

**Audit and Review Plan for  
Plant Aging Management Programs  
and Reviews**

**Browns Ferry Nuclear Plant  
Units 1, 2, and 3  
Docket No.: 05000259, 05000260, 05000296**

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## 1. Introduction

By letter dated December 31, 2003, (ADAMS Accession Number ML 040060359), the Tennessee Valley Authority (TVA, the applicant) submitted to the U.S. Nuclear Regulatory Commission (NRC) its application for renewal of Operating Licenses DPR-33, DPR-52 and DPR-68 for Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3, respectively (ML 040060361). The applicant requested renewal of the operating license for an additional 20 years beyond the 40-year current license term.

In support of the staff's safety review of the license renewal application (LRA) for BFN Units 1, 2, and 3, the License Renewal and Environmental Impacts Program, Section B (RLEP-B), will lead a project team that will audit and review selected aging management reviews (AMRs) and associated aging management programs (AMPs) developed by the applicant to support its LRA for BFN. The project team will include both NRC staff and engineers provided by Brookhaven National Laboratory (BNL), RLEP-B's technical assistance contractor. Appendix A lists the project team members. This document is the RLEP-B plan for auditing and reviewing plant aging management reviews and aging management programs for BFN.

The project team will perform its work in accordance with the requirements of Title 10 of the *Code of Federal Regulations*, Part 54 (10 CFR Part 54), "Requirements for Renewal of Operating Licenses for Nuclear Power Plants;" the guidance provided in NUREG-1800, "Standard Review Plan for Review of License Renewal Application for Nuclear Power Plants" (SRP-LR), dated July 2001; the guidance provided in NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," dated July 2001; and this plan. For the scope of work defined in this audit plan, the project team will verify that the applicant's aging management activities and programs will adequately manage the effects of aging on structures and components, so that their intended functions will be maintained consistent with the BFN current licensing basis (CLB) for the period of extended operation.

The team will perform its work at NRC Headquarters, Rockville, Maryland; at BNL's offices in Upton, New York; and at the applicant's offices in Chattanooga, Tennessee. The project team will perform its work in accordance with the schedule shown in Appendix B. The team will conduct a public exit meeting at the applicant's offices in Chattanooga, Tennessee after it completes its work.

This plan includes the following information:

- Introduction and background.** Summary of the license renewal requirements, as stated in the *Code of Federal Regulations*, and a summary of the documents that the project team will use to conduct the audit and review process described in this plan.
- Objectives.** The objectives of the audits and reviews addressed by this plan.
- Summary of Information Provided in License Renewal Application.** Description of the information contained in the license renewal application for BFN that is applicable to this plan.

- **Overview of the Audit, Review, and Documentation Procedure.** Summary of the process the project team will follow to audit and review the LRA information that is within its scope of review.
- **Planning, Audit, Review, and Documentation Procedure.** The procedure that the project team will use to plan and schedule its work, to audit and review the LRA information that is within its scope of review, and to document the results of its work.
- **Appendices.** Supporting information. The project team membership is shown in Appendix A and the schedule is shown in Appendix B. The team's work assignments are shown in Appendix C, "Aging Management Program Assignments," and Appendix D, "Aging Management Review Assignments." Appendices E, F, and G are the worksheets that the individual team members use to informally document the results of their review and audit work. The application of these worksheets is discussed in Section 6 or this plan. Appendix H is a list of the abbreviations used in this plan.

## 2. Background

In 10 CFR 54.4, the scope of license renewal is defined as those structures, systems, and components (SSCs) (1) that are safety-related, (2) whose failure could affect safety-related functions, and (3) that are relied on to demonstrate compliance with the NRC's regulations for fire protection, environmental qualification, pressurized thermal shock, anticipated transients without scram, and station blackout. An applicant for a renewed license must review all SSCs within the scope of license renewal to identify those structures and components (SCs) subject to an AMR. SCs subject to an AMR are those that perform an intended function without moving parts or without a change in configuration or properties (passive), and that are not subject to replacement based on qualified life or specified time period (long-lived). Pursuant to 10 CFR 54.21(a)(3), an applicant for a renewed license must demonstrate that the effects of aging will be managed in such a way that the intended function or functions of those SCs will be maintained, consistent with the CLB, for the period of extended operation. 10 CFR 54.21(d) requires that the applicant submit a supplement to the final safety analysis report (FSAR) that contains a summary description of the programs and activities that are credited to manage the effects of aging during the extended period of operation.

The SRP-LR provides staff guidance for reviewing applications for license renewal. The GALL Report is a technical basis document. It summarizes staff-approved AMPs for the aging management of a large number of SCs that are subject to an AMR. It also summarizes the aging management evaluations, programs, and activities acceptable to the staff for managing aging of most of the SCs used in commercial nuclear power plants, and serves as a reference for both the applicant and staff reviewers to quickly identify those AMPs and activities that the staff has determined will provide adequate aging management during the extended period of operation. If an applicant commits to implementing these staff-approved AMPs, the time, effort, and resources needed to review an applicant's LRA will be greatly reduced, thereby improving the efficiency and effectiveness of the license renewal review process. The GALL Report identifies (1) systems, structures, and components, (2) component materials, (3) the environments to which the components are exposed, (4) the aging effects associated with the materials and environments, (5) the AMPs that are acceptable to manage the aging effects, and (6) identification of aging management issues that require further evaluation by the license renewal applicant.

The GALL Report is treated in the same manner as an approved topical report that is generically applicable. An applicant may reference the GALL Report in its LRA to demonstrate that its programs correspond to those that the staff reviewed and approved in the GALL Report. If the material presented in the LRA is consistent with the GALL Report and is applicable to the applicant's facility, the staff will accept the applicant's reference to the GALL Report. In making this determination, the staff considers whether the applicant has identified specific programs described and evaluated in the GALL Report but does not conduct a re-review of the substance of the matters described in the GALL Report. Rather, the staff confirms that the applicant verified that the approvals set forth in the GALL Report apply to its programs.

If an applicant takes credit for a GALL AMP, it is incumbent on the applicant to ensure that the plant AMP contains all the program elements of the referenced GALL AMP<sup>1</sup>. In addition, the conditions at the plant must be bounded by the conditions for which the GALL AMP was evaluated. The applicant must certify in its LRA that it completed the verifications and that they are documented on-site in an auditable form.

### 3. Objectives

The overall objective of the audit and review described in this plan is to verify compliance with 10 CFR 54.21(a)(3). Therefore, the audit and review procedures helps ensure that for each structure and component within the scope of the project team's review, the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation.

The audit and review procedures for BFN are described in Sections 5 and 6 of this plan. They are intended to accomplish the following objectives:

- For AMPs that the applicant claims are consistent with a GALL AMP, verify that the plant AMPs contain the program elements of the referenced GALL AMP (for the seven program elements that are within the scope of review of the project team) and that the conditions at the plant are bounded by the conditions for which the GALL AMP was evaluated.
- For AMPs that the applicant claims are consistent with a GALL AMP with exceptions, verify that the plant AMPs contain the program elements of the referenced GALL AMP and that the conditions at the plant are bounded by the conditions for which the GALL AMP was evaluated. In addition, verify that the applicant has documented an acceptable technical basis for each exception.
- For AMPs that the applicant claims will be consistent with a GALL AMP after specified enhancements are implemented, verify that the plant AMPs, with the enhancements, are consistent with the referenced GALL AMP, or are acceptable on the basis of a technical

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<sup>1</sup> Table 1 of this plan shows the 10 program elements that are used to evaluate the adequacy of each aging management program. These program elements are presented in Branch Technical Position (BTP) RLSB-1, "Aging Management Review - Generic," in Appendix A of the SRP-LR, and are summarized in the GALL Report. The project team's scope of review includes 7 of the 10 elements: 1 through 6, and 10. The Division of Inspection Program Management (DIPM), Office of Nuclear Reactor Regulation (NRR) will review program elements 7, "corrective actions;" 8, "confirmation process;" and 9, "administrative controls." Therefore, the project team will not review these three elements. The DIPM review will be documented in Section 3 of the license renewal safety evaluation report for BFN.

review. Also verify that the applicant identified the enhancements as commitments in the Updated Final Safety Analysis Report (UFSAR) or other docketed correspondence.

