	B
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Instrumentation Element	Pressure Boundary	Stainless Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-16 (AP-54)	3.3.1-32	B A
Instrumentation Element	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Instrumentation Element	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	B A

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DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Pressure Boundary Structural Integrity (Attached) Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Orifice	Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 2
Orifice	Pressure Boundary Throttle	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 4
Piping and Fittings	Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-8 (AP-12)	3.3.1-51	B
Piping and Fittings	Pressure Boundary	Copper Alloy	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.G-9 (AP-78)	3.3.1-28	E, 9
Piping and Fittings	Pressure Boundary	Copper Alloy	Dried Air (Internal)	None	None	VII.J-3 (AP-8)	3.3.1-98	A

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Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Copper Alloy	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-9 (AP-44)	3.3.1-32	B A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 2
Piping and Fittings	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Piping and Fittings	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-16 (AP-54)	3.3.1-32	B A
Piping and Fittings	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-17 (AP-59)	3.3.1-33	B A

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Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Stainless Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VII.H2-19 (AP-56)	3.3.1-29	E, 11
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B

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DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-23 (A-25)	3.3.1-47	B
Piping and Fittings	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.H2-21 (A-23)	3.3.1-71	E, 6
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Diesel Exhaust (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-2 (A-27)	3.3.1-18	B
Piping and Fittings	Pressure Boundary	Steel	Dried Air (Internal)	None	None	VII.J-22 (AP-4)	3.3.1-98	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-24 (A-30)	3.3.1-20	B A

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DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	B A
Piping Element	Leakage Boundary (Spatial) Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial) Pressure Boundary	Glass	Closed Cycle Cooling Water (Internal)	None	None	None	None	G, 3
Piping Element	Pressure Boundary	Glass	Lubricating Oil (Internal)	None	None	VII.J-10 (AP-15)	3.3.1-93	A
Pump Casing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-23 (A-25)	3.3.1-47	B
Pump Casing	Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-8 (A-50)	3.3.1-85	B

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Pressure Boundary	Gray Cast Iron	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-24 (A-30)	3.3.1-20	B A
Pump Casing	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	B A
Pump Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-23 (A-25)	3.3.1-47	B
Pump Casing	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-24 (A-30)	3.3.1-20	B A
Pump Casing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	B A
Silencer	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Silencer	Pressure Boundary	Steel	Diesel Exhaust (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-2 (A-27)	3.3.1-18	B

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Strainer	Filter	Stainless Steel	Lubricating Oil (Internal/External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-17 (AP-59)	3.3.1-33	B A
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-23 (A-25)	3.3.1-47	B
Tank	Pressure Boundary	Steel	Dried Air (Internal)	None	None	VII.J-22 (AP-4)	3.3.1-98	C
Tank	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-24 (A-30)	3.3.1-20	B A
Tank	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	D C
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Trap	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3	3.2.1-50	A
Trap	Pressure Boundary	Aluminum	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.F4-10 (AP-74)	3.3.1-27	E, 9
Trap	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Trap	Pressure Boundary	Gray Cast Iron	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.H2-21 (A-23)	3.3.1-71	E, 6
Valve Body	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Valve Body	Leakage Boundary (Spatial)	Aluminum	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Pressure Boundary	Aluminum	Dried Air (Internal)	None	None	None	None	G, 5
Valve Body	Leakage Boundary (Spatial)	Aluminum	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-7 (AP-35)	3.3.1-32	B A

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.G-9 (AP-78)	3.3.1-28	E, 9
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 4
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-8 (AP-12)	3.3.1-51	B
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.H2-12 (AP-43)	3.3.1-84	B
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.G-9 (AP-78)	3.3.1-28	E, 9
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Dried Air (Internal)	None	None	VII.J-3 (AP-8)	3.3.1-98	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-9 (AP-44)	3.3.1-32	B A

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-10 (AP-47)	3.3.1-26	B A
Valve Body	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-23 (A-25)	3.3.1-47	B
Valve Body	Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-8 (A-50)	3.3.1-85	B
Valve Body	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	B A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 2
Valve Body	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Valve Body	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Valve Body	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Valve Body	Pressure Boundary	Stainless Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-16 (AP-54)	3.3.1-32	B A
Valve Body	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-17 (AP-59)	3.3.1-33	B A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-12

DIESEL GENERATOR

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Valve Body	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.H2-23 (A-25)	3.3.1-47	B
Valve Body	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.H2-21 (A-23)	3.3.1-71	E, 6
Valve Body	Structural Integrity (Attached)	Steel	Diesel Exhaust (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-2 (A-27)	3.3.1-18	B
Valve Body	Pressure Boundary	Steel	Dried Air (Internal)	None	None	VII.J-22 (AP-4)	3.3.1-98	A
Valve Body	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H2-24 (A-30)	3.3.1-20	B A
Valve Body	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-20 (AP-30)	3.3.1-14	B A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.F4-1steel in an indoor uncontrolled air (External) environment exhibits loss of material due to general corrosion. Therefore, steel in an indoor uncontrolled air (Internal) environment will exhibit the same aging effects/mechanisms.

2 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

3 This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

4 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-3 copper alloy in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

5 Aluminum exposed to dried air environment does not have any applicable aging effect (Reference Hollingsworth, E.H. and Hunsicker, H.Y. 1979 "Corrosion Resistance of Aluminum and Aluminum Alloys and Metals Handbook Ninth Edition Volume 2, Properties and Selection: Nonferrous Alloys and Pure metals, pages 204-236)

6 NUREG-1801 specifies the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program for this line item. The Compressed Air Monitoring Program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The Diesel Generator Starting Air is part of the Compressed Air Monitoring Program at Seabrook and therefore, the Internal Surfaces in Miscellaneous Piping and Ducting Components program is not applicable.

7 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

8 NUREG-1801 specifies the External Surfaces Monitoring Program for this line item. Since the environment for this component type and material combination is internal, the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination.

9 NUREG-1801 specifies a plant-specific program for this line item for this line item. The Compressed Air Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

10 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

11 NUREG-1801 specifies a plant-specific program for this line item. The Buried Piping and Tank Inspection Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-13

DIESEL GENERATOR AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3 X.1 Item	Note
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting Closure Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-3 (A-105)	3.3.1-55	B
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F4-6 (A-17)	3.3.1-11	E,1
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-4 (A-73)	3.3.1-34	E,1
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F4-6 (A-17)	3.3.1-11	E, 2

Table 3.3.2-13

DIESEL GENERATOR AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F4-5 (A-18)	3.3.1-34	E, 2
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-1 (A-10)	3.3.1-56	B
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D

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

F Material not in NUREG-1801 for this component.

G Environment not in NUREG-1801 for this component and material.

H Aging effect not in NUREG-1801 for this component, material and environment combination.

I Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.

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

Plant Specific Notes:

1 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

2 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-14

EMERGENCY FEED WATER PUMP HOUSE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Damper Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting Closure Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-4 (A-105)	3.3.1-55	B
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B

Table 3.3.2-14

EMERGENCY FEED WATER PUMP HOUSE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F2-7 (A-17)	3.3.1-11	E, 1
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-5 (A-73)	3.3.1-34	E, 1
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength / Elastomer Degradation	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-7 (A-17)	3.3.1-11	E, 2
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-6 (A-18)	3.3.1-34	E, 2

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies a plant-specific program. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.
2	NUREG-1801 specifies a plant-specific program. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-15

FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Bolting	Pressure Boundary	Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	None	None	G
Bolting	Pressure Boundary	Steel	Soil (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Filter Element	Filter	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Element	Filter	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Filter Element	Filter	Stainless Steel	Gas (External)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Filter Element	Filter	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Filter Element	Filter	Stainless Steel	Raw Water (External)	Loss of Material	Fire Water System Program	VII.G-19 (A-55)	3.3.1-69	A

Table 3.3.2-15

FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Element	Filter	Stainless Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-19 (A-55)	3.3.1-69	A
Filter Housing	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Filter Housing	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Filter Housing	Pressure Boundary	Copper Alloy	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-9 (AP-78)	3.3.1-28	E, 2
Filter Housing	Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-12 (A-45)	3.3.1-70	A
Filter Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	A
Filter Housing	Pressure Boundary	Galvanized Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Filter Housing	Pressure Boundary	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Filter Housing	Pressure Boundary	Galvanized Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Filter Housing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Filter Housing	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-15

FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Gray Cast Iron	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-23 (A-23)	3.3.1-71	B
Filter Housing	Pressure Boundary	Gray Cast Iron	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A
Filter Housing	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Filter Housing	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-14 (A-51)	3.3.1-85	B
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Filter Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Filter Housing	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fire Protection Program Fuel Oil Chemistry	VII.G-21 (A-28)	3.3.1-64	A B
Filter Housing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-22 (AP-30)	3.3.1-14	B A
Filter Housing	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Flexible Hose	Pressure Boundary	Elastomer	Air - Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F4-6 (A-17)	3.3.1-11	B

Table 3.3.2-15

FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Pressure Boundary	Elastomer	Closed Cycle Cooling Water (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Pressure Boundary	Elastomer	Fuel Oil (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Pressure Boundary	Elastomer	Lubricating Oil (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible Hose	Pressure Boundary	Stainless Steel	Diesel Exhaust (Internal)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-1 (AP-33)	3.3.1-6	E, 2
Flexible Hose	Pressure Boundary	Stainless Steel	Diesel Exhaust (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-2 (A-27)	3.3.1-18	E, 2
Heat Exchanger Components (FP-E-46 & 47 Channel Head)	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.G-5 (AP-41)	3.3.1-59	B

Table 3.3.2-15

FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (FP-E-46 & 47 Channel Head)	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.C1-5 (A-64)	3.3.1-77	E, 3
Heat Exchanger Components (FP-E-46 & 47 Channel Head)	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-14 (A-51)	3.3.1-85	D
Heat Exchanger Components (FP-E-46 & 47 Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.G-5 (AP-41)	3.3.1-59	B
Heat Exchanger Components (FP-E-46 & 47 Shell)	Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	C
Heat Exchanger Components (FP-E-46 & 47 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Steam (External)	Cracking	Water Chemistry Program	VIII.A-10 (SP-44)	3.4.1-39	C
Heat Exchanger Components (FP-E-46 & 47 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Steam (External)	Loss of Material	Water Chemistry Program	VIII.A-12 (SP-43)	3.4.1-37	C
Heat Exchanger Components (FP-E-46 & 47 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Steam (External)	Reduction of Heat Transfer	Water Chemistry Program	None	None	G
Heat Exchanger Components (FP-E-46 & 47 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	V.D1-5 (E-20)	3.2.1-39	E, 3

Table 3.3.2-15

FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (FP-E-46 & 47 Tubes)	*Heat Transfer* Pressure Boundary	Stainless Steel	Raw Water (Internal)	Reduction of Heat Transfer	Fire Water System Program	VII.G-7 (AP-61)	3.3.1-83	E, 3
Heat Exchanger Components (FP-E-46 & 47 Tubesheet)	Pressure Boundary	Stainless Steel	Steam (External)	Cracking	Water Chemistry Program	VIII.A-10 (SP-44)	3.4.1-39	C
Heat Exchanger Components (FP-E-46 & 47 Tubesheet)	Pressure Boundary	Stainless Steel	Steam (External)	Loss of Material	Water Chemistry Program	VIII.A-12 (SP-43)	3.4.1-37	C
Heat Exchanger Components (FP-E-46 & 47 Tubesheet)	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	V.D1-5 (E-20)	3.2.1-39	E, 3
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy > 15% ZN	Air Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy > 15% ZN	Air Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 4
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-19 (A-55)	3.3.1-69	A

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FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Piping and Fittings	Pressure Boundary	Aluminum	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F1-14 (AP-74)	3.3.1-27	E, 2
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.G-10 (AP-44)	3.3.1-32	B A
Piping and Fittings	Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-12 (A-45)	3.3.1-70	A
Piping and Fittings	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	A
Piping and Fittings	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	A
Piping and Fittings	Pressure Boundary	Galvanized Steel	Raw Water (External)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Piping and Fittings	Pressure Boundary	Galvanized Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A

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FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary	Gray Cast Iron	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-23 (A-23)	3.3.1-71	B
Piping and Fittings	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Piping and Fittings	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-14 (A-51)	3.3.1-85	B
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-18 (AP-59)	3.3.1-33	B A
Piping and Fittings	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-19 (A-55)	3.3.1-69	A

Table 3.3.2-15

FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Piping and Fittings	Pressure Boundary	Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VII.G-25 (A-01)	3.3.1-19	B
Piping and Fittings	Pressure Boundary	Steel	Raw Water (External)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Piping and Fittings	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-23 (A-23)	3.3.1-71	B

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FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Steel	Diesel Exhaust (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-2 (A-27)	3.3.1-18	E, 2
Piping and Fittings	Pressure Boundary	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.C-1 (E-35)	3.2.1-31	B
Piping and Fittings (Containment Isolation)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-9 (E-28)	3.2.1-45	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	V.C-5 (E-22)	3.2.1-35	E, 3
Piping Element	Leakage Boundary (Spatial) Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-8 (AP-14)	3.3.1-93	A, 5

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FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping Element	Pressure Boundary	Glass	Raw Water (Internal)	None	None	VII.J-11 (AP-50)	3.3.1-93	A
Pump Casing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Pump Casing	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-14 (A-51)	3.3.1-85	B
Pump Casing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-19 (A-55)	3.3.1-69	A
Sprinkler Head	Pressure Boundary Spray	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Sprinkler Head	Pressure Boundary Spray	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Sprinkler Head	Pressure Boundary Spray	Copper Alloy	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A

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FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Sprinkler Head	Pressure Boundary Spray	Copper Alloy	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-12 (A-45)	3.3.1-70	A
Sprinkler Head	Pressure Boundary Spray	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Sprinkler Head	Pressure Boundary Spray	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Sprinkler Head	Pressure Boundary Spray	Gray Cast Iron	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Tank	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	Aboveground Steel Tanks Program	VII.H1-11 (A-95)	3.3.1-40	A
Tank	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	C
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-19 (A-55)	3.3.1-69	A
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A

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FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Valve Body	Pressure Boundary	Copper Alloy	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 4
Valve Body	Pressure Boundary	Copper Alloy	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-9 (AP-78)	3.3.1-28	E, 2
Valve Body	Pressure Boundary	Copper Alloy	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A
Valve Body	Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-12 (A-45)	3.3.1-70	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 4

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FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-9 (AP-78)	3.3.1-28	E, 2
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-12 (A-45)	3.3.1-70	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-13 (A-47)	3.3.1-84	B
Valve Body	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Pressure Boundary	Gray Cast Iron	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Valve Body	Pressure Boundary	Gray Cast Iron	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VII.G-25 (A-01)	3.3.1-19	B
Valve Body	Pressure Boundary	Gray Cast Iron	Soil (External)	Loss of Material	Selective Leaching of Materials Program	VII.G-15 (A-02)	3.3.1-85	B
Valve Body	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B

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FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Gray Cast Iron	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A
Valve Body	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Valve Body	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-14 (A-51)	3.3.1-85	B
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-18 (AP-59)	3.3.1-33	B A
Valve Body	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-19 (A-55)	3.3.1-69	A
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Pressure Boundary	Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VII.G-25 (A-01)	3.3.1-19	B

Table 3.3.2-15

FIRE PROTECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A
Valve Body	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	A
Valve Body (Containment Isolation)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	V.C-1 (E-35)	3.2.1-31	B
Valve Body (Containment Isolation)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	V.E-9 (E-28)	3.2.1-45	A
Valve Body (Containment Isolation)	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Fire Water System Program	V.C-5 (E-22)	3.2.1-35	E, 3
Vortex Plate	Direct Flow	Steel	Raw Water (External/Internal)	Loss of Material	Fire Water System Program	VII.G-24 (A-33)	3.3.1-68	C

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.
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

2 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

3 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Fire Water System Program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with the Fire Protection System. Therefore, the Open Cycle Cooling Water System Program is not applicable to this environment.

4 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-3 copper alloy in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

5 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-6 glass in an indoor, uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore, remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

Table 3.3.2-16

FUEL HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F2-7 (A-17)	3.3.1-11	E, 2
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Treated Water (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-16

FUEL HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	A A
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-7 (AP-32)	3.3.1-84	B

Table 3.3.2-16

FUEL HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 1
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Water (Internal)	None	None	VII.J-13 (AP-51)	3.3.1-93	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A

Table 3.3.2-16

FUEL HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.G-41 (S-13)	3.4.1-6	A A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	A A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-7 (AP-32)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-16

FUEL HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.
2	NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-17

FUEL OIL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Material	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	Bolting Integrity Program	VII.I-1 (AP-28)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Filter Element	Filter	Steel	Fuel Oil (Internal/External)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A
Flame Arrestor	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Flame Arrestor	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Piping and Fittings	Pressure Boundary	Gray Cast Iron	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B

Table 3.3.2-17

FUEL OIL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Piping and Fittings	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fire Protection Program Fuel Oil Chemistry	VII.G-21 (A-28)	3.3.1-64	A B
Piping and Fittings	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A
Tank	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	Aboveground Steel Tanks Program	VII.H1-11 (A-95)	3.3.1-40	A
Tank	Pressure Boundary	Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-10 (A-30)	3.3.1-20	B A

Table 3.3.2-17

FUEL OIL SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Copper Alloy	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Pressure Boundary	Copper Alloy	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.H1-3 (AP-44)	3.3.1-32	B A
Valve Body	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Pressure Boundary	Stainless Steel	Fuel Oil (Internal)	Loss of Material	Fuel Oil Chemistry One-Time Inspection Program	VII.G-17 (AP-54)	3.3.1-32	B A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-18

FUEL STORAGE BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Damper Housing	Fire Barrier Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Fire Barrier Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Fire Barrier Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Damper Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-18

FUEL STORAGE BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting Closure Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Ducting Closure Bolting	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Ducting Closure Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-4 (A-105)	3.3.1-55	B

Table 3.3.2-18

FUEL STORAGE BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Ducting Closure Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	C
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Fan Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Filter Housing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	C, 1
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B

Table 3.3.2-18

FUEL STORAGE BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F2-7 (A-17)	3.3.1-11	E, 3
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-5 (A-73)	3.3.1-34	E, 3
Flexible Connector	Pressure Boundary	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary	Elastomer	Air With Borated Water Leakage (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-7 (A-17)	3.3.1-11	E, 4
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-6 (A-18)	3.3.1-34	E, 4

Table 3.3.2-18

FUEL STORAGE BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 2
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-1 (A-09)	3.3.1-27	E, 4

Table 3.3.2-18

FUEL STORAGE BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 2
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-18

FUEL STORAGE BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

2	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-3 copper alloy in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.
3	NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.
4	NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.D-1 (A-103)	3.3.1-44	A
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-11 (S-10)	3.4.1-4	A A

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.A3-7 (AP-31)	3.3.1-85	B
Heat Exchanger Components (HWS-E-44 and 132 Channel Head)	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (HWS-E-44 and 132 Channel Head)	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (HWS-E-44 and 132 Channel Head)	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-37 (S-19)	3.4.1-3	A A
Heat Exchanger Components (HWS-E-44 and 132 Channel Head)	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.A3-7 (AP-31)	3.3.1-85	D
Heat Exchanger Components (HWS-E-44 and 132 Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (HWS-E-44)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (HWS-E-44 and 132 Shell)	Leakage Boundary (Spatial)	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	C C
Heater Coil (HWS-H-6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 17)	Leakage Boundary (Spatial)	Copper Alloy	Air - Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Heater Coil (HWS-H-6, 7, 8, 9, 10, 11, 12, 13, 14, and 15)	Leakage Boundary (Spatial)	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Heater Coil (HWS-H-6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 17)	Leakage Boundary (Spatial)	Copper Alloy	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.A-5 (SP-61)	3.4.1-15	A A
Heater Coil (Unit Heater)	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Heater Coil (Unit Heater)	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Heater Coil (Unit Heater)	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.A-5 (SP-61)	3.4.1-15	A A
Heater Coil (Unit Heater)	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-7 (AP-32)	3.3.1-84	B

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Instrumentation Element	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Instrumentation Element	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-11 (S-10)	3.4.1-4	A A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-4 (A-103)	3.3.1-54	E, 2
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-4 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.B1-5 (SP-17)	3.4.1-14	A A

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-11 (S-10)	3.4.1-4	A A
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 1
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Water (Internal)	None	None	VII.J-13 (AP-51)	3.3.1-93	A

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-11 (S-10)	3.4.1-4	A A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.A3-7 (AP-31)	3.3.1-85	B
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-4 (SP-16)	3.4.1-16	A A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.B1-5 (SP-17)	3.4.1-14	A A

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial)	Gray Cast Iron	Air - Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Tank	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.A3-7 (AP-31)	3.3.1-85	D
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-17)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-4 (SP-16)	3.4.1-16	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.B1-5 (SP-17)	3.4.1-14	A A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.A-5 (SP-61)	3.4.1-15	A A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-7 (AP-32)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Condensation (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-11 (S-10)	3.4.1-4	A A
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.A3-7 (AP-31)	3.3.1-85	B
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-4 (A-103)	3.3.1-54	E, 2

Table 3.3.2-19

HOT WATER HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-4 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140°F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.B1-5 (SP-17)	3.4.1-14	A A
Valve Body	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-11 (S-10)	3.4.1-4	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1 This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

2 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.D-4 stainless steel in a condensation (Internal) environment exhibits loss of material due to pitting and crevice corrosion. Therefore, stainless steel in a condensation (External) environment will exhibit the same aging effects/mechanisms.

Table 3.3.2-20

INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Dryer Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Dryer Housing	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	A
Filter Element	Filter	Stainless Steel	Condensation (Internal/External)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A, 1
Filter Housing	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Filter Housing	Pressure Boundary	Aluminum	Dried Air (Internal)	None	None	None	None	G, 3

Table 3.3.2-20

INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Filter Housing	Pressure Boundary	Gray Cast Iron	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	A
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Filter Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Filter Housing	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	A

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Steel	Dried Air (Internal)	None	None	VII.J-22 (AP-4)	3.3.1-98	A
Filter Housing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A
Flexible Hose	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F1-7 (A-17)	3.3.1-11	E, 4
Flexible Hose	Pressure Boundary	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Hose	Pressure Boundary	Elastomer	Condensation (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Pressure Boundary	Elastomer	Dried Air (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Flexible Hose	Pressure Boundary	Polymer (Fluoropolymer)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 2
Flexible Hose	Pressure Boundary	Polymer (Fluoropolymer)	Air With Borated Water Leakage (External)	None	None	None	None	F, 2

Table 3.3.2-20

INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Pressure Boundary	Polymer (Fluoropolymer)	Dried Air (Internal)	None	None	None	None	F, 2
Flexible Hose	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Flexible Hose	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Heat Exchanger Components (SA-E-221A & 221B Tubes)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (SA-E-221A & 221B Tubes)	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	C

Table 3.3.2-20

INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (SA-E-222A, 222B, & 222C Tubes)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (SA-E-222A, 222B, & 222C Tubes)	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	C
Heat Exchanger Components (SA-E-223A & 223B Tubes)	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	C
Heat Exchanger Components (SA-E-223A & 223B Tubes)	Pressure Boundary	Aluminum	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	None	None	F
Heat Exchanger Components (IA-D-2A & 2B Chiller Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Heat Exchanger Components (IA-D-2A & 2B Chiller Shell)	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	C
Heat Exchanger Components (IA-D-2A & 2B Reheater Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Heat Exchanger Components (IA-D-2A & 2B Reheater Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-20

INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (IA-D-2A & 2B Reheater Shell)	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	C
Heat Exchanger Components (SA-MM-12A & 12B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Heat Exchanger Components (SA-MM-12A & 12B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (SA-MM-12A & 12B Shell)	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	C
Instrumentation Element	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Instrumentation Element	Pressure Boundary	Aluminum	Dried Air (Internal)	None	None	None	None	G, 3
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Orifice	Pressure Boundary Throttle	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Orifice	Pressure Boundary Throttle	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Copper Alloy	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.G-9 (AP-78)	3.3.1-28	E, 5
Piping and Fittings	Pressure Boundary	Copper Alloy	Dried Air (Internal)	None	None	VII.J-3 (AP-8)	3.3.1-98	A
Piping and Fittings	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Pressure Boundary	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Piping and Fittings	Pressure Boundary	Copper Alloy >15% Zn	Dried Air (Internal)	None	None	VII.J-3 (AP-8)	3.3.1-98	A
Piping and Fittings	Pressure Boundary	Polymer (CPVC)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 2
Piping and Fittings	Pressure Boundary	Polymer (CPVC)	Air With Borated Water Leakage (External)	None	None	None	None	F, 2
Piping and Fittings	Pressure Boundary	Polymer (CPVC)	Dried Air (Internal)	None	None	None	None	F, 2
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-9 (A-78)	3.3.1-58	B
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	A

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Dried Air (Internal)	None	None	VII.J-22 (AP-4)	3.3.1-98	A
Piping and Fittings	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A
Pump Casing	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Pump Casing	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A
Pump Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Pump Casing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Pump Casing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Tank	Pressure Boundary	Copper Alloy >15% Zn	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.G-9 (AP-78)	3.3.1-28	E, 5
Tank	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Tank	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Pressure Boundary	Gray Cast Iron	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	C
Tank	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	D C
Tank	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	C

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Tank	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	C
Tank	Pressure Boundary	Steel	Dried Air (Internal)	None	None	VII.J-22 (AP-4)	3.3.1-98	C
Tank	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	D C
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Trap	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Trap	Pressure Boundary	Aluminum	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.A3-4 (AP-1)	3.3.1-88	A
Trap	Pressure Boundary	Aluminum	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.F1-14 (AP-74)	3.3.1-27	A
Trap	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Trap	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Trap	Pressure Boundary	Gray Cast Iron	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	A
Valve Body	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Valve Body	Pressure Boundary	Aluminum	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.A3-4 (AP-1)	3.3.1-88	A
Valve Body	Pressure Boundary	Aluminum	Dried Air (Internal)	None	None	None	None	G, 3

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Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Aluminum	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	None	None	G
Valve Body	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	CASS	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Valve Body	Pressure Boundary	CASS	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Valve Body	Pressure Boundary	Copper Alloy	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.G-9 (AP-78)	3.3.1-28	E, 5

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Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Copper Alloy	Dried Air (Internal)	None	None	VII.J-3 (AP-8)	3.3.1-98	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.G-9 (AP-78)	3.3.1-28	E, 5
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Dried Air (Internal)	None	None	VII.J-3 (AP-8)	3.3.1-98	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-8 (AP-47)	3.3.1-26	B A
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

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INSTRUMENT AIR SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	A
Valve Body	Pressure Boundary	Stainless Steel	Dried Air (Internal)	None	None	VII.J-18 (AP-20)	3.3.1-98	A
Valve Body	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-14 (AP-59)	3.3.1-33	B A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-3 (A-80)	3.3.1-57	B
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Condensation (Internal)	Loss of Material	Compressed Air Monitoring Program	VII.D-2 (A-26)	3.3.1-53	A

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Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Dried Air (Internal)	None	None	VII.J-22 (AP-4)	3.3.1-98	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.D-4 stainless steel in a condensation (Internal) environment exhibits loss of material due to pitting and crevice corrosion. Therefore, stainless steel in a condensation (External) environment will exhibit the same aging effects/mechanisms.

2 Unlike metals, Polymers do not display corrosion rates. Rather than depending on an oxide layer for protection, they depend on chemical resistance to the environment to which they are exposed. The plastic is either completely resistant to the environment or it deteriorates. Therefore, acceptability for the use of Polymers within a given environment is a design driven criterion. Once the appropriate material is chosen, the system will have no aging effects. This is consistent with Plant operating experience.

3 Aluminum exposed to dried air environment does not have any applicable aging effect (Reference Hollingsworth, E.H. and Hunsicker, H.Y. 1979 "Corrosion Resistance of Aluminum and Aluminum Alloys and Metals Handbook Ninth Edition Volume 2, Properties and Selection: Nonferrous Alloys and Pure metals, pages 204-236)

4 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

5 NUREG-1801 specifies a plant-specific program for this line item. The Compressed Air Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-21

LEAK DETECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Piping and Fittings	Structural Integrity (Attached) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Structural Integrity (Attached) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Structural Integrity (Attached) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Valve Body	Structural Integrity (Attached) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Structural Integrity (Attached) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-21

LEAK DETECTION SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Structural Integrity (Attached) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

Table 3.3.2-22

MECHANICAL SEAL SUPPLY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-79)	3.3.1-89	A
Heat Exchanger Components (MSS-E-130 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (MSS-E-130 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (MSS-E-130 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-27 (S-22)	3.4.1-16	A A
Heat Exchanger Components (MSS-E-130 Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-22

MECHANICAL SEAL SUPPLY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (MSS-E-130 Shell)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (MSS-E-130 Shell)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-1 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-1 (SP-16)	3.4.1-16	A A

Table 3.3.2-22

MECHANICAL SEAL SUPPLY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Leakage Boundary (Spatial)	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-1 (SP-16)	3.4.1-16	A A
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-22

MECHANICAL SEAL SUPPLY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-1 (SP-16)	3.4.1-16	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-23

MISCELLANEOUS EQUIPMENT

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F1-7 (A-17)	3.3.1-11	E, 1
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Lubricating Oil (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-23

MISCELLANEOUS EQUIPMENT

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-14 (AP-59)	3.3.1-33	B A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A
Pump Casing	Leakage Boundary (Spatial)	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Pump Casing	Leakage Boundary (Spatial)	Aluminum	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.A3-4 (AP-1)	3.3.1-88	A
Pump Casing	Leakage Boundary (Spatial)	Aluminum	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	None	None	G
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-23

MISCELLANEOUS EQUIPMENT

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Leakage Boundary (Spatial)	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	D C
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-8 (AP-47)	3.3.1-26	B A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-14 (AP-59)	3.3.1-33	B A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-24

NITROGEN GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A

Table 3.3.2-24

NITROGEN GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A

Table 3.3.2-24

NITROGEN GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII-I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary Structural Integrity (Attached)	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A
Piping and Fittings	Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.A-16 (S-06)	3.4.1-2	A A
Valve Body	Pressure Boundary Structural Integrity (Attached)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-24

NITROGEN GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary Structural Integrity (Attached)	CASS	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A

Table 3.3.2-24

NITROGEN GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A
Valve Body	Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.A-16 (S-06)	3.4.1-2	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-25

OIL COLLECTION FOR REACTOR COOLANT PUMPS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Drip Pan	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Drip Pan	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Drip Pan	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-18 (AP-59)	3.3.1-33	B A
Flame Arrester	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flame Arrester	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flame Arrester	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-18 (AP-59)	3.3.1-33	B A
Flexible Hose	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-25

OIL COLLECTION FOR REACTOR COOLANT PUMPS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flexible Hose	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-18 (AP-59)	3.3.1-33	B A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-18 (AP-59)	3.3.1-33	B A
Tank	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Tank	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-18 (AP-59)	3.3.1-33	D C

Table 3.3.2-25

OIL COLLECTION FOR REACTOR COOLANT PUMPS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-27 (A-82)	3.3.1-16	B A
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.G-18 (AP-59)	3.3.1-33	B A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-26

PLANT FLOOR DRAIN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Piping and Fittings	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 2
Piping and Fittings	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-14 (A-51)	3.3.1-85	B
Piping and Fittings	Leakage Boundary (Spatial)	Polymer (PVC)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 1
Piping and Fittings	Leakage Boundary (Spatial)	Polymer (PVC)	Raw Water (Internal)	None	None	None	None	F, 1
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-26

PLANT FLOOR DRAIN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 2
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Pressure Boundary	Steel	Concrete (External)	None	None	VII.J-21 (AP-3)	3.3.1-96	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VII.H1-9 (A-01)	3.3.1-19	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 2
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 2

Table 3.3.2-26

PLANT FLOOR DRAIN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-14 (A-51)	3.3.1-85	B
Pump Casing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 2
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 2
Valve Body	Leakage Boundary (Spatial)	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9 (A-44)	3.3.1-81	E, 3
Valve Body	Leakage Boundary (Spatial)	Polymer (PVC)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 1

Table 3.3.2-26

PLANT FLOOR DRAIN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Polymer (PVC)	Raw Water (Internal)	None	None	None	None	F, 1
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 2

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Unlike metals, Polymers do not display corrosion rates. Rather than depending on an oxide layer for protection, they depend on chemical resistance to the environment to which they are exposed. The plastic is either completely resistant to the environment or it deteriorates. Therefore, acceptability for the use of Polymers within a given environment is a design driven criterion. Once the appropriate material is chosen, the system will have no aging effects. This is consistent with Plant operating experience.

2 NUREG-1801 specifies the Fire Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with water from plant sumps and drains. Therefore, the Fire Water System Program is not applicable to this environment.

3 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with water from plant sumps and drains. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

Table 3.3.2-27

POTABLE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Heater Housing (Hot Water Heater PW-H-26)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heater Housing (Hot Water Heater PW-H-26)	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 1
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-12 (A-45)	3.3.1-70	E, 1
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 1

Table 3.3.2-27

POTABLE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 1
Valve Body	Leakage Boundary (Spatial)	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-12 (A-45)	3.3.1-70	E, 1
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-12 (A-45)	3.3.1-70	E, 1
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-13 (A-47)	3.3.1-84	B

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

F Material not in NUREG-1801 for this component.

G Environment not in NUREG-1801 for this component and material.

H Aging effect not in NUREG-1801 for this component, material and environment combination.

I Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.

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

Plant Specific Notes:

1 NUREG-1801 specifies the Fire Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with domestic water from the town of Seabrook. Therefore, the Fire Water System Program is not applicable to this environment.

Table 3.3.2-28

PRIMARY AUXILIARY BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Damper Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-28

PRIMARY AUXILIARY BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Ducting	Pressure Boundary Structural Integrity (Attached)	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting Closure Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-4 (A-105)	3.3.1-55	B
Ducting Closure Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	C
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B

Table 3.3.2-28

PRIMARY AUXILIARY BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Fan Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Filter Housing	Leakage Boundary (Spatial) Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Filter Housing	Leakage Boundary (Spatial) Structural Integrity (Attached)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Filter Housing	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F2-18 (A-25)	3.3.1-47	B
Filter Housing	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D

Table 3.3.2-28

PRIMARY AUXILIARY BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F2-7 (A-17)	3.3.1-11	E, 1
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-5 (A-73)	3.3.1-34	E, 1
Flexible Connector	Pressure Boundary	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary	Elastomer	Air With Borated Water Leakage (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength n	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-7 (A-17)	3.3.1-11	E, 2
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-6 (A-18)	3.3.1-34	E, 2
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-28

PRIMARY AUXILIARY BUILDING AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F2-18 (A-25)	3.3.1-47	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F2-18 (A-25)	3.3.1-47	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.F3-18 (A-50)	3.3.1-85	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.F2-18 (A-25)	3.3.1-47	B

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

F Material not in NUREG-1801 for this component.

G Environment not in NUREG-1801 for this component and material.

H Aging effect not in NUREG-1801 for this component, material and environment combination.

I Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.