- For plant-specific AMPs that the applicant claims are consistent with AMPs that the staff has previously approved for another plant, verify the AMPs are acceptable on the basis of a technical review.
- For AMRs that the applicant claims are consistent with the GALL Report, verify that the plant AMRs are consistent with the criteria of the GALL Report or can be accepted on the basis on an NRC-approved precedent.
- If the GALL Report recommends further evaluation for a specific AMR line item, verify that the applicant has addressed the need for further evaluation, and evaluate the AMR in accordance with the SRP-LR.

#### **4. Summary of Information Provided in the License Renewal Application**

The BFN LRA closely follows the standard LRA format presented in NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule," Revision 3, April 2001. Section 3 of the LRA provides the results of the aging management review for those structures and components identified in Section 2.0 as being subject to aging management review. The major 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

LRA Table 3.0.1 and Table 3.0.2 provide descriptions of the internal and external service environments, respectively, used in the aging management reviews to determine aging effects requiring management.

Components and structures subject to an aging management review were evaluated to demonstrate that the effects of aging will be managed so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation. The components, aging effects/mechanism, and aging management programs to be used for managing the effects of aging at BFN were compared to those listed in NUREG-1801.

The aging management review results are presented in the following two table formats:

- Table 3.x.1 - where '3' indicates the Section number, 'x' indicates the subsection number from NUREG-1801, Volume 1 (see table below), and '1' indicates that this is the first table type in Section 3. For example, in the Reactor Coolant System subsection, this table would be numbered 3.1.1, in the Engineered Safety Features subsection; this table would be 3.2.1, and so on. For ease of discussion, this table will hereafter be referred to in this Section as "Table 1."

<b>X</b>	<b>NUREG-1801 Volume 1 Subsections</b>
1	Reactor Coolant System
2	Engineered Safety Features Systems
3	Auxiliary Systems
4	Steam and Power Conversion Systems
5	Structures and Component Supports
6	Electrical and Instrumentation and Controls

• Table 3.x.2.y - where '3' indicates the Section number, 'x' indicates the subsection number from NUREG-1801, Volume 1, and '2' indicates that this is the second table type in Section 3; and 'y' indicates the system table number. For example, for the Reactor Vessel, within the Reactor Coolant System subsection, this table would be 3.1.2.1 and for the Reactor Vessel Internals, it would be table 3.1.2.2. For the Containment system within the Engineered Safety Features subsection, this table would be 3.2.2.1. For the next system within the ESF subsection, it would be table 3.2.2.2. For ease of discussion, this table will hereafter be referred to in this section as "Table 2."

### **Table Description**

NUREG-1801 contains the staff's generic evaluation of the existing plant programs. It documents the technical basis for determining where existing programs are adequate without modification, and where existing programs should be augmented for the extended period of operation. The evaluation results documented in the report indicate that many of the existing programs are adequate to manage the aging effects for particular structures or components, within the scope of license renewal, without change. The report also contains recommendations on specific areas for which existing programs should be augmented for license renewal. In order to take full advantage of NUREG-1801, a comparison between the AMR results and the tables of NUREG-1801 has been made. The results of that comparison are provided in two table types.

#### Table 1

The purpose of Table 1 is to provide a summary comparison of how the BFN AMR results align with the corresponding tables of NUREG-1801, Volume 1. The table is essentially the same as Tables 1 through 6 provided in NUREG-1801, Volume 1, except that the "Type" column has been replaced by a "Row Number" column and the "Item Number in NUREG-1801" column has been replaced by a "Discussion" column. The "Item Number" column provides a means to cross-reference from Table 2 to Table 1. The "Discussion" column is used by the applicant to provide clarifying/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 (including a hyperlink if possible)

The name of a plant specific program being used (and a hyperlink to the program if possible)

Exceptions to 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

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

### Table 2

Table 2 provides the detailed results of the aging management reviews for those components identified in Section 2 as being subject to aging management review. There will be a Table 2 for each of the subsystems within a "system" grouping. For example, for BFN, the Engineered Safety Features Group contains tables specific to the Containment, Standby Gas Treatment, High Pressure Coolant Injection, Residual Heat Removal, etc. systems. Table 2 consists of the following nine columns:

- Component Type
- Intended Function
- Material
- Environment
- Aging Effect Requiring Management
- Aging Management Programs
- NUREG-1801 Volume 2 Item
- Table 1 Item
- Notes

### 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 functions (using abbreviations where necessary) for the listed component types. Definitions and abbreviations of passive component type intended functions are presented in Table 2.0.1, Intended Function Abbreviations and Definitions.

### 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, as appropriate. Descriptions of the internal and external service environments which were used in the aging management review to determine



aging effects requiring management are included in Table 3.0.1, Internal Service Environments, and Table 3.0.2, External Service Environments.

#### Aging Effect Requiring Management

As part of the aging management review process, the applicant determines any aging effects requiring management for the material and environment combination in order to maintain the intended function of the component type. These aging effects requiring management are listed in column five.

#### Aging Management Programs

The aging management programs used to manage the aging effects requiring management are listed in column six of Table 2.

[Note to Project Team: Appendix B of the LRA includes a description of each aging management program (AMP) used to manage aging. For most of the BFN AMPs, the applicant claims consistency with a comparable AMP documented in GALL Volume 2, Chapters X and XI, that is acceptable to the staff. Verification that these BFN AMPs are consistent with the corresponding GALL AMPs is part of the audit scope]

#### 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 2 is compared to NUREG-1801, Volume 2 with consideration given to the standard notes, to identify consistencies. When they are identified, they are documented by noting the appropriate NUREG-1801, Volume 2 item number in column seven of Table 2. If there is no corresponding item number in NUREG-1801, Volume 2, this row in column seven has "None". That way, a reviewer can readily identify where there is correspondence between the plant specific tables and NUREG-1801, Volume 2 tables.

#### Table 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 1 is listed in column eight of Table 2. If there is no corresponding item in NUREG-1801, Volume 1, this row in column eight has "None". That way, the information from the two tables can be correlated.

#### Notes

In order to realize the full benefit of NUREG-1801, BFN has aligned the information in the Tables 3.x.2.y with the information in NUREG-1801 Volume 2 using a series of notes. Notes that utilize letter designations are industry-standard notes taken from the Proposed Standard License Renewal Application Format Package (Letter from Alexander Marion (NEI) to Dr. P. T. Kuo (NRC), Project Number: 690, dated August 20, 2003)<sup>2</sup>. Notes that use numeric designations are BFN plant-specific notes.

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<sup>2</sup> The staff concurred with the standardized format for license renewal applications by letter dated April 7, 2003, from P.T. Kuo, NRC, to A. Nelson, NEI (ML030990052).