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

Plant Specific Notes:

1 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

2 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Stainless Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.F1-1 (A-09)	3.3.1-27	E,7
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Bolting	Pressure Boundary	Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.D-1 (A-103)	3.3.1-44	A
Flexible Hose	Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	VII-J-14 (AP-16)	3.3.1-94	A
Flexible Hose	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 2
Flexible Hose	Pressure Boundary	Nickel Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	None	None	G

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 5
Flexible Hose	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Heat Exchanger Components (CC-E-17A & B Channel Head)	Pressure Boundary	Titanium	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 3

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CC-E-17A & B Channel Head)	Pressure Boundary	Titanium	Air With Borated Water Leakage (External)	None	None	None	None	F, 4
Heat Exchanger Components (CC-E-17A & B Channel Head)	Pressure Boundary	Titanium	Raw Water (Internal)	None	None	None	None	F, 3
Heat Exchanger Components (CC-E-17A & B Channel Head Cover)	Pressure Boundary	Steel With Titanium Cladding	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CC-E-17A & B Channel Head Cover)	Pressure Boundary	Steel With Titanium Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (CC-E-17A & B Channel Head Cover)	Pressure Boundary	Steel With Titanium Cladding	Raw Water (Internal)	None	None	None	None	F, 3
Heat Exchanger Components (CC-E-17A & B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CC-E-17A & B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (CC-E-17A & B Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CC-E-17A & B Tubes)	Heat Transfer Pressure Boundary	Titanium	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	None	None	F
Heat Exchanger Components (CC-E-17A & B Tubes)	Heat Transfer Pressure Boundary	Titanium	Raw Water (Internal)	Reduction of Heat Transfer	Open-Cycle Cooling Water System Program	None	None	F
Heat Exchanger Components (CC-E-17A & B Tubesheet)	Pressure Boundary	Steel With Titanium Cladding	Raw Water (Internal)	None	None	None	None	F, 3
Heat Exchanger Components (CC-E-17A & B Tubesheet)	Pressure Boundary	Steel With Titanium Cladding	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B
Heat Exchanger Components (CC-E-153A & B Channel Head)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (CC-E-153A & B Channel Head)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (CC-E-153A & B Channel Head)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B
Heat Exchanger Components (CC-E-153A & B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (CC-E-153A & B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (CC-E-153A & B Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B
Heat Exchanger Components (CC-E-153A & B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	D
Heat Exchanger Components (CC-E-153A&B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.C2-3 (AP-63)	3.3.1-52	B
Heat Exchanger Components (CC-E-153A & B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	D
Heat Exchanger Components (CC-E-153A & B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.C2-3 (AP-63)	3.3.1-52	B
Heat Exchanger Components (CC-E-153A & B Tubesheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	D
Heat Exchanger Components (CC-E-153A & B Tubesheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	D

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-8 (A-50)	3.3.1-85	B
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 5
Orifice	Pressure Boundary Throttle	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	V.F-3 (EP-10)	3.2.1-53	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-4 (AP-12)	3.3.1-51	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-11 (S-10)	3.4.1-4	A A
Piping and Fittings	Pressure Boundary	Titanium	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 3
Piping and Fittings	Pressure Boundary	Titanium	Air With Borated Water Leakage (External)	None	None	None	None	F, 4

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Titanium	Raw Water (internal)	None	None	None	None	F, 3
Piping Element	Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Pressure Boundary	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 6
Piping Element	Pressure Boundary	Glass	Closed Cycle Cooling Water (Internal)	None	None	None	None	G, 6
Pump Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Pump Casing	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Thermowell	Pressure Boundary	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	CASS	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 5
Valve Body	Pressure Boundary	CASS	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	V.F-3 EP-10)	3.2.1-53	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-4 (AP-12)	3.3.1-51	B
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-6 (AP-43)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-8 (A-50)	3.3.1-85	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Air-Indoor Uncontrolled (External)	None	None	VII.J-14 (AP-16)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 2
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	None	None	G
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 5
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B

Table 3.3.2-29

PRIMARY COMPONENT COOLING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

2 NUREG-1801 does not include air with borated water leakage environment for nickel alloy components. Similar to V.F-13 for stainless steel, there are no aging effects for nickel alloy in air with borated water leakage. Additionally, the American Welding Society (AWS) "Welding Handbook," (Seventh Edition, Volume 4, 1982, Library of Congress) identifies that nickel chromium alloy materials that are alloyed with iron, molybdenum, tungsten, cobalt or copper in various combinations have improved corrosion resistance.

3 Titanium materials located in air or water environments are not subject to aging effects. Titanium metal has superior resistance to general, pitting, crevice, and microbiologically influenced corrosion in both air and water environments due to a protective oxide film. The outstanding corrosion resistance of titanium and titanium alloys have been documented (Metals Handbook, Ninth Edition, Volume 13, "Corrosion", American Society of Metals International). This is also consistent with plant operating experience.

4 NUREG-1801 does not include air with borated water leakage for titanium components. Similar to V.F-13 for stainless steel, there are no aging effects for titanium in air with borated water leakage.

5 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

6 This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air With Borated Water Leakage, Air Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

7 NUREG-1801 specifies a plant-specific program for this line item. The Bolting Integrity Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-30

RADIATION MONITORING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Heat Exchanger Components (RM-E-127 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C

Table 3.3.2-30

RADIATION MONITORING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (RM-E-127 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (RM-E-127 Channel head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-27 (S-22)	3.4.1-16	A A
Heat Exchanger Components (RM-E-127 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (RM-E-127 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (RM-E-127 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VIII.F-1 (S-25)	3.4.1-25	B
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B

Table 3.3.2-30

RADIATION MONITORING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial) Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A

Table 3.3.2-30

RADIATION MONITORING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 2
Piping Element	Leakage Boundary (Spatial)	Glass	Closed Cycle Cooling Water (Internal)	None	None	None	None	G, 2
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Water (Internal)	None	None	VII.J-13 (AP-51)	3.3.1-93	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-30

RADIATION MONITORING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial) Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Structural Integrity (Attached)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-15 (AP-17)	3.3.1-94	A, 1
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.J-15 stainless steel in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.
2	This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

Table 3.3.2-31

REACTOR MAKEUP WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Filter Housing	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Filter Housing	Leakage Boundary (Spatial)	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Heater Housing	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heater Housing	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heater Housing	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-31

REACTOR MAKEUP WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Orifice	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Orifice	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Orifice	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Orifice	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-31

REACTOR MAKEUP WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 1
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Water (Internal)	None	None	VII.J-13 (AP-51)	3.3.1-93	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-31

REACTOR MAKEUP WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A

Table 3.3.2-31

REACTOR MAKEUP WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-31

REACTOR MAKEUP WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

Table 3.3.2-32

RELEASE RECOVERY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A

Table 3.3.2-32

RELEASE RECOVERY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-32

RELEASE RECOVERY SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-33

RESIN SLUICING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-33

RESIN SLUICING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-34

ROOF DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 1
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-14 (A-51)	3.3.1-85	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-34

ROOF DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 1

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

F Material not in NUREG-1801 for this component.

G Environment not in NUREG-1801 for this component and material.

H Aging effect not in NUREG-1801 for this component, material and environment combination.

I Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.

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

Plant Specific Notes:

1 NUREG-1801 specifies the Fire Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with rain/snow water from the roof drains. Therefore, the Fire Water System Program is not applicable to this environment.

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Heat Exchanger Components (SS-E-173, 174, 175, 176 and 184 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (SS-E-173, 174, 175, 176 and 184 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (SS-E-173, 174, 175, 176 and 184 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-4 (S-21)	3.4.1-16	A A
Heat Exchanger Components (SS-E-173, 174, 175, 176 and 184 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (SS-E-173, 174, 175, 176 and 184 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (SS-E-173, 174, 175, 176 and 184 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-4 (S-21)	3.4.1-16	A A
Heat Exchanger Components (SS-E-12A, 12B, 13A, 13B, 14A, 14B, 14C, 14D & 186 Channel Head)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (SS-E-12-A, 2B, 13A, 13B, 14A, 14B, 14C, 14D & 186 Channel Head)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (SS-E-12-A, 2B, 13A, 13B, 14A, 14B, 14C, 14D & 186 Channel Head)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (SS-E-12A, 12B, 13A, 13B, 14A, 14B, 14C, 14D & 186 Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (SS-E-12A, 12B, 13A, 13B, 14A, 14B, 14C, 14D & 186 Shell)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (SS-E-12A, 12B, 13A, 13B, 14A, 14B, 14C, 14D & 186 Shell)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B
Heater Housing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Heater Housing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Heater Housing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Instrumentation Element	Leakage Boundary (Spatial)	Polymer (Polycarbonate)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 1

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Polymer (Polycarbonate)	Air With Borated Water Leakage (External)	None	None	None	None	F, 1
Instrumentation Element	Leakage Boundary (Spatial)	Polymer (Polycarbonate)	Treated Borated Water (Internal)	None	None	None	None	F, 1
Instrumentation Element	Leakage Boundary (Spatial)	Polymer (Polycarbonate)	Treated Water (Internal)	None	None	None	None	F, 1
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 2
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Water (Internal)	None	None	VII.J-13 (AP-51)	3.3.1-93	A
Tank	Leakage Boundary (Spatial)	Polymer (Plastic)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 1
Tank	Leakage Boundary (Spatial)	Polymer (Plastic)	Air With Borated Water Leakage (External)	None	None	None	None	F, 1
Tank	Leakage Boundary (Spatial)	Polymer (Plastic)	Treated Water (Internal)	None	None	None	None	F, 1
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	C

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Trap	Leakage Boundary (Spatial)	Polymer (Polyolefin)	Air-Indoor Uncontrolled (External)	None	None	None	None	F, 1
Trap	Leakage Boundary (Spatial)	Polymer (Polyolefin)	Air With Borated Water Leakage (External)	None	None	None	None	F, 1
Trap	Leakage Boundary (Spatial)	Polymer (Polyolefin)	Treated Borated Water (Internal)	None	None	None	None	F, 1

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Trap	Leakage Boundary (Spatial)	Polymer (Polyolefin)	Treated Water (Internal)	None	None	None	None	F, 1
Valve Body	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial)	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-35

SAMPLE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Unlike metals, Polymers do not display corrosion rates. Rather than depending on an oxide layer for protection, they depend on chemical resistance to the environment to which they are exposed. The plastic is either completely resistant to the environment or it deteriorates. Therefore, acceptability for the use of Polymers within a given environment is a design driven criterion. Once the appropriate material is chosen, the system will have no aging effects. This is consistent with Plant operating experience.

2 This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

Table 3.3.2-36

SCREEN WASH SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.F1-1 (A-09)	3.3.1-27	E, 2
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Condensation (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.D-1 (A-103)	3.3.1-44	A
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 3
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C1-11 (A-51)	3.3.1-85	B
Filter Housing (Traveling Screen Housing)	Leakage Boundary (Spatial)	Fiberglass	Condensation (External)	None	None	None	None	F, 1

Table 3.3.2-36

SCREEN WASH SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing (Traveling Screen Housing)	Leakage Boundary (Spatial)	Fiberglass	Raw Water (Internal)	None	None	None	None	F, 1
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-14 (A-46)	3.3.1-25	E, 4
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9 (A-44)	3.3.1-81	E, 5
Piping and Fittings	Leakage Boundary (Spatial)	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Piping and Fittings	Leakage Boundary (Spatial)	Nickel Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-13 (AP-53)	3.3.1-78	E, 5
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 4
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 5
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B

Table 3.3.2-36

SCREEN WASH SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 3
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 3
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C1-11 (A-51)	3.3.1-85	B
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-14 (A-46)	3.3.1-25	E, 4
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-9 (A-44)	3.3.1-81	E, 5
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.G-13 (A-47)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial)	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G

Table 3.3.2-36

SCREEN WASH SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Nickel Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-13 (AP-53)	3.3.1-78	E, 5
Valve Body	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 3

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Fiberglass components in condensation environment (external) and Raw Water environment (internal) are not exposed to high levels of ultraviolet radiation, high temperatures, or ozone, and therefore have no aging effects that require aging management. This is consistent with plant operating experience.
2	NUREG-1801 specifies a plant-specific program for this line item. The Bolting Integrity Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

3 NUREG-1801 specifies the Fire Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with sea water for washing the traveling screens. Therefore, the Fire Water System Program is not applicable to this environment.

4 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

5 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with sea water for washing the traveling screens. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	C
Bolting	Pressure Boundary	Copper Alloy >15% Zn	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.F4-12 (A-46)	3.3.1-25	E, 7
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Stainless Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.F1-1 (A-09)	3.3.1-27	E, 7
Bolting	Pressure Boundary	Stainless Steel	Raw Water (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Stainless Steel	Raw Water (External)	Loss of Material	Bolting Integrity Program	VII.C1-15 (A-54)	3.3.1-79	E, 6
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Bolting	Pressure Boundary	Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.D-1 (A-103)	3.3.1-44	A

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Expansion Joint	Leakage Boundary (Spatial) Pressure Boundary	Elastomer	Condensation (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Expansion Joint	Leakage Boundary (Spatial) Pressure Boundary	Elastomer	Raw Water (Internal)	Hardening and Loss of Strength	Open-Cycle Cooling Water System Program	VII.C1-1 (AP-75)	3.3.1-75	B
Expansion Joint	Leakage Boundary (Spatial) Pressure Boundary	Elastomer	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-2 (AP-76)	3.3.1-75	B
Expansion Joint	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 4
Expansion Joint	Pressure Boundary	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Expansion Joint	Pressure Boundary	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Filter Element	Filter	Stainless Steel	Raw Water (External/Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-15 (A-54)	3.3.1-79	B
Filter Housing	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Filter Housing	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-19 (A-38)	3.3.1-76	B
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-8 (AP-47)	3.3.1-26	B A
Instrumentation Element	Leakage Boundary (Spatial)	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 4
Instrumentation Element	Leakage Boundary (Spatial)	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Instrumentation Element	Leakage Boundary (Spatial)	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Nozzle	Spray	Copper Alloy	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Nozzle	Spray	Copper Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-9 (A-44)	3.3.1-81	B

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Pressure Boundary Throttle	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Orifice	Pressure Boundary Throttle	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-12 (A-46)	3.3.1-25	E, 5
Orifice	Pressure Boundary Throttle	Copper Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-9 (A-44)	3.3.1-81	B
Orifice	Pressure Boundary Throttle	Nickel Alloy	Air With Borated Water Leakage (External)	None	None	None	None	G, 4
Orifice	Pressure Boundary Throttle	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Orifice	Pressure Boundary Throttle	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Orifice	Pressure Boundary Throttle	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 5
Orifice	Pressure Boundary Throttle	Stainless Steel	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-15 (A-54)	3.3.1-79	B

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-12 (A-46)	3.3.1-25	E, 5
Piping and Fittings	Structural Integrity (Attached)	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 3
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-9 (A-44)	3.3.1-81	B
Piping and Fittings	Pressure Boundary	Galvanized Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Galvanized Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage	None	None	None	None	G, 4
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Piping and Fittings	Leakage Boundary (Spatial)	Polymer (PVC)	Condensation (External)	None	None	None	None	F, 1
Piping and Fittings	Leakage Boundary (Spatial)	Polymer (PVC)	Raw water (Internal)	None	None	None	None	F, 1
Piping and Fittings	Pressure Boundary	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 5

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-15 (A-54)	3.3.1-79	B
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellanebus Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Piping and Fittings	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Piping and Fittings	Pressure Boundary	Steel	Raw Water (External)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-19 (A-38)	3.3.1-76	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VII.C1-18 (A-01)	3.3.1-19	B

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	B
Piping and Fittings	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-19 (A-38)	3.3.1-76	B
Piping Element	Pressure Boundary	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 2
Piping Element	Pressure Boundary	Glass	Air-Outdoor (External)	None	None	None	None	G, 2
Piping Element	Pressure Boundary	Glass	Condensation (External)	None	None	None	None	G, 2
Piping Element	Pressure Boundary	Glass	Lubricating Oil (Internal)	None	None	VII.J-10 (AP-15)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Raw Water (Internal)	None	None	VII.J-11 (AP-50)	3.3.1-93	A

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Pressure Boundary	CASS	Raw Water (External)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-15 (A-54)	3.3.1-79	B
Pump Casing	Pressure Boundary	CASS	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-15 (A-54)	3.3.1-79	B
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air indoor Uncontrolled	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Pressure Boundary	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 5
Pump Casing	Pressure Boundary	Stainless Steel	Raw Water (External)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-15 (A-54)	3.3.1-79	B
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.C1-15 (A-54)	3.3.1-79	E, 8
Pump Casing	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-15 (A-54)	3.3.1-79	B
Thermowell	Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage	None	None	None	None	G, 4
Thermowell	Pressure Boundary	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Thermowell	Pressure Boundary	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Valve Body	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	CASS	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-1 (A-09)	3.3.1-27	E, 5
Valve Body	Pressure Boundary	CASS	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-15 (A-54)	3.3.1-79	B
Valve Body	Pressure Boundary	Copper Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-12 (A-46)	3.3.1-25	E, 5
Valve Body	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (Internal)	None	None	V.F-3 (EP-10)	3.2.1-53	A, 3
Valve Body	Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-9 (A-44)	3.3.1-81	B
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F4-12 (A-46)	3.3.1-25	E, 5

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Raw Water (External)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-9 (A-44)	3.3.1-81	B
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Raw Water (External)	Loss of Material	Selective Leaching of Materials Program	VII.C1-10 (A-47)	3.3.1-84	B
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-8 (AP-47)	3.3.1-26	B A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-9 (A-44)	3.3.1-81	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C1-10 (A-47)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Air With Borated Water Leakage	None	None	None	None	G, 4

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Valve Body	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Valve Body	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Pressure Boundary	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	B
Valve Body	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-17 (AP-30)	3.3.1-14	B A

Table 3.3.2-37

SERVICE WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-19 (A-38)	3.3.1-76	B

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Unlike metals, Polymers do not display corrosion rates. Rather than depending on an oxide layer for protection, they depend on chemical resistance to the environment to which they are exposed. The plastic is either completely resistant to the environment or it deteriorates. Therefore, acceptability for the use of Polymers within a given environment is a design driven criterion. Once the appropriate material is chosen, the system will have no aging effects. This is consistent with Plant operating experience.

2 This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.

3 Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item V.F-3 copper alloy in an indoor uncontrolled air (External) environment exhibits no aging effect and that the component or structure will therefore remain capable of performing its intended functions consistent with the CLB for the period of extended operation.

4 NUREG-1801 does not include air with borated water leakage environment for nickel alloy components. Similar to V.F-13 for stainless steel, there are no aging effects for nickel alloy in air with borated water leakage. Additionally, the American Welding Society (AWS) "Welding Handbook," (Seventh Edition, Volume 4, 1982, Library of Congress) identifies that nickel chromium alloy materials that are alloyed with iron, molybdenum, tungsten, cobalt or copper in various combinations have improved corrosion resistance.

5 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

6 NUREG-1801 specifies the Open-Cycle Cooling Water Program for this line item. The Bolting Integrity Program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. Since the component type is bolting, the Open Cycle Cooling Water System Program is not applicable.

7 NUREG-1801 specifies a plant-specific program for this line item. The Bolting Integrity Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

8 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with domestic water from the town of Seabrook. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

Table 3.3.2-38

SERVICE WATER PUMP HOUSE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Fire Barrier Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B
Damper Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Ducting Closure Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-4 (A-105)	3.3.1-55	B
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-2 (A-10)	3.3.1-56	B

Table 3.3.2-38

SERVICE WATER PUMP HOUSE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Fan Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.A-19 (E-29)	3.2.1-32	D
Filter Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Filter Housing	Pressure Boundary	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F2-7 (A-17)	3.3.1-11	E, 1
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.F2-5 (A-73)	3.3.1-34	E, 1
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-7 (A-17)	3.3.1-11	E, 2
Flexible Connector	Pressure Boundary	Elastomer	Air-Indoor Uncontrolled (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-6 (A-18)	3.3.1-34	E, 2
Screen	Filter	Galvanized Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-6 (AP-13)	3.3.1-92	C

Table 3.3.2-38

SERVICE WATER PUMP HOUSE AIR HANDLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Screen	Filter	Galvanized Steel	Air-Indoor Uncontrolled (Internal)	None	None	VII.J-6 (AP-13)	3.3.1-92	C

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.
2	NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-39

SPENT FUEL POOL COOLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Stainless Steel	Treated Borated Water (External)	Loss of Material	Bolting Integrity Program	VII.A3-8 (AP-79)	3.3.1-91	E, 2
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII. I-2 (A-102)	3.3.1-89	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A

Table 3.3.2-39

SPENT FUEL POOL COOLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air-Indoor Uncontrolled (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	VII.F2-7 (A-17)	3.3.1-11	E, 3
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air With Borated Water Leakage (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Elastomer	Air-Indoor Uncontrolled (Internal)	Hardening and Loss of Strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.F2-7 (A-17)	3.3.1-11	E, 4
Heat Exchanger Components (SF-E15A & B Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Heat Exchanger Components (SF-E-15A & B Channel Head)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (SF-E-15A & B Channel Head)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	C
Heat Exchanger Components (SF-E-15A & B Channel Head Cover)	Pressure Boundary	Steel With Stainless Steel Cladding	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (SF-E-15A & B Channel Head Cover)	Pressure Boundary	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.A3-2 (A-79)	3.3.1-89	A

Table 3.3.2-39

SPENT FUEL POOL COOLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (SF-E-15A & B Channel Head Cover)	Pressure Boundary	Steel With Stainless Steel Cladding	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	C
Heat Exchanger Components (SF-E-15A & B Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (SF-E-15A & B Shell)	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.A3-2 (A-79)	3.3.1-89	A
Heat Exchanger Components (SF-E-15A & B Shell)	Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.A3-3 (A-63)	3.3.1-48	B
Heat Exchanger Components (SF-E-15A & B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.A-7 (E-19)	3.2.1-28	B
Heat Exchanger Components (SF-E-15A & B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Reduction of Heat Transfer	Closed-Cycle Cooling Water System Program	VII.C2-3 (AP-63)	3.3.1-52	B
Heat Exchanger Components (SF-E-15A & B Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	C
Heat Exchanger Components (SF-E-15A & B Tubesheet)	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (External)	Loss of Material	Closed-Cycle Cooling Water System Program	V.A-7 (E-19)	3.2.1-28	B

Table 3.3.2-39

SPENT FUEL POOL COOLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (SF-E-15A & B Tubesheet)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	C
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air W/ Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-39

SPENT FUEL POOL COOLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.A3-2 (A-79)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VII.J-8 (AP-14)	3.3.1-93	A
Piping Element	Leakage Boundary (Spatial)	Glass	Air With Borated Water Leakage (External)	None	None	None	None	G, 1

Table 3.3.2-39

SPENT FUEL POOL COOLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Borated Water (Internal)	None	None	VII.J-12 (AP-52)	3.3.1-93	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	C

Table 3.3.2-39

SPENT FUEL POOL COOLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-39

SPENT FUEL POOL COOLING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.A3-8 (AP-79)	3.3.1-91	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	This environment is not in NUREG-1801 for this component and material. There are no aging effects for glass in Air with Borated Water Leakage, Air-Outdoor, Closed-Cycle Cooling Water, Condensation or Gas environments based on other NUREG-1801 items for glass, such as VII.J-11 in Raw Water environment and VII.J-12 for glass in treated borated water environment.
2	NUREG-1801 specifies the Water Chemistry Program for this line item. The Bolting Integrity Program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. Since the component type is bolting, The Water Chemistry Program is not applicable.

3 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

4 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-40

SWITCHYARD

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3 X.1 Item	Note
Bolting	Pressure Boundary	Aluminum	Air-Outdoor (External)	Loss of Material	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Aluminum	Air-Outdoor (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Material	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	Bolting Integrity Program	VII.I-1 (AP-28)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Expansion Joint	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Expansion Joint	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Filter Housing	Pressure Boundary	Copper Alloy >15% Zn	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G

Table 3.3.2-40

SWITCHYARD

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-10 (AP-47)	3.3.1-26	B A
Filter Housing	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Filter Housing	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.C1-14 (AP-59)	3.3.1-33	B A
Filter Housing	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Piping and Fittings	Pressure Boundary	Aluminum	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Piping and Fittings	Pressure Boundary	Aluminum	Gas (Internal)	None	None	VII.J-2 (AP-37)	3.3.1-97	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Piping and Fittings	Pressure Boundary	Copper Alloy	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VII.H2-10 (AP-47)	3.3.1-26	B A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G

Table 3.3.2-40

SWITCHYARD

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Piping and Fittings	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Piping and Fittings	Pressure Boundary	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A
Rupture Disc	Pressure Boundary	Nickel Alloy	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Rupture Disc	Pressure Boundary	Nickel Alloy	Gas (Internal)	None	None	None	None	G, 1
Valve Body	Pressure Boundary	Aluminum	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	F
Valve Body	Pressure Boundary	Aluminum	Gas (Internal)	None	None	VII.J-2 (AP-37)	3.3.1-97	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Gas (Internal)	None	None	VII.J-4 (AP-9)	3.3.1-97	A
Valve Body	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A

Table 3.3.2-40

SWITCHYARD

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VII.H1-8 (A-24)	3.3.1-60	B
Valve Body	Pressure Boundary	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 does not include gas environment for nickel alloy components. Similar to VII.J-19 for stainless steel in Gas environment, there are no aging effects for nickel alloy in gas environment.

Table 3.3.2-41

VALVE STEM LEAK-OFF SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water >140 °F (Internal)	Cracking	Water Chemistry Program	VII.E1-20 (AP-82)	3.3.1-90	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-42

VENT GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.D-4 (AP-81)	3.3.1-54	E, 1
Piping and Fittings	Structural Integrity (Attached)	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (AP-18)	3.2.1-57	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Gas	None	None	V.F-15 (AP-18)	3.2.1-56	A

Table 3.3.2-42

VENT GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.D-4 (AP-81)	3.3.1-54	E, 1
Trap	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Trap	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Trap	Leakage Boundary (Spatial)	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.D-4 (AP-81)	3.3.1-54	E, 1
Valve Body	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-42

VENT GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	CASS	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.D-4 (AP-81)	3.3.1-54	E, 1
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Structural Integrity (Attached)	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	V.F-12 (EP-18)	3.2.1-53	A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	V.F-13 (AP-18)	3.2.1-57	A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Gas	None	None	V.F-15 (AP-18)	3.2.1-56	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies the Compressed Air Monitoring Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The Vent Gas system is associated with air with radioactive contaminants or hydrogenated gas or reactor coolant vent gas environment. Therefore, the Compressed Air Monitoring Program is not applicable to this environment.

Table 3.3.2-43

WASTE GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Pressure Boundary	Steel	Air W/ Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air W/ Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Piping and Fittings	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-43

WASTE GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Structural Integrity (Attached)	Steel	Air W/ Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Structural Integrity (Attached)	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Air W/ Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary Structural Integrity (Attached)	Stainless Steel	Gas (Internal)	None	None	VII.J-19 (AP-22)	3.3.1-97	A

Table 3.3.2-43

WASTE GAS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Structural Integrity (Attached)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Structural Integrity (Attached)	Steel	Air W/ Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Structural Integrity (Attached)	Steel	Gas (Internal)	None	None	VII.J-23 (AP-6)	3.3.1-97	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.3.2-44

WASTE PROCESSING LIQUID SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.D-1 (A-103)	3.3.1-44	A
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	E, 1, 2
Flexible Hose	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 3
Heater Housing	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heater Housing	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heater Housing	Leakage Boundary (Spatial)	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	A A

Table 3.3.2-44

WASTE PROCESSING LIQUID SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 3
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 4
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C

Table 3.3.2-44

WASTE PROCESSING LIQUID SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 3
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 3
Valve Body	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	CASS	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	E, 1, 2
Valve Body	Leakage Boundary (Spatial)	CASS	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 3

Table 3.3.2-44

WASTE PROCESSING LIQUID SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.F1-16 (A-46)	3.3.1-25	E, 5
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-11 (AP-45)	3.3.1-80	E, 3
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.H2-13 (A-47)	3.3.1-84	B
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.D-4 (AP-81)	3.3.1-54	E, 1, 2
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.H2-18 (AP-55)	3.3.1-80	E, 3
Valve Body	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-11 (A-81)	3.3.1-58	B

Table 3.3.2-44

WASTE PROCESSING LIQUID SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 4

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	Components having the same internal/external environments have the same aging effects on both internal/external surfaces. As shown in NUREG-1801 Vol. 2 line item VII.D-4 stainless steel in a condensation (Internal) environment exhibits loss of material due to pitting and crevice corrosion. Therefore, stainless steel in a condensation (External) environment will exhibit the same aging effects/mechanisms.

2 NUREG-1801 specifies the Compressed Air Monitoring Program for this line item. The External Surfaces Monitoring Program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The system that is associated with this line item is Waste Processing Liquid System that has an internal environment of radioactive liquid waste and an external environment of condensation. Therefore, the Compressed Air Monitoring Program is not applicable to this environment.

3 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with radioactive liquid waste. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

4 NUREG-1801 specifies the Fire Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with radioactive liquid waste. Therefore, the Fire Water System Program is not applicable to this environment.

5 NUREG-1801 specifies a plant-specific program for this line item. The External Surfaces Monitoring Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VII.I-5 (AP-26)	3.3.1-45	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-2 (A-102)	3.3.1-89	A
Filter Housing	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Filter Housing	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Filter Housing	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 1
Filter Housing	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Filter Housing	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Heat Exchanger Components (WLD-E-43 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Heat Exchanger Components (WLD-E-43 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (WLD-E-43 Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Heat Exchanger Components (WLD-E-43 Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Heat Exchanger Components (WLD-E-43 Shell)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Heat Exchanger Components (WLD-E-43 Shell)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-1 (A-63)	3.3.1-48	B
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Stainless Steel	Air-Indoor Uncontrolled (External)	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Stainless Steel	Air With Borated Water Leakage (External)	None	VII.J-16 (AP-18)	3.3.1-99	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 1
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Stainless Steel	Concrete	None	None	VII.J-17 (AP-19)	3.3.1-96	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 1
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Piping and Fittings	Pressure Boundary	Steel	Concrete	None	None	VII.J-21 (AP-3)	3.3.1-96	A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-24 (A-33)	3.3.1-68	E, 1
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.C-3 (E-34)	3.2.1-38	E, 2
Piping and Fittings (Containment Isolation)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Closed Cycle Cooling Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VII.C2-8 (A-50)	3.3.1-85	B
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 1
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	C
Tank	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	C
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Tank	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Tank	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	CASS	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B
Valve Body	Pressure Boundary	CASS	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 1
Valve Body	Leakage Boundary (Spatial)	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-10 (A-52)	3.3.1-50	B

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.G-19 (A-55)	3.3.1-69	E, 1
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VII.I-8 (A-77)	3.3.1-58	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-10 (A-79)	3.3.1-89	A
Valve Body	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B
Valve Body (Containment Isolation)	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body (Containment Isolation)	Pressure Boundary	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body (Containment Isolation)	Pressure Boundary	CASS	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.C-3 (E-34)	3.2.1-38	E, 2

Table 3.3.2-45

WASTE PROCESSING LIQUID DRAINS SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3 X.1 Item	Note
Valve Body (Containment Isolation)	Pressure Boundary	CASS	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	V.C-3 (E-34)	3.2.1-38	E, 2
Valve Body (Containment Isolation)	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A

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.
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1 NUREG-1801 specifies the Fire Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with radioactive liquid waste drainage. Therefore, the Fire Water System Program is not applicable to this environment.

2 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with radioactive liquid waste drainage. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

3.4 AGING MANAGEMENT OF STEAM AND POWER CONVERSION SYSTEMS

3.4.1 INTRODUCTION

This section provides the results of the aging management review for those components identified in Section 2.3.4, Steam and Power Conversion Systems, as being subject to aging management review. The systems, or portions of systems, which are addressed in this section are described in the indicated sections.

- Auxiliary Steam System (2.3.4.1)
- Auxiliary Steam Condensate System (2.3.4.2)
- Auxiliary Steam Heating System (2.3.4.3)
- Circulating Water System (2.3.4.4)
- Condensate System (2.3.4.5)
- Feedwater System (2.3.4.6). Feedwater system includes the Emergency Feedwater System which is the same system as Auxiliary Feedwater System in VII.G of NUREG-1801, Vol. 2, Rev. 1.
- Main Steam System (2.3.4.7)
- Steam Generator Blowdown System (2.3.4.8)

3.4.2 RESULTS

The following tables summarize the results of the aging management review for the Steam and Power Conversion Systems.

Table 3.4.2-1	Summary of Aging Management Evaluation – Auxiliary Steam System
Table 3.4.2-2	Summary of Aging Management Evaluation – Auxiliary Steam Condensate System
Table 3.4.2-3	Summary of Aging Management Evaluation – Auxiliary Steam Heating System
Table 3.4.2-4	Summary of Aging Management Evaluation – Circulating Water System
Table 3.4.2-5	Summary of Aging Management Evaluation – Condensate System
Table 3.4.2-6	Summary of Aging Management Evaluation – Feedwater System
Table 3.4.2-7	Summary of Aging Management Evaluation – Main Steam System

Table 3.4.2-8 Summary of Aging Management Evaluation – Steam Generator Blowdown

3.4.2.1 Materials, Environments, Aging Effects Requiring Management and Aging Managements Programs

3.4.2.1.1 Auxiliary Steam System

Materials

The materials of construction for the Auxiliary Steam System components requiring aging management review are:

- Copper Alloy >15% Zn
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Auxiliary Steam System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Raw Water
- Steam
- Treated Borated Water
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Auxiliary Steam System components and commodities require management:

- Cracking
- Loss of Material
- Loss of Preload
- Wall Thinning

Aging Management Programs

The following programs manage the aging effects requiring management for the Auxiliary Steam System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)

- External Surfaces Monitoring Program (B.2.1.24)
- Flow-Accelerated Corrosion Program (B.2.1.8)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.4.2-1, Summary of Aging Management Evaluation – Auxiliary Steam System, summarizes the results of the aging management review for the Auxiliary Steam System.

3.4.2.1.2 Auxiliary Steam Condensate System

Materials

The materials of construction for the Auxiliary Steam Condensate System components requiring aging management review are:

- Copper Alloy
- Copper Alloy >15% Zn
- Glass
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Auxiliary Steam Condensate System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Air with Borated Water Leakage
- Raw Water
- Treated Water
- Treated Water >140°F

Aging Effects Requiring Management

The following aging effects associated with the Auxiliary Steam Condensate System components and commodities require management:

- Cracking
- Loss of Material
- Loss of Preload
- Wall Thinning

Aging Management Programs

The following programs manage the aging effects requiring management for the Auxiliary Steam Condensate System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Flow-Accelerated Corrosion Program (B.2.1.8)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.4.2-2, Summary of Aging Management Evaluation – Auxiliary Steam Condensate System, summarizes the results of the aging management review for the Auxiliary Steam Condensate System.

3.4.2.1.3 Auxiliary Steam Heating System

Materials

The materials of construction for the Auxiliary Steam Heating System components requiring aging management review are:

- Aluminum
- Copper Alloy
- Copper Alloy >15% Zn
- Glass
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Auxiliary Steam Heating System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Raw Water
- Steam

Aging Effects Requiring Management

The following aging effects associated with the Auxiliary Steam Heating System components and commodities require management:

- Cracking
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer
- Wall Thinning

Aging Management Programs

The following programs manage the aging effects requiring management for the Auxiliary Steam Heating System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.25)
- Flow-Accelerated Corrosion Program (B.2.1.8)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.24)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.4.2-3, Summary of Aging Management Evaluation – Auxiliary Steam Heating System, summarizes the results of the aging management review for the Auxiliary Steam Heating System.

3.4.2.1.4 Circulating Water System

Materials

The materials of construction for the Circulating Water System components requiring aging management review are:

- Copper Alloy >15% Zn
- Elastomer
- Gray Cast Iron
- Nickel Alloy
- Steel

Environments

Components of the Circulating Water System are exposed to the following environments:

- Condensation
- Raw Water

Aging Effects Requiring Management

The following aging effects associated with the Circulating Water System components and commodities require management:

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

Aging Management Programs

The following programs manage the aging effects requiring management for the Circulating Water System components:

- Bolting Integrity Program (B.2.1.9)
- External Surfaces Monitoring Program (B.2.1.24)
- Open-Cycle Cooling Water System Program (B.2.1.11)
- Selective Leaching of Materials Program (B.2.1.21)

Summary of Aging Management Review Results

Table 3.4.2-4, Summary of Aging Management Evaluation – Circulating Water System, summarizes the results of the aging management review for the Circulating Water System.