## Table Usage

### Table 1

Evaluate each row in Table 1 by moving from left to right across the table. Since the Component, Aging Effect/Mechanism, Aging Management Programs and Further Evaluation Recommended information is taken directly from NUREG-1801, Volume 1, no further analysis of those columns is required. The information intended to help the reviewer the most in this table is contained within the Discussion column. Here the reviewer will be given information necessary to determine, in summary, how the BFN's evaluations and programs align with NUREG-1801, Volume 1. This may be in the form of descriptive information within the Discussion column or the reviewer may be referred to other locations within the LRA for further information.

### Table 2

Table 2 contains the Aging Management Review information for the plant, whether or not it aligns with NUREG-1801. Each row within the table provides the intended function, material, environment, aging effect requiring management, and aging management program combination for a particular component type within a system. In addition, if there is a correlation between the combination in Table 2 and a combination in NUREG-1801 Volume 2, this is identified by a referenced item number in column seven, NUREG-1801, Volume 2 Item. If the column contains "None," BFN was unable to locate an appropriately corresponding combination in NUREG-1801, Volume 2. Continuing across Table 2 from left to right within a given row, the next column is labeled Table 1 Item. If there is a reference number entered in this column, this reference number can be used to locate the corresponding row in Table 1 to see how the aging management program for this particular combination aligns with NUREG-1801, Volume 1.

[Note to Project Team: Many of the GALL Report AMR evaluations refer to a plant-specific AMP. In these cases, the applicant considers the BFN AMR evaluation to be consistent with the GALL Report if the other elements are consistent. Any appropriate plant-specific AMP is considered to be a match to the GALL AMP, for AMR line items that refer to a plant-specific AMP.]

## 5. Overview of Audit, Review, and Documentation Procedure

The project team will follow the procedure specified in Section 6 of this plan to perform its audits and reviews and to document the results of its work. The process covered by the procedure is summarized below.

### 5.1 Aging Management Programs

Table 1 of this plan summarizes the program elements that comprise an aging management program. Of these 10 elements, elements 1 through 6, and element 10 are within the project team's scope of review.<sup>3</sup> For the BFN AMPs for which the applicant claimed consistency with the AMPs included in the GALL Report, the project team will review the BFN AMP descriptions and compare program elements 1 through 6, and program element 10 for the BFN AMPs to the corresponding program elements for the GALL AMPs. The project team will verify that the BFN

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<sup>3</sup> As noted in Section 2 of this plan, DIPM will review program elements 7, 8, and 9. The results of these reviews will be documented in Section 3 of the plant safety evaluation report.

AMPs contain the program elements of the referenced GALL program and that the conditions at the plant are bounded by the conditions for which the GALL program was evaluated.

For each BFN AMP that has an exception or an enhancement, the project team will determine whether they are acceptable, and whether the AMP, as modified by the applicant, will adequately manage the aging effects for which it is credited. If the project team identifies differences between a GALL AMP credited by the applicant and the corresponding BFN AMP, which the applicant did not address in the LRA, the project team will review the difference to determine whether the BFN AMP, as modified by the difference, will adequately manage the aging effects for which it is credited.

For those BFN AMPs that are not included in the GALL Report (i.e., plant-specific AMPs), the project team will review the AMP against the seven program elements that are within its scope of review. On the basis of its reviews, the project team will determine whether these AMPs will manage the aging effects for which they are credited.

## **5.2 Aging Management Reviews**

The AMRs in the GALL Report fall into two broad categories: (1) those that the GALL Report concludes are adequate to manage aging of the components referenced in the GALL Report, and (2) those for which the GALL Report concludes that aging management is adequate, but further evaluation is recommended for certain aspects of the aging management process. For its AMR reviews, the project team will determine (1) whether the AMRs reported by the applicant to be consistent with the GALL Report are indeed consistent with the GALL Report, and (2) whether the plant-specific AMRs reported by the applicant to be based on a previously-approved precedent are technically acceptable and applicable. For component groups evaluated in the GALL Report for which the applicant claimed consistency with the GALL Report, and for which the GALL Report recommends further evaluation, the project team will review the applicant's evaluation to determine if it adequately addressed the issues for which the GALL Report recommended further evaluation.

## **5.3 NRC-Approved Precedents**

To help facilitate the staff review of its LRA, the applicant may reference NRC-approved precedents to justify the adequacy of certain non-GALL AMPs, by claiming consistency with AMPs that the staff had approved for other plants during its review of previous applications for license renewal. Using the precedent information, the project team will (1) determine whether the material presented in the precedent is applicable to the applicant's facility; (2) determine whether the applicant's AMP is bounded by the conditions for which the precedent was evaluated and approved; and (3) verify that the applicant's AMP contains the program elements of the referenced precedent. In general, if the project team determines that these conditions are satisfied, it will use the precedent to frame and focus its review of the applicant's AMP.

It is important to note that precedent information is not a part of the license renewal application; it is supplementary information voluntarily provided by the applicant as a reviewers' aid. The existence of a precedent, in and of itself, is not a sufficient basis to accept the applicant's AMP. Rather, the precedent facilitates the review of the substance of the matters described in the applicant's AMP. As such, in the project team's documentation of its reviews of AMPs that are based on precedents, the precedent information is typically implicit in the evaluation rather than explicit. If the project team determines that the precedent identified by the applicant is not

applicable to the particular plant AMP for which it is credited, then the project team reviews the AMP as a plant-specific AMP, without consideration of the precedent information.

#### **5.4 UFSAR Supplement Review**

Consistent with the SRP-LR, for the AMRs and associated AMPs that it will review, the project team will review the UFSAR supplement that summarizes the applicant's programs and activities credited for managing the effects of aging for the extended period of operation. The project team will also review any commitments associated with its programs and activities made by the applicant and verify that they are acceptable for the stated purpose.

#### **5.5 Documents Reviewed by the Project Team**

In performing its work, the project team will rely heavily on the LRA, the audit and review plan, the SRP-LR, and the GALL Report. The project team will also examine the applicant's precedent review documents, its AMP and AMR basis documents (catalogs of the documentation used by the applicant to develop or justify its AMPs and AMRs), and other applicant documents, including selected implementing procedures, to verify that the applicant's activities and programs will adequately manage the effects of aging on structures and components.

#### **5.6 Public Exit Meeting**

After it completes its audits and reviews, the project team will hold a public exit meeting to discuss the scope and results of its audits and reviews.

#### **5.7 Documentation Prepared by the Project Team**

The project team will prepare an audit and review plan, worksheets, work packages, requests for additional information, an audit and review report, and safety evaluation report (SER) input. The project team will also prepare questions during site visits and will track the applicant's responses to the questions. Unresolved issues will be documented in formal requests for additional information (RAI).

##### **5.7.1 Audit and Review Plan**

The project team leader will prepare a plant-specific audit and review plan as described herein.

##### **5.7.2 Worksheets**

The project team members will use several worksheets to informally document the results of their on-site audit and review activities. The use of the worksheets is described in Section 6 of this plan. The worksheets are shown in Appendix E, "Consistent with GALL Report AMP Audit/Review Worksheet"; Appendix F, "Plant-Specific AMP Audit/Review Worksheet"; and Appendix G, "Aging Management Review Worksheets."

##### **5.7.3 Questions**

As specified in Section 6 of this plan, the project team members will ask the applicant questions during the on-site audits, as appropriate to facilitate its audit and review activities. The team will also track the applicant's answers to the questions.

#### **5.7.4 Work Packages**

After each on-site audit, the project team leader, in conjunction with the project manager, will assemble work packages for any work that the team will refer to the NRR Division of Engineering (DE) for review. The work package will include a work request and any applicable background information on the review item that was gathered by the project team.