3.4.2.1.5 Condensate System

Materials

The materials of construction for the Condensate System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Copper Alloy

- Glass
- Stainless Steel
- Steel

Environments

Components of the Condensate System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Concrete
- Soil
- Steam
- Treated Water

Aging Effects Requiring Management

The following aging effects associated with the Condensate System components and commodities require management:

- Cracking
- Loss of Material
- Loss of Preload

Aging Management Programs

The following programs manage the aging effects requiring management for the Condensate System components:

- Bolting Integrity Program (B.2.1.9)
- Buried Piping and Tanks Inspection Program (B.2.1.22)
- External Surfaces Monitoring Program (B.2.1.24)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.4.2-5, Summary of Aging Management Evaluation – Condensate System, summarizes the results of the aging management review for the Condensate System.

3.4.2.1.6 Feedwater System

Materials

The materials of construction for the Feedwater System components requiring aging management review are:

- Aluminum
- Cast Austenitic Stainless Steel/CASS
- Copper Alloy >15% Zn
- Glass
- Gray Cast Iron
- Stainless Steel
- Steel

Environments

Components of the Feedwater System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Gas
- Lubricating Oil
- Steam
- Treated Water
- Treated Water >140°F

Aging Effects Requiring Management

The following aging effects associated with the Feedwater System components and commodities require management:

- Cracking
- Cumulative Fatigue Damage
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer
- Wall Thinning

Aging Management Programs

The following programs manage the aging effects requiring management for the Feedwater System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Flow-Accelerated Corrosion Program (B.2.1.8)
- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)
- Selective Leaching of Materials Program (B.2.1.21)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.4.2-6, Summary of Aging Management Evaluation – Feedwater System, summarizes the results of the aging management review for the Feedwater System.

3.4.2.1.7 Main Steam System (Includes Main Steam Drains System)

Materials

The materials of construction for the Main Steam System components requiring aging management review are:

- Aluminum
- Glass
- Stainless Steel
- Steel

Environments

Components of the Main Steam System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air-Outdoor
- Air with Borated Water Leakage
- Condensation
- Gas
- Lubricating Oil

- Steam
- Treated Water
- Treated Water >140° F

Aging Effects Requiring Management

The following aging effects associated with the Main Steam System components and commodities require management:

- Cracking
- Cumulative Fatigue Damage
- Loss of Material
- Loss of Preload
- Wall Thinning

Aging Management Programs

The following programs manage the aging effects requiring management for the Main Steam System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- External Surfaces Monitoring Program (B.2.1.24)
- Flow-Accelerated Corrosion Program (B2.1.8)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (B.2.1.25)
- Lubricating Oil Analysis Program (B.2.1.26)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.4.2-7, Summary of Aging Management Evaluation – Main Steam System, summarizes the results of the aging management review for the Main Steam System.

3.4.2.1.8 Steam Generator Blowdown System

Materials

The materials of construction for the Steam Generator Blowdown System components requiring aging management review are:

- Cast Austenitic Stainless Steel/CASS
- Stainless Steel

- Steel
- Steel with Stainless Steel Cladding

Environments

Components of the Steam Generator Blowdown System are exposed to the following environments:

- Air-Indoor Uncontrolled
- Air with Borated Water Leakage
- Closed Cycle Cooling Water
- Treated Water
- Treated Water >140°F

Aging Effects Requiring Management

The following aging effects associated with the Steam Generator Blowdown System components and commodities require management:

- Cracking
- Loss of Material
- Loss of Preload
- Wall Thinning

Aging Management Programs

The following programs manage the aging effects requiring management for the Steam Generator Blowdown System components:

- Bolting Integrity Program (B.2.1.9)
- Boric Acid Corrosion Program (B.2.1.4)
- Closed-Cycle Cooling Water Program (B.2.1.12)
- External Surfaces Monitoring Program (B.2.1.24)
- Flow-Accelerated Corrosion Program (B.2.1.8)
- One-Time Inspection Program (B.2.1.20)
- Water Chemistry Program (B.2.1.2)

Summary of Aging Management Review Results

Table 3.4.2-8, Summary of Aging Management Evaluation – Steam Generator Blowdown System, summarizes the results of the aging management review for the Steam Generator Blowdown System.

3.4.2.2 AMR Results for Which Further Evaluation is Recommended by NUREG-1801

NUREG-1800 indicates that further evaluation is necessary for certain aging effects, particularly those that require plant specific programs. Section 3.0 of NUREG-1800 discusses these aging effects that require further evaluation. The following sections are numbered in accordance with the discussions in Section 3.0 of NUREG-1800 and explain Seabrook Station's approach to these areas requiring further evaluation.

3.4.2.2.1 Cumulative Fatigue Damage

Fatigue is a time-limited aging analysis (TLAA) as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c)(1). This TLAA is addressed separately in Section 4.3, "Metal Fatigue Analysis," of this SRP-LR.

At Seabrook Station, the evaluation of metal fatigue as a TLAA for the Feedwater and Main Steam systems is discussed in Section 4.3.

3.4.2.2.2 Loss of Material due to General, Pitting, and Crevice Corrosion

1. *Loss of material due to general, pitting and crevice corrosion could occur for steel piping, piping components, piping elements, tanks, and heat exchanger components exposed to treated water and for steel piping, piping components, and piping elements exposed to steam. The existing aging management program relies on monitoring and control of water chemistry to manage the effects of loss of material due to general, pitting, and crevice corrosion. However, control of water chemistry does not preclude loss of material due to general, pitting, and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the water chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of the water chemistry control program. A one-time inspection of select components and susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage the loss of material due to general, pitting, and crevice corrosion in steel piping components exposed to steam in the Auxiliary Steam, Boron Recovery, Nitrogen Gas, Waste Processing Liquid systems. The Water Chemistry and One-Time Inspection programs are described in Appendix B.

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage the loss of material due to general, pitting, and crevice

corrosion in steel heat exchanger components exposed to steam in the Chemical and Volume Control, and Hot Water Heating, and Fire Protection systems. The Water Chemistry and One-Time Inspection Programs are described in Appendix B.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage the loss of material due to general, pitting, and crevice corrosion in steel piping components exposed to treated water in the Auxiliary Steam, Auxiliary Steam Condensate, Chemical and Volume Control Condensate, Demineralized Water, Feedwater, Hot Water Heating, Primary Component Cooing Water, Reactor Make-Up Water, Release Recovery, Sample, and Steam Generator Blowdown systems. The Water Chemistry and One-Time Inspection Programs are described in Appendix B.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage the loss of material due to general, pitting, and crevice corrosion in steel tanks exposed to treated water in the Auxiliary Steam Condensate, Fuel Handling, Hot Water Heating, Release Recovery, and Steam Generator Blowdown systems. The Water Chemistry and One-Time Inspection Programs are described in Appendix B.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage the loss of material due to general, pitting, and crevice corrosion in steel heat exchanger components exposed to treated water in the Condensate and Hot Water Heating systems. The Water Chemistry and One-Time Inspection Programs are described in Appendix B.

2. *Loss of material due to general, pitting and crevice corrosion could occur for steel piping, piping components, and piping elements exposed to lubricating oil. The existing aging management program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil contaminant control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the lube oil chemistry control program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

Seabrook Station will implement the One-Time Inspection program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis program, B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion in steel piping components and steel tanks exposed to lubricating oil in the Feedwater and Main Steam systems. The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

3.4.2.2.3 Loss of Material due to General, Pitting, Crevice Corrosion, and Microbiologically-Influenced Corrosion (MIC), and Fouling

Loss of material due to general, pitting, crevice, and MIC, and fouling could occur in steel piping, piping components, and piping elements exposed to raw water. The GALL Report recommends further evaluation of a plant-specific aging management program to ensure that these aging effects are adequately managed. Acceptance criteria are described in Branch Technical Position RLSB-1.

Seabrook Station will implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program, B.2.1.25, to manage loss of material due to pitting, crevice, galvanic (an additional aging mechanism in the Auxiliary Steam Condensate system), and microbiologically influenced corrosion in steel piping components in the Auxiliary Steam Condensate and Auxiliary Steam Heating systems and steel tanks in the Auxiliary Steam Condensate and Auxiliary Steam Heating systems exposed to raw water (fouling was excluded as an aging mechanism since the raw water in these systems is associated with potable water, which is domestic water from the town of Seabrook).The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is described in Appendix B.

3.4.2.2.4 Reduction of Heat Transfer due to Fouling

1. *Reduction of heat transfer due to fouling could occur for stainless steel and copper alloy heat exchanger tubes exposed to treated water. The existing aging management program relies on control of water chemistry to manage reduction of heat transfer due to fouling. However, control of water chemistry may not always have been adequate to preclude fouling. Therefore, the GALL Report recommends that the effectiveness of the water chemistry control program should be verified to ensure that reduction of heat transfer due to fouling is not occurring. A one-time inspection is an acceptable method to ensure that reduction of heat transfer is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage reduction of heat transfer due to fouling in stainless steel heat exchanger tubes exposed to treated water in the Feedwater

system. The One-Time Inspection and Water Chemistry programs are described in Appendix B.

2. *Reduction of heat transfer due to fouling could occur for steel, stainless steel, and copper alloy heat exchanger tubes exposed to lubricating oil. The existing aging management program relies on monitoring and control of lube oil chemistry to mitigate reduction of heat transfer due to fouling. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil contaminant control should be verified to ensure that fouling is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of lube oil chemistry control program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is not occurring or an aging effect is progressing very slowly such that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage reduction of heat transfer due to fouling in stainless steel heat exchanger tubes exposed to lubricating oil in the Feedwater System. The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

3.4.2.2.5 Loss of Material due to General, Pitting, Crevice Corrosion, and Microbiologically-Influenced Corrosion

1. *Loss of material due to general, pitting and crevice corrosion, and MIC could occur in steel (with or without coating or wrapping) piping, piping components, piping elements and tanks exposed to soil. The buried piping and tanks inspection program relies on industry practice, frequency of pipe excavation, and operating experience to manage the effects of loss of material from general corrosion, pitting and crevice corrosion, and MIC. The effectiveness of the buried piping and tanks inspection program should be verified to evaluate an applicant's inspection frequency and operating experience with buried components, ensuring that loss of material is not occurring.*

   Seabrook Station will implement the Buried Piping and Tanks Inspection Program, B.2.1.22, to manage loss of material due to general, pitting, crevice, and microbiologically-influenced corrosion (MIC) in steel piping components exposed to soil in the Condensate system. The Buried Piping and Tanks Inspection Program is described in Appendix B.

2. *Loss of material due to general, pitting and crevice corrosion, and MIC could occur in steel heat exchanger components exposed to lubricating oil. The existing aging management program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within*

acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil contaminant control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the lube oil chemistry control program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.

Item Number 3.4.1-12 is not applicable at Seabrook Station. There are no steel heat exchanger components exposed to lubricating oil in the systems that make up the Steam and Power Conversion Systems.

3.4.2.2.6 Cracking due to Stress Corrosion Cracking (SCC)

Cracking due to SCC could occur in the stainless steel piping, piping components, piping elements, tanks, and heat exchanger components exposed to treated water greater than 60°C (>140°F), and for stainless steel piping, piping components, and piping elements exposed to steam. The existing aging management program relies on monitoring and control of water chemistry to manage the effects of cracking due to SCC. However, high concentrations of impurities at crevices and locations of stagnant flow conditions could cause SCC. Therefore, the GALL Report recommends that the effectiveness of the water chemistry control program should be verified to ensure that SCC is not occurring. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that SCC is not occurring and that the component's intended function will be maintained during the period of extended operation.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage cracking due to stress corrosion cracking in stainless steel piping components exposed to treated water >140°F in the Auxiliary Steam Condensate, Feedwater, Hot Water Heating, Main Steam, and Steam Generator Blowdown systems. The One-Time Inspection and Water Chemistry Programs are described in Appendix B.

Item Number 3.4.1-13 is applicable to BWRs only. This item number is not used by Seabrook Station.

3.4.2.2.7 Loss of Material due to Pitting and Crevice Corrosion

1. *Loss of material due to pitting and crevice corrosion could occur for stainless steel, aluminum, and copper alloy piping, piping components and piping elements and for stainless steel tanks and heat exchanger components exposed to treated water. The existing aging management*

program relies on monitoring and control of water chemistry to manage the effects of loss of material due to pitting, and crevice corrosion. However, control of water chemistry does not preclude corrosion at locations of stagnant flow conditions. Therefore, the GALL Report recommends that the effectiveness of the water chemistry program should be verified to ensure that corrosion is not occurring. A one-time inspection of select components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to pitting and crevice corrosion in the stainless steel piping components exposed to treated water in the Auxiliary Steam, Auxiliary Steam Condensate, Chemical and Volume Control System, Condensate, Demineralized Water, Feedwater, Fuel Handling, Hot Water Heating, Main Steam, Mechanical Seal Supply, Radiation Monitoring, Reactor Coolant, Reactor Makeup Water, Release Recovery , Sample, and Steam Generator Blowdown systems, and stainless steel heat exchanger components exposed to treated water in the Condensate, Feedwater, Mechanical Seal Supply, Radiation Monitoring, Sample, and Steam Generator Blowdown systems, and stainless steel tanks exposed to treated water in the Chemical and Volume Control, Condensate, Containment Building Spray, Mechanical Seal Supply, Reactor Coolant, Reactor Makeup Water, and Sample systems. The One-Time Inspection and Water Chemistry Programs are described in Appendix B.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to pitting and crevice corrosion in the copper alloy piping components exposed to treated water in the Auxiliary Steam Condensate, Condensate, Demineralized Water, Fuel Handling, and Hot Water Heating systems. In addition, galvanic corrosion is an additional aging mechanism that will be managed in the Demineriliized Water and Fuel Handling systems. The One-Time Inspection and Water Chemistry Programs are described in Appendix B.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to pitting and crevice corrosion in the copper alloy heat exchanger components exposed to treated water in the Feedwater system. The One-Time Inspection and Water Chemistry Programs are described in Appendix B.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Water Chemistry Program,

B.2.1.2, to manage loss of material due to pitting and crevice corrosion in the copper alloy heater coils exposed to treated water in the Hot Water Heating System. The One-Time Inspection and Water Chemistry Programs are described in Appendix B.

2. *Loss of material due to pitting and crevice corrosion could occur for stainless steel piping, piping components, and piping elements exposed to soil. The GALL Report recommends further evaluation of a plant-specific aging management to ensure that this aging effect is adequately managed. Acceptance criteria are described in Branch Technical Position RLSB- 1 .*

   Seabrook Station will implement the Buried Piping and Tanks Inspection Program, B.2.1.22, to manage loss of material due to pitting, crevice, and in addition microbiologically-influenced corrosion (MIC) in stainless steel piping components exposed to soil in the Condensate system. The Buried Piping and Tanks Inspection Program is described in Appendix B.

3. *Loss of material due to pitting and crevice corrosion could occur for copper alloy piping, piping components, and piping elements exposed to lubricating oil. The existing aging management program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants within acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil contaminant control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the lube oil chemistry control program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.*

   Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to pitting and crevice corrosion in copper alloy piping components and copper alloy heat exchanger components exposed to lubricating oil in the Feedwater system. The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

3.4.2.2.8 Loss of Material due to Pitting, Crevice, and Microbiologically-Influenced Corrosion

Loss of material due to pitting, crevice, and MIC could occur in stainless steel piping, piping components, piping elements, and heat exchanger components exposed to lubricating oil. The existing aging management program relies on the periodic sampling and analysis of lubricating oil to maintain contaminants

within acceptable limits, thereby preserving an environment that is not conducive to corrosion. However, control of lube oil contaminants may not always have been adequate to preclude corrosion. Therefore, the effectiveness of lubricating oil contaminant control should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to manage corrosion to verify the effectiveness of the lube oil chemistry control program. A one-time inspection of selected components at susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.

Seabrook Station will implement the One-Time Inspection Program, B.2.1.20, to verify the effectiveness of the Lubricating Oil Analysis Program, B.2.1.26, to manage loss of material due to pitting, crevice, and microbiologically-influenced corrosion (MIC) in stainless steel piping components exposed to lubricating oil in the Feedwater and Main Steam systems, and stainless steel heat exchanger components exposed to lubricating oil in the Feedwater system, and stainless steel tank exposed to lubricating oil in the Main Steam system. The Lubricating Oil Analysis and One-Time Inspection Programs are described in Appendix B.

3.4.2.2.9 Loss of Material due to General, Pitting, Crevice, and Galvanic Corrosion

Loss of material due to general, pitting, crevice, and galvanic corrosion can occur for steel heat exchanger components exposed to treated water. The existing aging management program relies on monitoring and control of water chemistry to manage the effects of loss of material due to general, pitting, and crevice corrosion. However, control of water chemistry does not preclude loss of material due to general, pitting, and crevice corrosion at locations of stagnant flow conditions. Therefore, the effectiveness of the water chemistry control program should be verified to ensure that corrosion is not occurring. The GALL Report recommends further evaluation of programs to verify the effectiveness of the water chemistry control program. A one-time inspection of select components and susceptible locations is an acceptable method to ensure that corrosion is not occurring and that the component's intended function will be maintained during the period of extended operation.

Item Number 3.4.1-5 is not applicable at Seabrook Station. There are no steel heat exchanger components exposed to treated water in the systems that make up the Steam and Power Conversion Systems.

3.4.2.2.10 Quality Assurance for Aging Management of Nonsafety-Related Components

QA provisions applicable to License Renewal are discussed in Section B.1.3.

3.4.2.3 Time-Limited Aging Analysis

The time-limited aging analyses identified below are associated with the Steam and Power Conversion System components:

- Section 4.3, Metal Fatigue of Piping and Components

3.4.3 CONCLUSION

The Steam and Power Conversion system piping and components subject to aging management review have been identified in accordance with the scoping criteria of 10 CFR 54.4. Aging effects have been identified based on plant and industry operating experience as well as industry literature. Programs to manage these aging effects have been identified in this section, and detailed program descriptions are provided in Appendix B. These activities demonstrate that the aging effects associated with the Steam and Power Conversion Systems will be adequately managed such that there is reasonable assurance that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-1	Steel piping, piping components, and piping elements exposed to steam or treated water	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c)	Yes, TLAA	Fatigue is a TLAA; further evaluation is documented in Subsection 3.4.2.2.1.
3.4.1-2	Steel piping, piping components, and piping elements exposed to steam	Loss of material due to general, pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in the Boron Recovery, Chemical and Volume Control, Containment Building Spray, Fire Protection, Hot Water, Nitrogen Gas, and Waste Processing Liquid systems have been aligned with this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to general, pitting, and crevice corrosion in steel piping components and steel heat exchanger components exposed to steam. a) Steel piping components are contained in the Auxiliary Steam, Boron Recovery, Containment Building Spray, , Hot Water, Nitrogen Gas, and Waste Processing Liquid systems. a) Steel heat exchanger components are contained in the Chemical and Volume Control, Fire Protection, and Hot Water Heating systems. See Subsection 3.4.2.2.2.1.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-3	Steel heat exchanger Components exposed to treated water	Loss of material due to general, pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in the Hot Water system have been aligned with this line number based on material, environment, and aging effect. Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to general, pitting, and crevice corrosion in steel heat exchanger components exposed to treated water in the Condensate and Hot Water Heating, systems. See Subsection 3.4.2.2.2.1.
3.4.1-4	Steel piping, piping components, and piping elements exposed to treated water	Loss of material due to general, pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in the Chemical and Volume Control, Demineralized Water, Hot Water Heating, Primary Component Cooling Water, Reactor Make-Up Water, Release Recovery, and Sample systems have been aligned with this line number based on material, environment, and aging effect. Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2 to manage loss of material due to general, pitting, and crevice corrosion in steel piping components exposed to treated water in the Auxiliary Steam, Auxiliary Steam Condensate, Chemical and Volume Control, Condensate, Demineralized Water, Feedwater, Hot Water Heating, Primary Component Cooling Water, Reactor Make-Up Water, Release Recovery, Sample, and Steam Generator Blowdown systems. See Subsection 3.4.2.2.2.1.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-5	Steel heat exchanger components exposed to treated water	Loss of material due to general, pitting, crevice, and galvanic corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Not Applicable. The Steam and Power Conversion Systems have no steel heat exchanger components exposed to treated water. See Subsection 3.4.2.2.2.9.
3.4.1-6	Steel and stainless steel tanks exposed to treated water	Loss of material due to general (steel only) pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in the Chemical and Volume Control, Containment Building Spray, Fuel Handling, Hot Water Heating, Mechanical Seal Supply, Reactor Coolant, Reactor Make-Up Water, Release Recovery, and Sample systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to general, pitting, and crevice corrosion in steel tanks exposed to treated water in the Auxiliary Steam Condensate, Fuel Handling, Hot Water Heating, Release Recovery, and Steam Generator Blowdown systems, and to manage pitting and crevice corrosion in the stainless steel tanks exposed to treated water in the Chemical and Volume Control, Containment Building Spray, Condensate, Mechanical Seal Supply, Reactor Coolant, Reactor Make-Up Water, and Sample systems. See Subsection 3.4.2.2.2.1 for steel tanks and Subsection 3.4.2.2.7.1 for stainless steel tanks.
3.4.1-7	Steel piping, piping components, and piping elements exposed to lubricating oil	Loss of material due to general, pitting and crevice corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion in steel piping components exposed to lubricating oil in the Feedwater and Main Steam systems, and steel tanks exposed to lubricating oil in the Feedwater and Main Steam systems. See Subsection 3.4.2.2.2.2.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-8	Steel piping, piping components, and piping elements exposed to raw water	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling	Plant specific	Yes, plant specific	Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to pitting, crevice, galvanic (an additional aging mechanism in the Auxiliary Steam Condensate system), and microbiologically influenced corrosion in steel piping components and steel tanks exposed to raw water in the Auxiliary Steam Condensate and Auxiliary Steam Heating systems (fouling was excluded as an aging mechanism since the raw water in these systems is associated with potable water, which is domestic water from the town of Seabrook). See Subsection 3.4.2.2.3.
3.4.1-9	Stainless steel and copper alloy heat exchanger tubes exposed to treated water	Reduction of heat transfer due to fouling	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage reduction of heat transfer due to fouling in stainless steel heat exchanger tubes exposed to treated water in the Feedwater system. See Subsection 3.4.2.2.4.1.
3.4.1-10	Steel, stainless steel, and copper alloy heat exchanger tubes exposed to lubricating oil	Reduction of heat transfer due to fouling	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage reduction of heat transfer due to fouling in stainless steel heat exchanger tubes exposed to lubricating oil in the Feedwater system. See Subsection 3.4.2.2.4.2.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-11	Buried steel piping, piping components, piping elements, and tanks (with or without coating or wrapping) exposed to soil	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion	Buried Piping and Tanks Surveillance or Buried Piping and Tanks Inspection	No Yes, detection of aging effects and operating experience are to be further evaluated	Consistent with NUREG-1801 with exceptions. The Buried Piping and Tanks Inspection Program (with exceptions), B.2.1.22, will be used to manage loss of material due to general, pitting, crevice, and microbiologically-influenced corrosion in steel piping components exposed to soil in the Condensate system. See Subsection 3.4.2.2.5.1.
3.4.1-12	Steel heat exchanger Components exposed to lubricating oil	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Not Applicable. The Steam and Power Conversion Systems have no steel heat exchanger components exposed to lubricating oil. See Subsection 3.4.2.2.5.2.
3.4.1-13	BWR Only				
3.4.1-14	Stainless steel piping, piping components, piping elements, tanks, and heat exchanger components exposed to treated water >60°C (>140°F)	Cracking due to stress corrosion cracking	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in Hot Water Heating system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage cracking due to stress corrosion cracking in stainless steel piping components exposed to treated water >140^{0}F in the Auxiliary Steam Condensate, Feedwater, Hot Water Heating, Main Steam, and Steam Generator Blowdown systems. See Subsection 3.4.2.2.6.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-15	Aluminum and copper alloy piping, piping components, and piping elements exposed to treated water	Loss of material due to pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in Demineralized Water, Fuel Handling, and Hot Water Heating systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2, to manage loss of material due to pitting and crevice corrosion in the copper alloy piping components exposed to treated water in the Auxiliary Steam Condensate, Condensate, Demineralized Water, Fuel Handling, and Hot Water Heating systems, copper alloy heat exchanger components exposed to treated water in the Feedwater system, and copper alloy heater coil exposed to treated water in the Hot Water Heating system. In addition galvanic corrosion is an additional aging mechanism that will be managed in the Demineralized Water and Fuel Handling systems See Subsection 3.4.2.2.7.1.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-16	Stainless steel piping, piping components, and piping elements; tanks, and heat exchanger components exposed to treated water	Loss of material due to pitting and crevice corrosion	Water Chemistry and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Components in Chemical and Volume Control, Demineralized Water, Fuel Handling, Hot Water Heating, Mechanical Seal Supply, Radiation Monitoring, Reactor Coolant, Reactor Make-Up Water, Release Recovery, and Sample systems have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Water Chemistry Program, B.2.1.2 to manage loss of material due to pitting and crevice corrosion in stainless steel piping components exposed to treated water in the Auxiliary Steam, Auxiliary Steam Condensate, Chemical and Volume Control, Condensate, Demineralized Water, Feedwater, Fuel Handling, Hot Water Heating, Main Steam, Mechanical Seal Supply, Radiation Monitoring, Reactor Coolant, Reactor Make-Up Water, Release Recovery, Sample, and Steam Generator Blowdown systems, and stainless steel heat exchanger components exposed to treated water in the Condensate, Mechanical Seal Supply, Feedwater, Radiation Monitoring, Sample, and Steam Generator Blowdown systems. See Subsection 3.4.2.2.7.1.
3.4.1-17	Stainless steel piping, piping components, and piping elements exposed to soil	Loss of material due to pitting and crevice corrosion	Plant specific	Yes, plant specific	Consistent with NUREG-1801 for material, environment and aging effect, but a different aging management program is credited. The Buried Piping and Tanks Inspection Program (with exceptions), B.2.1.22, will be used to manage loss of material due to pitting, crevice, and in addition, microbiologically-influenced corrosion in stainless steel piping components exposed to soil in the Condensate system. See Subsection 3.4.2.2.7.2.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-18	Copper alloy piping, piping components, and piping elements exposed to lubricating oil	Loss of material due to pitting and crevice corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to general, pitting, and crevice corrosion in copper alloy piping components and copper alloy heat exchanger components exposed to lubricating oil in the Feedwater system. See Subsection 3.4.2.2.7.3.
3.4.1-19	Stainless steel piping, piping components, piping elements, and heat exchanger components exposed to lubricating oil	Loss of material due to pitting, crevice, and microbiologically influenced corrosion	Lubricating Oil Analysis and One-Time Inspection	Yes, detection of aging effects is to be evaluated	Consistent with NUREG-1801 with exceptions. The One-Time Inspection Program, B.2.1.20, will be used to verify the effectiveness of the Lubricating Oil Analysis Program (with exceptions), B.2.1.26, to manage loss of material due to pitting, crevice, and microbiologically-influenced corrosion in stainless steel piping components exposed to lubricating oil in the Feedwater and Main Steam systems, and stainless steel heat exchanger components exposed to lubricating oil in the Feedwater system, and stainless steel tanks exposed to lubricating oil in the Main Steam system. See Subsection 3.4.2.2.8.
3.4.1-20	Steel tanks exposed to air-outdoor (external)	Loss of material/ general, pitting, and crevice corrosion	Aboveground Steel Tanks	No	Not Applicable. The Steam and Power Conversion Systems have no steel tanks exposed to air-outdoor (external)
3.4.1-21	High-strength steel closure bolting exposed to air with steam or water leakage	Cracking due to cyclic loading, stress corrosion cracking	Bolting Integrity	No	Not Applicable. The Steam and Power Conversion Systems have no high-strength steel closure bolting exposed to air with steam or water leakage.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-22	Steel bolting and closure bolting exposed to air with steam or water leakage, air-outdoor (external), or air-indoor uncontrolled (external);	Loss of material due to general, pitting and crevice corrosion; loss of preload due to thermal effects, gasket creep, and self-loosening	Bolting Integrity	No	Consistent with NUREG-1801. The Bolting Integrity Program, B.2.1.9, will be used to manage loss of material due to general, pitting, and crevice corrosion, and loss of preload due to thermal effects, gasket creep, and self-loosening in steel bolting exposed to air-indoor uncontrolled in the Auxiliary Steam, Auxiliary Steam Condensate, Auxiliary Steam Heating, Condensate, Feedwater, Main Steam, and Steam Generator Blowdown systems.
3.4.1-23	Stainless steel piping, piping components, and piping elements exposed to closed cycle cooling water >60°C (>140°F)	Cracking due to stress corrosion cracking	Closed-Cycle Cooling Water System	No	Not Applicable. The Steam and Power Conversion Systems have no stainless steel piping components exposed to closed cycle cooling water >60°C (>140°F).
3.4.1-24	Steel heat exchanger components exposed to closed cycle cooling water	Loss of material due to general, pitting, crevice, and galvanic corrosion	Closed-Cycle Cooling Water System	No	Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water Program (with exceptions), B.2.1.12, will be used to manage loss of material due to galvanic, general, pitting, and crevice corrosion in steel heat exchanger components in the Steam Generator Blowdown system.
3.4.1-25	Stainless steel piping, piping components, piping elements, and heat exchanger components exposed to closed cycle cooling water	Loss of material due to pitting and crevice corrosion	Closed-Cycle Cooling Water System	No	Components in the Radiation Monitoring system have been aligned to this line item based material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Closed-Cycle Cooling Water Program (with exceptions), B.2.1.12, will be used to manage loss of material due to pitting and crevice corrosion in the stainless steel heat exchanger components exposed to closed cycle cooling water in the Radiation Monitoring system. The Steam and Power Conversion Systems have no stainless steel piping components and heat exchanger components exposed to closed cycle cooling water.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-26	Copper alloy piping, piping components, and piping elements exposed to closed cycle cooling water	Loss of material due to pitting, crevice, and galvanic corrosion	Closed-Cycle Cooling Water System	No	Not Applicable. The Steam and Power Conversion Systems have no copper alloy piping components exposed to closed cycle cooling water.
3.4.1-27	Steel, stainless steel, and copper alloy heat exchanger tubes exposed to closed cycle cooling water	Reduction of heat transfer due to fouling	Closed-Cycle Cooling Water System	No	Not Applicable. The Steam and Power Conversion Systems have no steel, stainless steel, and copper alloy heat exchanger tubes exposed to closed cycle cooling water.
3.4.1-28	Steel external surfaces exposed to air-indoor uncontrolled (external), condensation (external), or air-outdoor (external)	Loss of material due to general corrosion	External Surfaces Monitoring	No	Consistent with NUREG-1801 with exceptions. The External Surfaces Monitoring Program (with exceptions), B.2.1.24, will be used to manage loss of material due to general corrosion on the steel external surfaces exposed to air-indoor uncontrolled (external) in the Auxiliary Steam, Auxiliary Steam Condensate, Auxiliary Steam Heating, Condensate, Feedwater, Main Steam, and Steam Generator Blowdown systems, and general, pitting, crevice, and galvanic corrosion of steel external surfaces in air-outdoor (external) in the Auxiliary Steam Condensate, and Main Steam systems, and general, pitting, and crevice corrosion of steel external surfaces in condensation (external) in the Circulating Water System.
3.4.1-29	Steel piping, piping components, and piping elements exposed to steam or treated water	Wall thinning due to flow accelerated corrosion	Flow-Accelerated Corrosion	No	Consistent with NUREG-1801. The Flow-Accelerated Corrosion Program, B.2.1.8, will be used to manage wall thinning due to flow accelerated corrosion in steel piping components exposed to steam or treated water in the Auxiliary Steam, Auxiliary Steam Condensate, Auxiliary Steam Heating, Feedwater, Main Steam, and Steam Generator Blowdown systems.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-30	Steel piping, piping components, and piping elements exposed to air-outdoor (internal) or condensation (internal)	Loss of material due to general, pitting, and crevice corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	No	Components in the Auxiliary Boiler, Control Building Air Handling, and Service Water systems have aligned with this line item based on material, environment, and aging effect. Consistent with NUREG-1801 with exceptions. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to general, pitting, and crevice corrosion in steel piping components exposed to air outdoor (internal)in the Auxiliary Boiler, Control Building Air Handling, Main Steam, and Service Water systems, and steel fan housing exposed to air-outdoor (internal)in the Control Building Air Handling System, and steel piping components exposed to condensation (internal) in the Main Steam system.
3.4.1-31	Steel heat exchanger components exposed to raw water	Loss of material due to general, pitting, crevice, galvanic, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Consistent with NUREG-1801 for material, environment and aging effect, but a different aging management program is credited. The raw water environment is potable water, which is domestic water from the town of Seabrook. Therefore, the Open-Cycle Cooling Water System Program is not applicable. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion in steel heat exchanger components exposed to raw water in the Auxiliary Steam Heating System. Galvanic is not an applicable aging mechanism since the heat exchanger components are not in contact with a more noble material. Additionally, macro fouling is not an applicable aging mechanism since the raw water environment is potable water, which is domestic water from the town of Seabrook.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-32	Stainless steel and copper alloy piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion	Open-Cycle Cooling Water System	No	Consistent with NUREG-1801 for material, environment and aging effect, but a different aging management program is credited. The raw water environment is potable water in the Auxiliary Steam Condensate system and radioactive liquid waste drainage in the Auxiliary Steam system. Therefore, Open-Cycle Cooling Water System Program is not applicable. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to pitting, crevice, and microbiologically influenced corrosion in stainless steel piping components exposed to raw water in the Auxiliary Steam and Auxiliary Steam Condensate systems, and copper alloy piping components in the Auxiliary Steam system. Fouling is an additional aging effect in the stainless steel and copper alloy piping components in the Auxiliary Steam system.
3.4.1-33	Stainless steel heat Exchanger components exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System	No	Not Applicable. The Steam and Power Conversion Systems have no stainless steel heat exchanger components exposed to raw water.
3.4.1-34	Steel, stainless steel, and copper alloy heat exchanger tubes exposed to raw water	Reduction of heat transfer due to fouling	Open-Cycle Cooling Water System	No	Consistent with NUREG-1801 for material, environment and aging effect, but a different aging management program is credited. The raw water environment is potable water, which is domestic water from the town of Seabrook. Therefore, the Open-Cycle Cooling Water System Program is not applicable. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of heat transfer function in steel heat exchanger tubes exposed to raw water in the Auxiliary Steam Heating system.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-35	Copper alloy >15% Zn piping, piping components, and piping elements exposed to closed cycle cooling water, raw water, or treated water	Loss of material due to selective leaching	Selective Leaching of Materials	No	Consistent with NUREG-1801 with exceptions. The Selective Leaching of Materials Program (with exceptions), B.2.1.21, will be used to manage loss of material due to selective leaching in copper alloy >15% Zn piping components exposed to raw water in the Auxiliary Steam Condensate and Circulating Water systems, copper alloy >15% Zn piping components exposed to treated water in the Auxiliary Steam Condensate system, and copper alloy >15% Zn heat exchanger components exposed to treated water in the Feedwater system.
3.4.1-36	Gray cast iron piping, piping components, and piping elements exposed to soil, treated water, or raw water	Loss of material due to selective leaching	Selective Leaching of Materials	No	Consistent with NUREG-1801with exceptions. The Selective Leaching of Materials Program (with exceptions), B.2.1.21, will be used to manage loss of material due to selective leaching in gray cast iron piping components exposed to raw water in the Auxiliary Steam Condensate, Auxiliary Steam Heating and Circulating Water systems and gray cast iron piping components exposed to treated water in the Auxiliary Steam, Auxiliary Steam Condensate, and Feedwater systems.
3.4.1-37	Steel, stainless steel, and nickel-based alloy piping, piping components, and piping elements exposed to steam	Loss of material due to pitting and crevice corrosion	Water Chemistry	No	Components in the Steam Generator and Fire Protection systems have been aligned to this line item due to material, environment, and aging effect. Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage loss of material due to pitting and crevice corrosion in stainless steel piping components exposed to steam in the Auxiliary Steam, Feedwater, , Main Steam, and Steam Generator systems. Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage loss of material due to pitting and crevice corrosion in stainless steel heat exchanger components exposed to steam in the Condensate and Fire Protection systems. Consistent with NUREG-1801. The Water Chemistry