#### **5.7.5 Requests for Additional Information (RAI)**

The review process described in this plan is structured to resolve as many questions as possible during the on-site audits. As examples, the on-site audits are used to obtain clarifications about the LRA, and explanations as to where certain information may be found in the LRA or its associated documents. Nevertheless, there may be occasions where a formal request for additional information (RAI) is appropriate to obtain information to support an SER finding. The need for RAIs will be determined by the project team leader during the on-site audits, through discussion with the individual project team members. When the project team leader determines that an RAI is needed, the project team member who is responsible for the area of review will prepare the RAI. RAIs will include the technical and regulatory basis for requesting the information.

After the NRC receives a response to an RAI from the applicant, the team leader will provide the response to the team member who prepared the RAI. The team member will review the response and determine if it is acceptable. The team member will document the disposition of the RAI in the audit and review report (unless the report has been completed before the RAI response is received) and in the SER input.

#### **5.7.6 Audit and Review Report**

The project team will document the results of its work in an audit and review report. The report will be prepared as described in Section 6.4.1 of this plan.

#### **5.7.7 Safety Evaluation Report (SER) Input**

The project team will prepare SER input, based on the audit and review report, as described in Section 6.4.2 of this plan.

### **6. Planning, Audit, Review, and Documentation Procedure**

This section of the audit and review plan contains the detailed procedures that the project team will follow to plan, perform, and document its work.

#### **6.1 Planning Activities**

##### **6.1.1 Schedule for Key Milestones and Activities**

The project team leader will establish the schedule for the key milestones and activities, consistent with the overall schedule for making the licensing decision. Key milestones and activities include, as a minimum:

- A. receiving the LRA from the applicant
- B. receiving work split tables from the project manager
- C. making individual work assignments
- D. training project team members
- E. holding the project team kickoff meeting
- F. preparing the audit and review plan
- G. scheduling site visits
- H. scheduling in-office review periods
- I. preparing questions
- J. preparing RAIs
- K. preparing draft and final audit and review report
- L. preparing draft and final SER input

On-site audits will be scheduled on the basis of discussions between the project team leader, the NRC license renewal project manager, and the applicant.

Appendix B of this plan contains the target schedule for the key milestones and activities.

### **6.1.2 Work Assignments**

The technical assistance contractor will propose team member work assignments to the NRC team leader. The NRC project team leader will approve all work assignments proposed by the contractor. After the audit plan is issued, the team leader may reassign AMPs as necessary.

The contractor will develop assignment tables that show which project team member will review each AMP and AMR. Appendix A of this plan shows the project team membership. Appendix C shows the team member assignments for the AMPs. Appendix D of this plan shows the team member assignments for the AMRs.

### **6.1.3 Training and Preparation.**

The training and preparation will include the following:

1. A description of the audit and review process.
2. An overview of audit/review-related documentation and the documentation that the project team will audit and review.
  - A. GALL Report
  - B. SRP-LR
  - C. Interim Staff Guidance (ISG)
  - C. LRA AMPs
  - D. LRA AMRs
  - E. basis documents (catalogues of information assembled by the applicant to demonstrate the bases for its programs and activities)
  - F. implementing procedures

- G. operating experience reports
  - H. RAIs, audit reports, and SERs for other plants
  - I. applicant's UFSAR
3. The protocol for interfacing with the applicant.
  4. Administrative issues such as travel, control of documentation, work hours, etc.
  5. Process for preparing questions, RAIs, audit report, and SER input.
  6. Process for interfacing with DE technical reviewers.
  7. A review of appropriate documentation to become familiar with the audit/review process and to prepare for the on-site and in-office audits and reviews.

## **6.2 AMP Audits and Reviews**

### **6.2.1 Types of AMPs**

There are two types of AMPs: those that the applicant claims are consistent with AMPs contained in the GALL Report, and those that are plant-specific. The process for auditing and reviewing both types of AMPs is presented in the following sections of this plan.

### **6.2.2 Scope of AMP Elements to be Audited and Reviewed**

Table 1 of this plan shows the 10 program elements that are used to evaluate the adequacy of each aging management program. These program elements are presented in Branch Technical Position (BTP) RLSB-1, "Aging Management Review - Generic," in Appendix A of the SRP-LR, and are summarized in the GALL Report. The project team's scope of review includes 7 of the 10 elements: 1 through 6, and 10.<sup>4</sup>

The program elements audited or reviewed is the same for both AMPs that are consistent with the GALL Report and for plant-specific AMPs.

### **6.2.3 AMP Consistent with the GALL Report**

Figure 1, "Audit of AMPs That Are Consistent With the GALL Report," is the process flowchart that shows the activities and decisions used to review and audit each AMP that the applicant claims is consistent with the GALL Report.

#### Pre-audit Preparation.

- A. For the plant AMP being reviewed, identify the corresponding GALL AMP.
- B. Review the associated GALL AMP and identify those elements that will be audited.
- C. Identify the documents needed to perform the audit. These may include, but are not limited to, the following:

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<sup>4</sup> DIPM will review program elements 7, 8, and 9. The DIPM review will be documented in Section 3 of the plant safety evaluation report.

- (1) GALL Report
- (2) SRP-LR
- (3) ISGs
- (4) RAIs and SERs for similar plants
- (5) LRA
- (6) basis documents
- (7) implementation procedures
- (8) operating experience reports (plant-specific and industry)
- (9) UFSAR

### Audit/Review

- A. Confirm that the seven plant AMP elements are consistent with the corresponding elements of the GALL Report AMP by answering the following questions and then following the process shown in Figure 1.
  - (a) Did the applicant identify any exceptions to the GALL Report AMP?
  - (b) Are the elements consistent with the GALL Report AMP?
- B. If either of the above questions results in the identification of an exception or a difference to the GALL AMP, determine whether it is acceptable on the basis of an adequate technical justification.
- C. If an acceptable basis exists for an exception or difference, document the basis in the worksheet and later in the audit and review report and the SER input.
- D. The review of industry and plant-specific operating experience is an area of emphasis. They require review to identify aging effects requiring management that are not identified by the industry guidance documents (such as EPRI tools) and to confirm the effectiveness of aging management programs. The team members should consider the industry guidance when assessing operating experience and formulating questions for the applicant. The industry guidance (from NEI 95-10, Revision 3) is as follows:
  - (1) Operating Experience - Aging Effects Requiring Management. A plant-specific operating experience review should assess the operating and maintenance history. A review of the prior five to 10 years of operating and maintenance history should be sufficient. The results of the review should confirm consistency with documented industry operating experience. Differences with previously documented industry experience such as new aging effects or lack of aging effects allow consideration of plant-specific aging management requirements.
  - (2) Operating Experience With Aging Management Programs. Plant-specific operating experience with existing programs should be considered. The operating experience of aging management programs, including past corrective actions resulting in program enhancements or additional programs, should be considered. The review should provide objective evidence to support the conclusion that the effects of aging will be managed so that the intended function(s) will be maintained during the extended period of operation. Guidance for reviewing industry operating experience is presented in BTP RLSB-1 in Appendix A.1 of the Branch Technical Positions in NUREG-1800.
  - (3) Industry Operating Experience. Industry operating experience and its applicability should be assessed to determine whether it changes plant-specific determinations. NUREG-1801 is based upon industry operating experience prior to its date of issue.



Operating experience after the issue date of NUREG-1801 should be evaluated and documented as part of the aging management review. In particular, generic communications such as a bulleting or an information notice should be evaluated for impact upon the AMP. The evaluation should check for new aging effects or a new component or location experiencing an already identified aging effect.