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
					Program, B.2.1.2, will be used to manage loss of material due to pitting and crevice corrosion in nickel alloy piping components exposed to steam in the Steam Generator. Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage loss of material due general (additional aging effect), pitting, and crevice corrosion in steel piping components exposed to steam in the Feed Water, Main Steam, and Steam Generator systems. Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage loss of material due general (additional aging effect), pitting, and crevice corrosion in steel tanks, and steel turbine casing exposed to steam in the Feedwater system. Consistent with NUREG-1801 for material, environment and aging effect, but a different aging management program is credited The steam environment is potable water heated into steam. Therefore, the Water Chemistry Program is not applicable. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to pitting and crevice corrosion in stainless steel piping components & stainless steel heat exchanger components, and general (additional aging mechanism), pitting, and crevice corrosion in steel piping components & steel heat exchanger components exposed to steam environment in the Auxiliary Steam Heating system.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-38	Steel bolting and external surfaces exposed to air with borated water leakage	Loss of material due to boric acid corrosion	Boric Acid Corrosion	No	Consistent with NUREG-1801. The Boric Acid Corrosion Program, B.2.1.4, will be used to manage loss of material due to boric acid corrosion on the steel bolting exposed to air with borated water leakage the Auxiliary Steam, Auxiliary Steam Condensate, Auxiliary Steam Heating, and Steam Generator Blowdown systems and steel external surfaces exposed to air with borated water leakage in the Auxiliary Steam, Auxiliary Steam Condensate, Auxiliary Steam Heating, Feedwater, Main Steam, and Steam Generator Blowdown systems.
3.4.1-39	Stainless steel piping, piping components, and piping elements exposed to steam	Cracking due to stress corrosion cracking	Water Chemistry	No	Components in the Fire Protection system have been aligned to this line item based on material, environment, and aging effect. Consistent with NUREG-1801. The Water Chemistry Program, B.2.1.2, will be used to manage cracking due to stress corrosion cracking in stainless steel piping components exposed to steam in the Auxiliary Steam, Feedwater, and Main Steam systems, and stainless steel heat exchanger components exposed to steam in the Condensate and Fire Protection systems. Consistent with NUREG-1801 for material, environment and aging effect, but a different aging management program is credited. The steam environment is potable water heated into steam. Therefore, the Water Chemistry Program is not applicable. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program (with exceptions), B.2.1.25, will be used to manage loss of material due to cracking in stainless steel piping components & stainless steel heat exchanger components exposed to steam environment in the Auxiliary Steam Heating system.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-40	Glass piping elements exposed to air, lubricating oil, raw water, and treated water	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Glass piping elements exposed to Air-Indoor Uncontrolled are contained in the Auxiliary Steam Condensate, Auxiliary Steam Heating, Condensate, Feedwater, and Main Steam systems. Glass piping components exposed to lubricating oil are contained in the Feedwater and Main Steam systems. Glass piping components exposed to raw water are contained in the Auxiliary Steam Condensate system. Glass piping components exposed to treated water are contained in the Auxiliary Steam Condensate, Auxiliary Steam Heating, and Condensate systems.
3.4.1-41	Stainless steel, copper alloy, and nickel alloy piping, piping components, and piping elements exposed to air-indoor uncontrolled (external)	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Copper alloy piping components exposed to Air-Indoor Uncontrolled (external) are contained in the Auxiliary Steam, Auxiliary Steam Condensate, Auxiliary Steam Heating, Condensate, and Feedwater systems. Stainless steel piping components exposed to Air-Indoor Uncontrolled (external) are contained in the Auxiliary Steam, Auxiliary Steam Condensate, Auxiliary Steam Heating, Condensate, Feedwater, Main Steam, and Steam Generator Blowdown systems. Stainless steel heat exchanger components exposed to Air-Indoor Uncontrolled (external) are contained in the Auxiliary Steam Heating, Feedwater, and Steam Generator Blowdown systems. Stainless steel tank exposed to Air-Indoor Uncontrolled (external) is contained in the Main Steam system. Copper alloy heat exchanger components exposed to Air-Indoor Uncontrolled (external) are contained in the Feedwater system.

Table 3.4.1

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

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.4.1-42	Steel piping, piping components, and piping elements exposed to air-indoor controlled (external)	None	None	NA - No AEM or AMP	Not Applicable. The Steam and Power Conversion systems have no steel piping components exposed to air-indoor controlled (external)
3.4.1-43	Steel and stainless steel piping, piping components, and piping elements in concrete	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Stainless steel piping components in concrete are contained in the Condensate system.
3.4.1-44	Steel, stainless steel, aluminum, and copper alloy piping, piping components, and piping elements exposed to gas	None	None	NA - No AEM or AMP	Consistent with NUREG-1801. Steel piping components exposed to gas are contained in the Main Steam system. Stainless steel piping components exposed to gas are contained in the Feedwater and Main Steam systems. Steel tanks exposed to gas are contained in the Feedwater and Main Steam systems.

Table 3.4.2-1

AUXILIARY STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VIII.H-4 (S-34)	3.4.1-22	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VIII.H-5 (S-33)	3.4.1-22	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-2 (S-40)	3.4.1-38	A
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	A A
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Steam (Internal)	Loss of Material	Selective Leaching of Materials Program	None	None	G
Filter Housing	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Filter Housing	Leakage Boundary (Spatial)	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	A A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A

Table 3.4.2-1

AUXILIARY STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Steam (Internal)	Cracking	Water Chemistry Program	VIII.A-10 (SP-44)	3.4.1-39	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.A-12 (SP-43)	3.4.1-37	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	VIII.C-5 (S-15)	3.4.1-29	A

Table 3.4.2-1

AUXILIARY STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-7 (S-10)	3.4.1-4	A A
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	VIII.F-26 (S-16)	3.4.1-29	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.E-27 (SP-36)	3.4.1-32	E, 1
Thermowell	Pressure Boundary	Stainless Steel	Treated Borated Water (Internal)	Loss of Material	Water Chemistry Program	VII.E1-17 (AP-79)	3.3.1-91	A
Thermowell	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-1 (SP-16)	3.4.1-16	A A

Table 3.4.2-1

AUXILIARY STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Thermowell	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Thermowell	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-7 (S-10)	3.4.1-4	A A
Trap	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Trap	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-7 (S-10)	3.4.1-4	A A
Trap	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.A-8 (SP-27)	3.4.1-36	B
Trap	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Trap	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B

Table 3.4.2-1

AUXILIARY STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Trap	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-7 (S-10)	3.4.1-4	A A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	None	None	G
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Steam (Internal)	Loss of Material	Selective Leaching of Materials Program	None	None	G
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Steam (Internal)	Cracking	Water Chemistry Program	VIII.A-10 (SP-44)	3.4.1-39	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.A-12 (SP-43)	3.4.1-37	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A

Table 3.4.2-1

AUXILIARY STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-4 (S-06)	3.4.1-2	A A
Valve Body	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.C-7 (S-10)	3.4.1-4	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with radioactive liquid waste drainage. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VIII.H-4 (S-34)	3.4.1-22	A
Bolting	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VIII.H-5 (S-33)	3.4.1-22	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-2 (S-40)	3.4.1-38	A
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.E-23 (SP-27)	3.4.1-36	B

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.E-18 (SP-31)	3.4.1-32	E, 1
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.E-20 (SP-30)	3.4.1-35	B
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	A A
Instrumentation Element	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.E-21 (SP-55)	3.4.1-35	B
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.E-30 (SP-17)	3.4.1-14	A A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A
Piping and Fittings	Leakage Boundary (Spatial)	Copper Alloy	Air With Borated Water Leakage (External)	None	None	VII.J-5 (AP-11)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.E-18 (SP-31)	3.4.1-32	E, 1
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.E-27 (SP-36)	3.4.1-32	E, 1

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.E-30 (SP-17)	3.4.1-14	A A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Piping and Fittings	Structural Integrity (Attached)	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-8 (S-41)	3.4.1-28	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Piping and Fittings	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-36 (S-12)	3.4.1-8	E, 2
Piping and Fittings	Leakage Boundary (Spatial) Structural Integrity (Attached)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Structural Integrity (Attached)	Steel	Treated Water (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	VIII.E-35 (S-16)	3.4.1-29	A
Piping Element	Leakage Boundary (Spatial) Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	VIII.I-5 (SP-9)	3.4.1-40	A
Piping Element	Pressure Boundary	Glass	Raw Water (Internal)	None	None	VIII.I-7 (SP-34)	3.4.1-40	A
Piping Element	Leakage Boundary (Spatial)	Glass	Treated Water (Internal)	None	None	VIII.I-8 (SP-35)	3.4.1-40	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Pump Casing	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-36 (S-12)	3.4.1-8	E, 2

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.G-24 (SP-28)	3.4.1-36	B
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.E-23 (SP-27)	3.4.1-36	B
Tank	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Tank	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Tank	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-36 (S-12)	3.4.1-8	E, 2
Tank	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.E-30 (SP-17)	3.4.1-14	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Trap	Leakage Boundary (Spatial) Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Trap	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Trap	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-36 (S-12)	3.4.1-8	E, 2
Trap	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.G-24 (SP-28)	3.4.1-36	B
Trap	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Trap	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.E-23 (SP-27)	3.4.1-36	B
Trap	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Trap	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Trap	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VII.I-12 (AP-66)	3.3.1-88	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.E-18 (SP-31)	3.4.1-32	E, 1
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.E-20 (SP-30)	3.4.1-35	B

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	A A
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.E-21 (SP-55)	3.4.1-35	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.E-27 (SP-36)	3.4.1-32	E, 1
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.E-30 (SP-17)	3.4.1-14	A A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A

Table 3.4.2-2

AUXILIARY STEAM CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Valve Body	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-36 (S-12)	3.4.1-8	E, 2
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with domestic water from the town of Seabrook. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

2	NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.4.2-3

AUXILIARY STEAM HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VIII.H-4 (S-34)	3.4.1-22	A
Bolting	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VIII.H-5 (S-33)	3.4.1-22	A
Bolting	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-2 (S-40)	3.4.1-38	A
Filter Element	Filter	Stainless Steel	Steam (Internal/External)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-2 (SP-44)	3.4.1-39	E, 1
Filter Element	Filter	Stainless Steel	Steam (Internal/External)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-3 (SP-43)	3.4.1-37	E, 1
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A

Table 3.4.2-3

AUXILIARY STEAM HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-8 (S-07)	3.4.1-37	E, 1
Filter Housing	Leakage Boundary (Spatial)	Gray Cast Iron	Steam (Internal)	Loss of Material	Selective Leaching of Materials Program	None	None	G
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Filter Housing	Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-8 (S-07)	3.4.1-37	E, 1
Heat Exchanger Components (Unit Heater 1-ASH-UH-197 and 198 Heating Coil)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	C
Heat Exchanger Components (Unit Heater 1-ASH-UH-197 and 198 Heating Coil)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Heat Exchanger Components (Unit Heater 1-ASH-UH-197 and 198 Heating Coil)	Leakage Boundary (Spatial)	Stainless Steel	Steam (Internal)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-2 (SP-44)	3.4.1-39	E, 1

Table 3.4.2-3

AUXILIARY STEAM HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (Unit Heater 1-ASH-UH-197 and 198 Heating Coil)	Leakage Boundary (Spatial)	Stainless Steel	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-3 (SP-43)	3.4.1-37	E, 1
Heat Exchanger Components (Unit Heater 1-ASH-UH-73, 74, 75, 110 and 111 Heating Coil)	Heat Transfer Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	C
Heat Exchanger Components (Unit Heater 1-ASH-UH-73, 74, 75, 110 and 111 Heating Coil)	Heat Transfer Pressure Boundary	Stainless Steel	Steam (Internal)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-2 (SP-44)	3.4.1-39	E, 1
Heat Exchanger Components (Unit Heater 1-ASH-UH-73, 74, 75, 110 and 111 Heating Coil)	Heat Transfer Pressure Boundary	Stainless Steel	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-3 (SP-43)	3.4.1-37	E, 1
Heat Exchanger Components (Unit Heater 1-ASH-UH-73, 74, 75, 110 and 111 Heating Coil)	Heat Transfer Pressure Boundary	Stainless Steel	Steam (Internal)	Reduction of Heat Transfer	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Heat Exchanger Components (Unit Heater 1-ASH-UH-73, 74, 75, 110 and 111 Heating Coil Fins)	Heat Transfer	Aluminum	Air-Indoor Uncontrolled (External)	Reduction of Heat Transfer	External Surfaces Monitoring Program	None	None	F

Table 3.4.2-3

AUXILIARY STEAM HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-ASH-E-218 Shell)	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Heat Exchanger Components (1-ASH-E-218 Tubes)	Heat Transfer Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-7 (S-24)	3.4.1-31	E, 2
Heat Exchanger Components (1-ASH-E-218 Tubes)	Heat Transfer Pressure Boundary	Steel	Raw Water (Internal)	Reduction of Heat Transfer	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-16 (S-27)	3.4.1-34	E, 2
Heat Exchanger Components (1-ASH-E-218 Shell)	Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-8 (S-07)	3.4.1-37	E, 1
Heat Exchanger Components (1-ASH-E-218 Tubes)	Heat Transfer Pressure Boundary	Steel	Steam (External)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-8 (S-07)	3.4.1-37	E, 1
Heat Exchanger Components (1-ASH-E-218 Tubes)	Heat Transfer Pressure Boundary	Steel	Steam (External)	Reduction of Heat Transfer	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B

Table 3.4.2-3

AUXILIARY STEAM HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-36 (S-12)	3.4.1-8	E, 3
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.A-7 (SP-28)	3.4.1-36	B
Piping and Fittings	Pressure Boundary	Copper Alloy	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A
Piping and Fittings	Pressure Boundary	Copper Alloy	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-8 (S-07)	3.4.1-37	E, 1

Table 3.4.2-3

AUXILIARY STEAM HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	VIII.B1-9 (S-15)	3.4.1-29	A
Piping Element	Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	VIII.I-5 (SP-9)	3.4.1-40	A
Piping Element	Pressure Boundary	Glass	Raw Water (Internal)	None	None	VIII.I-7 (SP-34)	3.4.1-40	A
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Tank	Pressure Boundary	Steel	Raw Water (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.G-36 (S-12)	3.4.1-8	E, 3
Thermowell	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Thermowell	Leakage Boundary (Spatial)	Steel	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-8 (S-07)	3.4.1-37	E, 1
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A

Table 3.4.2-3

AUXILIARY STEAM HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Steam (Internal)	Loss of Material	Selective Leaching of Materials Program	None	None	G
Valve Body	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Pressure Boundary	Gray Cast Iron	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-8 (S-07)	3.4.1-37	E, 1
Valve Body	Pressure Boundary	Gray Cast Iron	Steam (Internal)	Loss of Material	Selective Leaching of Materials Program	None	None	G
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Steam (Internal)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-2 (SP-44)	3.4.1-39	E, 1
Valve Body	Leakage Boundary (Spatial)	Stainless Steel	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-3 (SP-43)	3.4.1-37	E, 1

Table 3.4.2-3

AUXILIARY STEAM HEATING SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-8 (S-07)	3.4.1-37	E, 1

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies the Water Chemistry Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The Auxiliary Steam Heating system is not applicable to the Water Chemistry Program.

2 NUREG-1801 specifies the Open-Cycle Cooling Water System Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The raw water environment is associated with domestic water from the town of Seabrook. Therefore, the Open-Cycle Cooling Water System Program is not applicable to this environment.

3 NUREG-1801 specifies a plant-specific program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.4.2-4

CIRCULATING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	Bolting Integrity Program	VII.D-1 (A-103)	3.3.1-44	A
Bolting	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Expansion Joint	Leakage Boundary (Spatial)	Elastomer	Condensation (External)	Hardening and Loss of Strength	External Surfaces Monitoring Program	None	None	H
Expansion Joint	Leakage Boundary (Spatial)	Elastomer	Raw Water (Internal)	Hardening and Loss of Strength	Open-Cycle Cooling Water System Program	VII.C1-1 (AP-75)	3.3.1-75	B
Expansion Joint	Leakage Boundary (Spatial)	Elastomer	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-2 (AP-76)	3.3.1-75	B
Piping and Fittings	Leakage Boundary (Spatial)	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Piping and Fittings	Leakage Boundary (Spatial)	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-10 (S-42)	3.4.1-28	B
Piping and Fittings	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-19 (A-38)	3.3.1-76	B

Table 3.4.2-4

CIRCULATING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial)	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Thermowell	Leakage Boundary (Spatial)	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-9 (A-44)	3.3.1-81	B
Valve Body	Leakage Boundary (Spatial)	Copper Alloy >15% Zn	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.A-6 (SP-30)	3.4.1-35	B
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-10 (S-42)	3.4.1-28	B
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-19 (A-38)	3.3.1-76	B
Valve Body	Leakage Boundary (Spatial)	Gray Cast Iron	Raw Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.A-7 (SP-28)	3.4.1-36	B
Valve Body	Leakage Boundary (Spatial)	Nickel Alloy	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G

Table 3.4.2-4

CIRCULATING WATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial)	Nickel Alloy	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-13 (AP-53)	3.3.1-78	B
Valve Body	Leakage Boundary (Spatial)	Steel	Condensation (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-10 (S-42)	3.4.1-28	B
Valve Body	Leakage Boundary (Spatial)	Steel	Raw Water (Internal)	Loss of Material	Open-Cycle Cooling Water System Program	VII.C1-19 (A-38)	3.3.1-76	B

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.4.2-5

CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VIII.H-4 (S-34)	3.4.1-22	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VIII.H-5 (S-33)	3.4.1-22	A
Heat Exchanger Components (1-CO-E-111 Tubes)	Pressure Boundary	Stainless Steel	Steam (External)	Cracking	Water Chemistry Program	VIII.B1-2 (SP-44)	3.4.1-39	C
Heat Exchanger Components (1-CO-E-111 Tubes)	Pressure Boundary	Stainless Steel	Steam (External)	Loss of Material	Water Chemistry Program	VIII.B1-3 (SP-43)	3.4.1-37	C
Heat Exchanger Components (1-CO-E-111 Tubes)	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-36 (S-22)	3.4.1-16	A A
Heat Exchanger Components (1-CO-E-111 Channel Head)	Pressure Boundary	Steel	Air Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	A
Heat Exchanger Components (1-CO-E-111 Channel Head)	Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-37 (S-19)	3.4.1-3	A A

Table 3.4.2-5

CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-CO-E-111-Tubesheet)	Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-37 (S-19)	3.4.1-3	A A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Concrete (External)	None	None	VIII.I-11 (SP-13)	3.4.1-43	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Soil (External)	Loss of Material	Buried Piping and Tanks Inspection Program	VIII.E-28 (SP-37)	3.4.1-17	E, 1

Table 3.4.2-5

CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A
Piping and Fittings	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Piping and Fittings	Pressure Boundary	Steel	Soil (External)	Loss of Material	Buried Piping and Tank Inspection Program	VIII.E-1 (S-01)	3.4.1-11	B
Piping and Fittings	Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A
Piping Element	Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	VIII.I-5 (SP-9)	3.4.1-40	A
Piping Element	Pressure Boundary	Glass	Treated Water (Internal)	None	None	VIII.I-8 (SP-35)	3.4.1-40	A
Pump	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Pump	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Tank	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Tank	Pressure Boundary	Stainless Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	None	None	G

Table 3.4.2-5

CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Thermowell	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Thermowell	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Pressure Boundary	CASS	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Valve Body	Pressure Boundary	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Pressure Boundary	Copper alloy	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A
Valve Body	Pressure Boundary	Copper alloy	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	A A
Valve Body	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A

Table 3.4.2-5

CONDENSATE SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-29 (SP-16)	3.4.1-16	A A
Valve Body	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-34 (S-10)	3.4.1-4	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies a plant-specific program for this line item. The Buried Piping and Tank Inspection Program is used to manage the aging effect(s) applicable to this component type, material, and environment combination.