- E. If it is necessary to ask the applicant a question to clarify the basis for accepting a program element, or an exception or a difference to the GALL Report AMP, use the logic process shown in Figure 1.
- F. If it is necessary for the applicant to docket additional information to support the basis for accepting a program element, an exception, or a difference, the applicant may voluntarily docket the response as a supplement to the LRA or the NRC may issue an RAI to obtain the information. The team leader should be consulted if docketed information may be needed.

#### AMP Audit Worksheets.

Document the audits/reviews using the worksheet provided in Appendix E, "Consistent with GALL Report AMP Audit/Review Worksheet."

#### **6.2.4 Plant-Specific AMP**

Figure 2, "Audit of Plant-Specific AMPs," is the process flowchart that shows the activities and decisions used to audit/review each plant-specific AMP.

#### Pre-review Preparation

- A. Review Section A.1.2.3 of the SRP-LR and identify those element criteria that will be reviewed in conjunction with each of the seven elements.
- B. Identify the documents needed to perform the audit. These may include, but are not limited to, the following:
  - (1) GALL Report
  - (2) SRP-LR
  - (3) ISGs
  - (4) RAIs and SERs for similar plants
  - (5) LRA
  - (6) basis documents
  - (7) implementation procedures
  - (8) operating experience reports (plant-specific and industry)
  - (9) UFSAR

#### Audit/Review

- A. Review/audit the seven plant AMP program elements and verify that they are consistent with the corresponding elements of Section A.1.2.3 of the SRP-LR.
- B. The review of industry and plant-specific operating experience is an area of emphasis. They require review to identify aging effects requiring management that are not identified

by the industry guidance documents (such as EPRI tools) and to confirm the effectiveness of aging management programs. The team members should consider the industry guidance when assessing operating experience and formulating questions for the applicant. The industry guidance (from NEI 95-10, Revision 3) is as follows:

- (1) Operating Experience - Aging Effects Requiring Management. A plant-specific operating experience review should assess the operating and maintenance history. A review of the prior five to 10 years of operating and maintenance history should be sufficient. The results of the review should confirm consistency with documented industry operating experience. Differences with previously documented industry experience such as new aging effects or lack of aging effects allow consideration of plant-specific aging management requirements.
- (2) Operating Experience With Aging Management Programs. Plant-specific operating experience with existing programs should be considered. The operating experience of aging management programs, including past corrective actions resulting in program enhancements or additional programs, should be considered. The review should provide objective evidence to support the conclusion that the effects of aging will be managed so that the intended function(s) will be maintained during the extended period of operation. Guidance for reviewing industry operating experience is presented in BTP RLSB-1 in Appendix A.1 of the Branch Technical Positions in NUREG-1800.
- (3) Industry Operating Experience. Industry operating experience and its applicability should be assessed to determine whether it changes plant-specific determinations. NUREG-1801 is based upon industry operating experience prior to its date of issue. Operating experience after the issue date of NUREG-1801 should be evaluated and documented as part of the aging management review. In particular, generic communications such as a bulleting or an information notice should be evaluated for impact upon the AMP. The evaluation should check for new aging effects or a new component or location experiencing an already identified aging effect.

- C. If the review/audit results in the identification of an exception or a difference from the GALL Report AMP, determine whether it is acceptable on the basis of an adequate technical justification. If an acceptable basis exists for the difference from Section A.1.2.3 of the SRP-LR, document the basis in the worksheet and later, in the audit and review report and SER input.
- D. If it is necessary to ask the applicant a question, the logic process shown in Figure 2 should be used.
- E. If it is necessary for the applicant to docket additional information to support the basis or conclusion, the applicant may voluntarily docket the information as a supplement to the LRA or the NRC may issue an RAI to obtain the information. The team leader should be consulted if docketed information may be needed.

### AMP Review Worksheets

Document the audits/reviews using the worksheet provided in Appendix F, "Plant-Specific AMP Audit/Review Worksheet."

### 6.3 AMR Audits and Reviews

There are two types of AMRs: those that the applicant claims are consistent with the GALL Report, and those that are plant-specific. Audit and review of both types of AMRs are discussed below. In general, the project team will review AMRs that are consistent with the GALL Report and AMRs that are based on an NRC-approved precedent that the applicant has identified.

#### 6.3.1 AMR Consistent with the GALL Report

Figure 3, "Review of AMRs That Are Consistent With the GALL Report," is the process flowchart that shows the activities and decisions used to audit/review each AMR that the applicant claims is consistent with the GALL Report.

##### Pre-audit Preparation

- A. For the plant LRAs that the applicant claims are consistent with the GALL Report, identify the corresponding AMRs in Volume 2 of the GALL Report.
- B. Review the associated GALL AMRs and identify those line items that will be audited/reviewed in conjunction with each of the plant AMRs.
- C. Identify the documents needed to perform the review. These may include, but are not limited to, the following:
  - (1) GALL Report
  - (2) SRP-LR
  - (3) ISGs
  - (4) RAIs and SERs for similar plants
  - (5) LRA
  - (6) basis documents
  - (7) implementation procedures
  - (8) operating experience reports (plant-specific and industry)
  - (9) UFSAR

##### Audit/Review

- A. Each AMR line item is coded with a letter which represents a standard note designation.<sup>5</sup> The letter notes are described in Table 2 of this plan. Notes that use numeric designators are plant-specific. The note codes A through E are classified as "consistent with the GALL Report," and will be reviewed in accordance with the guidance contained in this plan.
- B. The AMR review involves verification that the applicant has satisfied the requirements of 10 CFR 54.21(a)(3). This requirement states that, for "each structure and component

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<sup>5</sup> The AMR line item letter notes are based on a letter from A. Nelson, NEI, to P. T. Kuo, NRC, "U.S. Nuclear Industry's Proposed Standard License Renewal Application Format Package, Request NRC Concurrence," dated January 24, 2003 (ML030290201). The staff concurred in the format of the standardized format for LRAs by letter dated April 7, 2003, from P.T. Kuo, NRC, to A. Nelson, NEI (ML030990052).

[within the scope of license renewal], demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the extended period of operation.”

- C. Verify compliance by following the process shown in Figure 3. The process is summarized below:
- (1) For each AMR line item, perform the review associated with the letter note (A through E) assigned to the AMR line item. Specifically, determine if the AMR is consistent with the GALL Report for the elements associated with its note
  - (2) If Note A applies, and the applicant uses a plant-specific AMP<sup>6</sup>, determine if the component is within the scope of the cited plant AMP. If the component is within the scope of the plant AMP, the AMR line item is acceptable. If not acceptable, go to Step (7) below.
  - (3) If Note B applies, review the LRA exceptions and document the basis for acceptance in the worksheet, and later in the audit and review report. If not acceptable, go to Step (7) below.
  - (4) If Note C or D applies, determine if the component type is acceptable for the material, environment, and aging effect. If Note D applies, also review the LRA exceptions and document the basis for acceptance in the worksheet, and later in the audit and review report. If not acceptable, go to Step (7) below.
  - (5) If Note E applies, review the AMP audit report findings to determine if the scope of the alternate AMP envelopes the AMR line item being reviewed and satisfies 10 CFR 54.21(a)(3). If it does not, go to Step (7) below.
  - (6) Review the corresponding LRA Table 3.X.1 entry that is referenced in LRA Table 3.X.2.Y. If applicable, determine whether the applicant’s “Further Evaluation Recommended” response in LRA Section 3.X.2.2.Z is enveloped by Section 3.X.2.2.Z of the SRP-LR. If not, go to Step (7) below. If the LRA section does not meet the acceptance criteria of Appendix A of the SRP-LR, go to Step (7) below.
  - (7) If during the review a difference is identified, prepare a question to the applicant, in order to obtain clarification.
    - (a) Review the applicant’s response to the question. If it appears acceptable, re-start the audit/review for the AMR line item from Step (1) above..
    - (b) If the applicant’s response does not resolve the question or issue, prepare an additional question to obtain the information needed to achieve resolution. Review the applicant’s response to the second question. If it appears acceptable, re-start the audit/review for the AMR line item from Step (1) above.
    - (c) If it is necessary for the applicant to submit additional information on the docket to support a basis or conclusion, the applicant may voluntarily docket the information as a supplement to the LRA or the NRC may issue an RAI to obtain the information. The team leader should be consulted if docketed information may be needed.

### AMR Audit/Review Worksheets

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<sup>6</sup> Some GALL AMRs reference the use of a plant-specific AMP. In such cases the AMR audit requires the project team member to confirm that the plant-specific AMP is appropriate to manage the aging effects during the period of extended operation.

Document the audits/reviews of AMRs using the worksheet provided in Appendix G, "Aging Management Review Worksheets."

### **6.3.2 AMR Based on NRC-Approved Precedents**

Figure 4, "AMR Review Using NRC-Approved Precedent," is the process flowchart that shows the activities and decisions used to review AMRs that the applicant has identified as being consistent with an NRC-approved precedent.<sup>7</sup>

#### Pre-audit/review Preparation

Identify the documents needed to perform the audit/review. These may include, but are not limited to, the following:

- (1) GALL Report
- (2) SRP-LR
- (3) ISGs
- (4) RAIs and SERs for similar plants
- (5) LRA
- (6) basis documents
- (7) implementation procedures
- (8) operating experience reports (plant-specific and industry)
- (9) UFSAR

#### Audit/Review

- A. The AMR audit/review involves verification that the requirements of 10 CFR 54.21(a)(3) are satisfied. This criterion states that, "For each structure and component [within the scope of license renewal], demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation."
- B. For AMRs with an NRC-approved precedent, this may be achieved by answering the following questions while following the assessment process shown in Figure 4.
  - (1) Is the precedent appropriate for the LRA AMR being reviewed?
  - (2) Is the NRC-approved precedent sufficiently documented or understood to technically support the adequacy of the LRA AMR being reviewed?
  - (3) Is the LRA AMR within the bounds of the chosen NRC-approved precedent?
  - (4) If any of these questions results in a 'No' answer, then additional information is required to make a determination that the AMR is acceptable.
  - (5) If it is necessary to ask the applicant a question to obtain clarification on the basis for accepting the AMR, the process shown in Figure 4 should be used.
  - (6) If it is necessary for the applicant's response to be docketed as a basis for accepting the exception or difference, the applicant may voluntarily docket the response or the NRC may issue an RAI.

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<sup>7</sup> Applicant identified NRC-approved precedents are only to be used as an aid for performing AMR audits. The audit conclusions will be based on the technical basis of the AMR and its applicability to the plant being reviewed. It is not acceptable to simply cite the NRC-approved precedent as its basis.

## AMR Audit/Review Worksheets

Document the audits/reviews using the worksheet provided in Appendix G, "Aging Management Review Worksheets."

### **6.4 Audit and Review Documentation**

As noted in Section 5.7 of this plan, the project team will prepare an audit and review plan, worksheets, work packages, requests for additional information, an audit and review report, and a SER input. This section of the plan addresses the preparation of the audit and review report and the SER input.

#### **6.4.1 Audit and Review Report**

Format and content of the audit and review report. The report should include the following:

- Cover page
- Table of contents
- Section 1, Introduction
- Section 2, Background
- Section 3, Summary of Information in the License Renewal Application
- Section 4, Audit and Review Scope
- Section 5, Audit and Review Process
- Section 6, Exit Meeting
- Section 7, Audit and Review Results
  - Section 7.1, Aging Management Programs
  - Section 7.2, Aging Management Reviews
- Attachment 1, Acronyms and Initialisms
- Attachment 2, Project Team and Applicant Personnel
- Attachment 3, Elements of an Aging Management Program for License Renewal
- Attachment 4, List of Open Items
- Attachment 5, List of Documents Reviewed
- Attachment 6, List of Commitments

The following paragraphs describe the information and detail necessary for each report section:

Cover page that identifies

- (1) name of the plant and units
- (2) docket number of the plants
- (3) organization preparing the report
- (4) contract number under which the work was performed
- (5) statement that the report was prepared for the License Renewal and Environmental Impacts Program, Division of Regulatory Improvement Programs, Office of Nuclear Reactor Regulation
- (6) issue date

Section 1, Introduction. This section should provide an overview of the audit and review conducted by the project team. It should also list key audit and review activities, including site visits. In addition, it should identify the organizations supporting the audits and reviews.

Section 2, Background. Summary of the license renewal requirements as stated in the *Code of Federal Regulations* and a summary of the documents that the project team used to carry out the audit and review process described in this plan.

Section 3, Summary of Information in the License Renewal Application. Description of the information contained in the license renewal application that is applicable to this plan.

Section 4, Audit and Review Scope. This section should include statements that

- (1) The audit and review was performed to fulfill the criteria of 10 CFR 54.21(a)(3).
- (2) The audit and review was performed in accordance with the guidance contained in the SRP-LR and the GALL Report.
- (3) This section also identifies the breadth of the audit performed, stating that the audits and reviews were limited to those AMPs and AMRs assigned to the project team.
  - (a) Include in this section a description of the nominal rules used to make the work assignments.
  - (b) This section shall note that only seven of the ten AMP elements were audited by the project team and that the other three elements were reviewed by other sections of the NRC staff.

Section 5, Audit and Review Process. This section shall state that the audit and review was performed in accordance with the processes defined in accordance with this plan and will summarize the audit and review process for AMPs, AMRs, and the UFSAR supplement.

Section 6, Exit Meeting.

Section 7, Audit and Review Results. This section includes

- (1) AMPs and AMRs reviewed. The table of contents lists those AMPs reviewed. The audit and review plan documents which AMRs were reviewed by the project team.
- (2) AMPs consistent with the GALL Report. Each AMP reviewed by the project team that the applicant identified as consistent with the GALL Report shall be documented. Each AMP shall have an individual section in the audit and review report that documents the following:
  - (a) A subsection identifying the plant AMP name, LRA section number, title and a statement as to the consistency with the GALL AMP(s) to which the LRA AMP is being compared. A listing of the GALL AMP(s).
  - (b) A subsection describing the plant AMP scope.
  - (c) A subsection describing the plant AMP consistency with respect to the GALL Report AMP, the documents reviewed, and the applicant staff interviewed.
  - (d) A subsection listing the exceptions and/or enhancements and associated program elements to the GALL Report AMP, a restatement of the GALL Report AMP program element criteria that apply to the exception or enhancement, and a technical basis explaining why any exceptions (identified by the applicant or the project team) or enhancements to the plant AMPs are acceptable.
  - (e) A review of operating experience used to justify the acceptance of the AMP.
  - (f) A discussion concerning the adequacy of the applicant's commitment to revise the UFSAR. Any enhancements are to be cited or referenced in the Appendix A commitment.