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VIII.H-4 (S-34)	3.4.1-22	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VIII.H-5 (S-33)	3.4.1-22	A
Filter Housing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None -	None	VIII.I-10 (SP-12)	3.4.1-41	A
Filter Housing	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-3 (SP-38)	3.4.1-19	B A
Filter Housing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Filter Housing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Heat Exchanger Components (1-FW-E-96 Channel Head)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	C

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-FW-E-96 Channel Head)	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	C C
Heat Exchanger Components (1-FW-E-96 Shell)	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	C
Heat Exchanger Components (1-FW-E-96 Shell)	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.G-3 (S-20)	3.4.1-19	B A
Heat Exchanger Components (1-FW-E-96 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.G-3 (S-20)	3.4.1-19	B A
Heat Exchanger Components (1-FW-E-96 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Lubricating Oil (External)	Reduction of Heat Transfer	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.G-12 (SP-62)	3.4.1-10	B A
Heat Exchanger Components (1-FW-E-96 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	C C
Heat Exchanger Components (1-FW-E-96 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Water (Internal)	Reduction of Heat Transfer	Water Chemistry Program One-Time Inspection Program	VIII.E-13 (SP-40)	3.4.1-9	A A

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-FW-E-96 Tube Sheet)	Heat Transfer Pressure Boundary	Stainless Steel	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.G-3 (S-20)	3.4.1-19	B A
Heat Exchanger Components (1-FW-E-96 Tube Sheet)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	C C
Heat Exchanger Components (1-FW-E-172 Channel Head)	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	C
Heat Exchanger Components (1-FW-E-172 Channel Head)	Pressure Boundary	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-15 (SP-61)	3.4.1-15	C C
Heat Exchanger Components (1-FW-E-172 Channel Head)	Pressure Boundary	Copper Alloy >15% Zn	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.G-23 (SP-55)	3.4.1-35	D
Heat Exchanger Components (1-FW-E-172 Shell)	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	C
Heat Exchanger Components (1-FW-E-172 Shell)	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-2 (SP-32)	3.4.1-18	D C

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-FW-E-172 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.G-3 (S-20)	3.4.1-19	B A
Heat Exchanger Components (1-FW-E-172 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Lubricating Oil (External)	Reduction of Heat Transfer	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.G-12 (SP-62)	3.4.1-10	B A
Heat Exchanger Components (1-FW-E-172 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	C C
Heat Exchanger Components (1-FW-E-172 Tubes)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Water (Internal)	Reduction of Heat Transfer	Water Chemistry Program One-Time Inspection Program	VIII.E-13 (SP-40)	3.4.1-9	A
Heat Exchanger Components (1-FW-E-172 Tube Sheet)	Heat Transfer Pressure Boundary	Stainless Steel	Lubricating Oil (External)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.G-3 (S-20)	3.4.1-19	B A
Heat Exchanger Components (1-FW-E-172 Tube Sheet)	Heat Transfer Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	C C
Instrumentation Element	Pressure Boundary	Aluminum	Air-Indoor Uncontrolled (External)	None -	None	V.F-2 (EP-3)	3.2.1-50	A

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Aluminum	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	None	None	G
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A
Instrumentation Element	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-2 (SP-32)	3.4.1-18	B A
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Instrumentation Element	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Instrumentation Element	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	A A
Instrumentation Element	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Orifice	Pressure Boundary Throttle	Cass	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Orifice	Pressure Boundary Throttle	Cass	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.D1-5 (SP-17)	3.4.1-14	A A
Orifice	Pressure Boundary Throttle	Cass	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	A A
Orifice	Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Orifice	Pressure Boundary Throttle	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	A A
Orifice	Pressure Boundary Throttle	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Orifice	Pressure Boundary Throttle	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VIII.I-12 (SP-15)	3.4.1-44	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-3 (SP-38)	3.4.1-19	B A
Piping and Fittings	Pressure Boundary	Stainless Steel	Steam (Internal)	Cracking	Water Chemistry Program	VIII.B1-2 (SP-44)	3.4.1-39	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-3 (SP-43)	3.4.1-37	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.D1-5 (SP-17)	3.4.1-14	A A

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Piping and Fittings	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Piping and Fittings	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Piping and Fittings	Pressure Boundary	Steel	Steam (Internal)	Cumulative Fatigue Damage	TLAA	VIII.D1-7 (S-11)	3.4.1-1	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-8 (S-10)	3.4.1-4	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	VIII.D1-9 (S-16)	3.4.1-29	A

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping Element	Pressure Boundary	Glass	Air-Indoor Uncontrolled (External)	None	None	VIII.I-5 (SP-9)	3.4.1-40	A
Piping Element	Pressure Boundary	Glass	Lubricating Oil (Internal)	None	None	VIII.I-6 (SP-10)	3.4.1-40	A
Pump Casing	Leakage Boundary (Spatial) Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Pump Casing	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-8 (S-10)	3.4.1-4	A A
Pump Casing	Leakage Boundary (Spatial)	Gray Cast Iron	Treated Water (Internal)	Loss of Material	Selective Leaching of Materials Program	VIII.G-26 (SP-27)	3.4.1-36	B
Pump Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Pump Casing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-8 (S-10)	3.4.1-4	A A
Tank	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Tank	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Tank	Pressure Boundary	Steel	Gas (Internal)	None	None	VIII.I-15 (SP-4)	3.4.1-44	C
Tank	Leakage Boundary (Spatial) Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	D C
Tank	Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-8 (S-07)	3.4.1-37	C
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	A A

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Thermowell	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Thermowell	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-8 (S-10)	3.4.1-4	A A
Turbine Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Turbine Casing	Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-8 (S-07)	3.4.1-37	C
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Air-Indoor Uncontrolled (External)	None	None	VIII.I-2 (SP-6)	3.4.1-41	A
Valve Body	Pressure Boundary	Copper Alloy >15% Zn	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-2 (SP-32)	3.4.1-18	B A

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Pressure Boundary	Gray Cast Iron	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Pressure Boundary	Gray Cast Iron	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Valve Body	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VIII.I-12 (SP-15)	3.4.1-44	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-3 (SP-38)	3.4.1-19	B A
Valve Body	Pressure Boundary	Stainless Steel	Steam (Internal)	Cracking	Water Chemistry Program	VIII.B1-2 (SP-44)	3.4.1-39	A
Valve Body	Pressure Boundary	Stainless Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-3 (SP-43)	3.4.1-37	A

Table 3.4.2-6

FEEDWATER SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.D1-5 (SP-17)	3.4.1-14	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-4 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.D1-6 (SP-25)	3.4.1-7	B A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.D1-8 (S-10)	3.4.1-4	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Table 3.4.2-7

MAIN STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VIII.H-4 (S-34)	3.4.1-22	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VIII.H-5 (S-33)	3.4.1-22	A
Filter Housing	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Filter Housing	Leakage Boundary (Spatial)	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	B
Filter Housing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.A-14 (SP-25)	3.4.1-7	B A
Instrumentation Element	Leakage Boundary (Spatial)	Aluminum	Air-Indoor Uncontrolled (External)	None	None	V.F-2 (EP-3)	3.2.1-50	A
Instrumentation Element	Leakage Boundary (Spatial)	Aluminum	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program	None	None	G

Table 3.4.2-7

MAIN STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Leakage Boundary (Spatial)	Aluminum	Lubricating Oil (Internal)	Loss of Material	One-Time Inspection Program	None	None	G
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Orifice	Leakage Boundary (Spatial) Pressure Boundary Throttle	Stainless Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G
Orifice	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.D-4 (AP-81)	3.3.1-54	E, 1
Piping and Fittings	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Piping and Fittings	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VIII.I-12 (SP-15)	3.4.1-44	A

Table 3.4.2-7

MAIN STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.A-9 (SP-38)	3.4.1-19	B A
Piping and Fittings	Pressure Boundary	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.B1-5 (SP-17)	3.4.1-14	A A
Piping and Fittings	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-4 (SP-16)	3.4.1-16	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Outdoor (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-8 (S-41)	3.4.1-28	B
Piping and Fittings	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A

Table 3.4.2-7

MAIN STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-7 (SP-60)	3.4.1-30	B
Piping and Fittings	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.A-14 (SP-25)	3.4.1-7	B A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-8 (S-07)	3.4.1-37	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	VIII.B1-9 (S-15)	3.4.1-29	A
Piping and Fittings	Pressure Boundary	Steel	Steam (Internal)	Cumulative Fatigue Damage	TLAA	VIII.B1-10 (S-08)	3.4.1-1	A

Table 3.4.2-7

MAIN STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping Element	Leakage Boundary (Spatial)	Glass	Air-Indoor Uncontrolled (External)	None	None	VIII.I-5 (SP-9)	3.4.1-40	A
Piping Element	Leakage Boundary (Spatial)	Glass	Lubricating Oil (Internal)	None	None	VIII.I-6 (SP-10)	3.4.1-40	A
Pump Casing	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Pump Casing	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.A-14 (SP-25)	3.4.1-7	B A
Tank	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	C
Tank	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.A-9 (SP-38)	3.4.1-19	D C
Tank	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Tank	Pressure Boundary	Steel	Gas (Internal)	None	None	VIII.I-15 (SP-4)	3.4.1-44	A

Table 3.4.2-7

MAIN STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Tank	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.A-14 (SP-25)	3.4.1-7	D C
Trap	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Trap	Leakage Boundary (Spatial)	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	B
Trap	Leakage Boundary (Spatial)	Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-7 (SP-60)	3.4.1-30	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Valve Body	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Pressure Boundary	Stainless Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	None	None	G

Table 3.4.2-7

MAIN STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VII.D-4 (AP-81)	3.3.1-54	E,1
Valve Body	Pressure Boundary	Stainless Steel	Gas (Internal)	None	None	VIII.I-12 (SP-15)	3.4.1-44	A
Valve Body	Pressure Boundary	Stainless Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.A-9 (SP-38)	3.4.1-19	B A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Steam (Internal)	Cracking	Water Chemistry Program	VIII.B1-2 (SP-44)	3.4.1-39	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-3 (SP-43)	3.4.1-37	A
Valve Body	Pressure Boundary	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.B1-5 (SP-17)	3.4.1-14	A A
Valve Body	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.B1-4 (SP-16)	3.4.1-16	A A

Table 3.4.2-7

MAIN STEAM SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Outdoor (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-6 (SP-59)	3.4.1-30	B
Valve Body	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Condensation (Internal)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program	VIII.B1-7 (SP-60)	3.4.1-30	B
Valve Body	Pressure Boundary	Steel	Gas (Internal)	None	None	VIII.I-15 (SP-4)	3.4.1-44	A
Valve Body	Pressure Boundary	Steel	Lubricating Oil (Internal)	Loss of Material	Lubricating Oil Analysis Program One-Time Inspection Program	VIII.A-14 (SP-25)	3.4.1-7	B A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Steam (Internal)	Loss of Material	Water Chemistry Program	VIII.B1-8 (S-07)	3.4.1-37	A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant Specific Notes:

1	NUREG-1801 specifies the Compressed Air Monitoring Program for this line item. The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program is substituted to manage the aging effect(s) applicable to this component type, material, and environment combination. The component that is aligned with this line item is associated with the Main Steam System and therefore, the Compressed Air Monitoring Program is not applicable.

Table 3.4.2-8

STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Bolting	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	None	None	G
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	Bolting Integrity Program	VIII.H-4 (S-34)	3.4.1-22	A
Bolting	Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Preload	Bolting Integrity Program	VIII.H-5 (S-33)	3.4.1-22	A
Bolting	Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-2 (S-40)	3.4.1-38	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII-I-10 (SP-12)	3.4.1-41	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Filter Housing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Heat Exchanger Components (1-SB-E-88A and 88B Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	C

Table 3.4.2-8

STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-SB-E-88A and 88B Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (1-SB-E-88A and 88B Channel Head)	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-27 (S-22)	3.4.1-16	A A
Heat Exchanger Components (1-SB-E-88A and 88B Channel Head Cover)	Leakage Boundary (Spatial)	Steel With Stainless Steel Cladding	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Heat Exchanger Components (1-SB-E-88A and 88B Channel Head Cover)	Leakage Boundary (Spatial)	Steel With Stainless Steel Cladding	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Heat Exchanger Components (1-SB-E-88A and 88B Channel Head Cover)	Leakage Boundary (Spatial)	Steel With Stainless Steel Cladding	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-27 (S-22)	3.4.1-16	A A
Heat Exchanger Components (1-SB-E-88A and 88B Shell)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Heat Exchanger Components (1-SB-E-88A and 88B Shell)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A

Table 3.4.2-8

STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 3.X.1 Item	Note
Heat Exchanger Components (1-SB-E-88A and 88B Shell)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VIII.F-4 (S-23)	3.4.1-24	B
Heat Exchanger Components (1-SB-E-90 Channel Head)	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Heat Exchanger Components (1-SB-E-90 Channel Head)	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Heat Exchanger Components (1-SB-E-90 Channel Head)	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VIII.F-4 (S-23)	3.4.1-24	B
Heat Exchanger Components (1-SB-E-90 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	C
Heat Exchanger Components (1-SB-E-90 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	C
Heat Exchanger Components (1-SB-E-90 Shell)	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-27 (S-22)	3.4.1-16	A A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Instrumentation Element	Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A

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STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Instrumentation Element	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Orifice	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Orifice	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Orifice	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Orifice	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.F-24 (SP-17)	3.4.1-14	A A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A

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STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Piping and Fittings	Leakage Boundary (Spatial)	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.F-24 (SP-17)	3.4.1-14	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-25 (S-10)	3.4.1-4	A A
Piping and Fittings	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Wall Thinning	Flow-Accelerated Corrosion Program	VIII.F-26 (S-16)	3.4.1-29	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A

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STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Pump Casing	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Tank	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Tank	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Tank	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.E-40 (S-13)	3.4.1-6	A A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Thermowell	Leakage Boundary (Spatial)	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Thermowell	Leakage Boundary (Spatial)	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A

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STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Thermowell	Leakage Boundary (Spatial)	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Thermowell	Leakage Boundary (Spatial)	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-25 (S-10)	3.4.1-4	A A
Valve Body	Leakage Boundary (Spatial)	CASS	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A
Valve Body	Leakage Boundary (Spatial)	CASS	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial)	CASS	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial)	CASS	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.F-24 (SP-17)	3.4.1-14	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air-Indoor Uncontrolled (External)	None	None	VIII.I-10 (SP-12)	3.4.1-41	A

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STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Air With Borated Water Leakage (External)	None	None	VII.J-16 (AP-18)	3.3.1-99	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-23 (SP-16)	3.4.1-16	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Stainless Steel	Treated Water >140° F (Internal)	Cracking	Water Chemistry Program One-Time Inspection Program	VIII.F-24 (SP-17)	3.4.1-14	A A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air With Borated Water Leakage (External)	Loss of Material	Boric Acid Corrosion Program	VIII.H-9 (S-30)	3.4.1-38	A
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Air-Indoor Uncontrolled (External)	Loss of Material	External Surfaces Monitoring Program	VIII.H-7 (S-29)	3.4.1-28	B
Valve Body	Leakage Boundary (Spatial)	Steel	Closed Cycle Cooling Water (Internal)	Loss of Material	Closed-Cycle Cooling Water System Program	VII.C2-14 (A-25)	3.3.1-47	B

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STEAM GENERATOR BLOWDOWN SYSTEM

Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG 1801 Vol. 2 Item	Table 3.X.1 Item	Note
Valve Body	Leakage Boundary (Spatial) Pressure Boundary	Steel	Treated Water (Internal)	Loss of Material	Water Chemistry Program One-Time Inspection Program	VIII.F-25 (S-10)	3.4.1-4	A A

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
F	Material not in NUREG-1801 for this component.
G	Environment not in NUREG-1801 for this component and material.
H	Aging effect not in NUREG-1801 for this component, material and environment combination.
I	Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in NUREG-1801.