- (g) A subsection that provides the basis for concluding that the plant AMP is consistent with the GALL Report AMP.
  - (h) If the applicant submitted an amendment or a supplement to its LRA to resolve a question or issue, document the submittal (include the date and the ADAMS accession number), explain the issue that the submittal resolved, and discuss the basis for the resolution.
  - (i) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant has submitted a response. If the applicant's response to the RAI was acceptable, document the basis for its acceptance.
- (3) Plant-specific AMPs. Each plant specific AMP reviewed by the project team should be documented in the audit and review report. This documentation shall include:
- (a) a subsection identifying the name of the plant AMP, the LRA section number and title, and a description of the scope of the plant AMP.
  - (b) a subsection that describes the team's review of the seven AMP program elements against the program element criteria in the SRP\_LR.
  - (c) the basis for concluding that each of the seven AMP program elements reviewed by the team (see Table 1 of this plan) is acceptable.
  - (d) the basis for accepting any exceptions or enhancements to the program element criteria.
  - (e) If the applicant submitted an amendment or a supplement to its LRA to resolve a question or issue, document the submittal (include the date and the ADAMS accession number), explain the issue that the submittal resolved, and discuss the basis for the resolution.
  - (f) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant has submitted a response. If the applicant's response to the RAI was acceptable, document the basis for its acceptance.
  - (g) a discussion of the plant-specific and industry operating experience (one of the seven program elements reviewed by the team), and the review of the operating experience that was used by the team to conclude that the AMP is acceptable.
  - (h) a discussion concerning the adequacy of any commitments to revise the UFSAR.
  - (i) the basis for concluding that the plant AMP will adequately manage the effects of aging so that the intended functions will be maintained consistent with the CLB during the period of extended operation.
- (4) Aging management reviews.<sup>8</sup> This introductory section should include the following:
- (a) A brief summary of what the project team reviewed to perform the audit and review, i.e., the LRA, the SRP\_LR, and the applicant's basis documents
  - (b) A summary review of the AMR notes (A through J) used by the applicant to classify the AMR line items used in the LRA Tables 3.X.2\_Y.
  - (c) The basis for accepting any exceptions to GALL AMRs that were identified by the applicant or the project team reviewer.

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<sup>8</sup> AMR results evaluations are documented in the audit and review report sequentially by LRA Section 3.X. The project team documents the audit and review results section for the AMRs as defined in 7.c.iii.(7)(e) through (g) of this plan for LRA Sections 3.1, 3.2, 3.3, 3.4, 3.5, and 3.6.



- (d) If the applicant submitted an amendment or a supplement to its LRA to resolve a question or issue, document the submittal (include the date and the ADAMS accession number), explain the issue that the submittal resolved, and discuss the basis for the resolution.
  - (e) If an RAI was issued, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant has submitted a response. If the applicant's response to the RAI was acceptable, document the basis for its acceptance.
  - (f) An introductory section for each LRA Section 3.X should be included that contains the LRA section reviewed and a summary of the type of information provided in the section of the LRA reviewed, including a listing of the AMPs reviewed for this LRA section.
- (5) AMRs consistent with the GALL Report.<sup>9</sup> This section shall include the following:
- (a) The project team will document information on AMRs consistent with the GALL Report for which no further evaluation is required only if it had an audit finding that resulted in an open item requiring a docketed response from the applicant or an RAI.
  - (b) If the applicant submitted an amendment or a supplement to its LRA to resolve a question or issue, document the submittal (include the date and the ADAMS accession number), explain the issue that the submittal resolved, and discuss the basis for the resolution.
  - (c) If an RAI was issued, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant has submitted a response. If the applicant's response to the RAI was acceptable, document the basis for its acceptance.
  - (d) Provide a evaluation and finding that verifies that:
    - (1) the applicant identified the applicable aging effects
    - (2) the applicant defined the appropriate combination of materials and environments
    - (3) The applicant specified acceptable AMPs
  - (e) Provide a conclusion stating, if appropriate, that the applicant has demonstrated that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation, and that 10 CFR 54.21(a)(3) has been satisfied.
- (6) AMRs consistent with the GALL Report for which further evaluation is required. This section should include the following:
- (a) A subsection for each of the LRA sections (3.X.2.2.Y) containing the applicant's further evaluations of AMRs for which further evaluation is required.
  - (b) For each LRA Section 3.X.2.2.Y containing the applicant's further evaluations, include the following:
    - (1) A statement that the project team audited the applicant's further evaluations against the criteria contained in Section 3.X.2.2.Y of the SRP-LR.
    - (2) Identify the SRP-LR Section 3.X.2.2.Y criteria.
    - (3) Review the applicant's evaluation of the aging effect and provide a summary of the basis for concluding that it satisfies the criteria contained in Section 3.X.2.2.Y of the SRP-LR.
    - (4) If the applicant submitted an amendment or a supplement to its LRA to resolve a question or issue, document the submittal (include the date and the ADAMS

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<sup>9</sup> The audit results documented in this section address the AMRs consistent with the GALL Report for which no further evaluation is recommended.

- accession number), explain the issue that the submittal resolved, and discuss the basis for the resolution.
- (5) If an RAI was issued, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant has submitted a response. If the applicant's response to the RAI was acceptable, document the basis for its acceptance.
  - (6) A concluding paragraph summarizing the project team evaluation of the particular aging effect.
- (7) AMR results that are not consistent with the GALL Report. This section documents reviews of AMRs that are not consistent with the GALL Report. The audit and review report should include the following:
- (a) A summary of the type of information provided in the section of the LRA reviewed. Identify the LRA Tables 3.X.2-Y listed in this section.
  - (b) For each LRA Table 3.X.2-Y in LRA Section 3.X, the results and findings of NRC-approved precedents that were reviewed.
  - (c) An evaluation and finding verifying that
    - (1) the applicant identified the applicable aging effects
    - (2) the applicant listed the appropriate combination of materials and environments
    - (3) the applicant identified acceptable AMPs
  - (d) If the applicant submitted an amendment or a supplement to its LRA to resolve a question or issue, document the submittal (include the date and the ADAMS accession number), explain the issue that the submittal resolved, and discuss the basis for the resolution.
  - (e) If an RAI was issued, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant has submitted a response. If the applicant's response to the RAI was acceptable, document the basis for its acceptance.
  - (f) Provide a conclusion stating, if appropriate, that the applicant has demonstrated that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation, and 10 CFR 54.21(a)(3) has been satisfied.

Attachment 1, List of Abbreviations

Attachment 2, Project team and applicant personnel

Attachment 3, Elements of an Aging Management Program for License Renewal

Attachment 4, Audit and Review Open Items (RAIs issued). This attachment should list the RAIs issued and a summary of the disposition of the applicant's responses.

- (1) Identify to which AMP or AMR each RAI applies.
- (2) The RAI disposition will be further expounded upon in conjunction with the audit and review results in the applicable AMP or AMR discussion.
- (3) In general, questions that were discussed with the applicant and resolved during performance of the audit and review should not be listed in the attachment or discussed in the audit and review report.

Attachment 5, List of Documents Reviewed. This attachment should list all of the documents reviewed by the project team to support its AMP and AMR audits and reviews.<sup>10</sup>

- (1) indicate which documents were reviewed for each AMP or AMR section.
- (2) include both docketed and non-docketed documents.
- (3) include both licensee-controlled documents (e.g., calculations and procedures) and other documents (e.g., codes and standards).

Attachment 6, List of Commitments.

## 6.4.2 SER Input

### General Guidance

- A. Each project team member should prepare the SER input for the AMP and AMR audits and reviews that he or she performed. The technical assistance contractor shall collect, assemble, and prepare the complete SER input.
- B. In general, the data and information needed to prepare the SER input should be available in the project team's audit and review report and the team member's worksheets.
- C. SER inputs are to be prepared for
  - (1) each AMP that was determined to be consistent with the GALL Report, which has no exceptions or enhancements.
  - (2) each AMP that was determined to be consistent with the GALL Report, which has exceptions (identified by either the applicant or the project team) or enhancements.
  - (3) each plant-specific AMP
  - (4) AMRs that are consistent with the GALL Report
  - (5) project team AMR review results<sup>11</sup>
- D. The SER input should contain the following sections. (Note: The following section numbers (3. through 3.X.3) are based on the numbering system for the SER input. They are not a continuation of the numbering convention used throughout this plan.)

3. Aging Management Review Results
  - 3.0 Applicant's Use of the Generic Aging Lessons Learned Report
    - 3.0.1 Format of the LRA
    - 3.0.2 Staff's Review Process
      - 3.0.2.1 AMRs in the GALL Report
      - 3.0.2.2 NRC-Approved Precedents
      - 3.0.2.3 UFSAR Supplement
      - 3.0.2.4 Documentation and Documents Reviewed
    - 3.0.3 Aging Management Programs
      - 3.0.3.1 AMPs that are Consistent With the GALL Report
      - 3.0.3.2 AMPs that are Consistent With GALL Report With Exceptions or Enhancements

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<sup>10</sup> With the exception of documents relied on to make regulatory decisions, the non-docketed documents may only be available at the applicant's offices or plant site.

<sup>11</sup> AMRs that are not consistent with the GALL Report.

- 3.0.3.3 AMPs that are Plant-Specific
- 3.0.4 Quality Assurance Program Attributes Integral to Aging Management Programs
- 3.X.<sup>12</sup> Aging Management of \_\_\_\_\_
  - 3.X.1. Summary of Technical Information in the Application
  - 3.X.2. Staff Evaluation
    - 3.X.2.1. Aging Management Evaluations that are Consistent with the GALL Report, for Which Further Evaluation is Not Required
    - 3.X.2.2. Aging Management Evaluations that are Consistent with the GALL Report, for Which Further Evaluation is Recommended
    - 3.X.2.3 AMR Results that are Not Consistent with or Not Addressed in the GALL Report
  - 3.X.3 Conclusion

- E. For each AMP audited/reviewed by the project team, the SER shall include a discussion of the team's review of the operating experience program element.
- F. If the applicant submitted an amendment or a supplement to its LRA that is associated with the project team's audit or review activities, document the submittal (include the date and ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
- G. If an RAI was issued, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been received and accepted. If the response was acceptable, identify the submittal (including the date and the ADAMS accession number) that provided the response and document the basis for its acceptance.
- H. Issues (e.g., RAIs) that have not been resolved by the applicant at the time the SER input is prepared should be identified as open items.

#### SER Input

- A. For AMPs determined to be consistent with the GALL Report, without exceptions, include the AMP title, the plant AMP paragraph number, and a discussion of the basis for concluding that the UFSAR update (Appendix A of the LRA) is acceptable. This SER input documents that the AMP is consistent with the GALL Report.
- B. For AMPs determined to be consistent with the GALL Report, with exceptions or enhancement, the SER input should include a statement that the audit found the AMP consistent with the GALL Report and that any applicant-identified exceptions to the GALL Report were found technically acceptable to manage the aging effect during the period of extended operation. The SER input should identify the exceptions and provide the basis for acceptance. The SER input will also address the UFSAR supplement, and document the basis for concluding that it is acceptable.

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<sup>12</sup> The LRA AMR results are broken down into six sections and address the following system/structure groups: (1) Section 3.1, reactor vessel, internals and reactor coolant system, (2) Section 3.2, engineering safety features systems, (3) Section 3.3, auxiliary systems, (4) Section 3.4, steam power and conversion systems, (5) Section 3.5, structures and component supports, (6) Section 3.6, electrical and instrumentation and controls.

- C. For plant-specific AMPs, the SER input should document the basis for accepting each of the seven elements reviewed by the project team. The SER input should also include a discussion concerning the adequacy of the UFSAR supplement.
- D. For aging management evaluations that are consistent with the GALL Report,<sup>13</sup> the SER input should include the following:
  - (1) Identify the LRA section reviewed
  - (2) A summary of the type of information provided in the section of the LRA reviewed, including a listing of the AMPs reviewed.
  - (3) Identify the LRA Tables 3.X.2-Y reviewed.
  - (4) A summary review of the AMR Notes A through E used to classify the AMR line items used in these tables.
  - (5) A brief summary of what the staff (project team) reviewed to perform the audit, i.e., LRA and applicant basis documents and other implementation documents. Reference the appendix that lists the details of the documents reviewed.
  - (6) The bases for accepting any exceptions to GALL AMRs that were identified by the applicant or the project team member.
  - (7) A finding that verifies
    - (a) the applicant identified the applicable aging effects
    - (b) the applicant defined the appropriate combination of materials and environments
    - (c) the applicant specified acceptable AMPs
  - (8) A conclusion stating, if applicable, that the applicant has demonstrated that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation, and that 10 CFR 54.21(a)(3) has been satisfied.
- E. For aging management evaluations that are consistent with the GALL Report, for which further evaluation is recommended, the SER input should include the following:
  - (1) The LRA section containing the applicant's further evaluations of AMRs for which further evaluation is required.
  - (2) A list of the aging effects for which the further evaluation apply.
  - (3) For the applicant's further evaluations, provide a summary of the basis for concluding that it satisfied the criteria of Section 3.1.3.2 of the SRP-LR.
  - (4) A statement that the staff audited the applicant's further evaluations against the criteria contained in Section 3.1.3.2 of the SRP-LR.
  - (5) A statement that the audit and review report contains additional information. Also identify the issue date and the ADAMS accession number for the audit and review report.
- F. Staff AMR Review Results.<sup>14</sup> This section of the SER input documents the reviews of AMRs assigned to the project team that are not consistent with the GALL Report. The audit report should document the following, based on a precedent identified by the applicant:
  - (1) The LRA section reviewed
  - (2) A summary of the type of information provided in the section of the LRA, reviewed, including a listing of the AMPs reviewed for this LRA section.

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<sup>13</sup> The audit results documented in this section address the AMRs consistent with the GALL Report for which no further evaluation is recommended.

<sup>14</sup> This section documents reviews of AMRs assigned to the project team that are not consistent with the GALL Report.

- (3) Identify the LRA Tables 3.X.2-Y documented by this audit writeup.
- (4) A brief summary of what the staff (project team) reviewed, i.e., LRA and applicant basis documents and other implementation documents.
- (5) A finding that verifies, if true, that:
  - (a) The applicant identified the applicable aging effects
  - (b) The applicant listed the appropriate combination of materials and environments
  - (c) The applicant specified acceptable AMPs
- (6) Provide a conclusion stating, if applicable, that the applicant has demonstrated that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation, and that 10 CFR 54.21(a)(3) has been satisfied.

## **6.5 Documents Reviewed and Document Retention**

Any documents reviewed that were used to formulate the basis for resolution of an issue, such as the basis for a technical resolution, the basis for the acceptance of an exception or an enhancement, etc., should be documented as a reference in the audit and review report.

Upon issuance of the audit and review report, all worksheets that were completed by contractor and NRC personnel shall be given to the NRC project team leader.

After the NRC has made its licensing decision, all copies of documents collected and all documents generated to complete the audit and review report, such as audit worksheets, question and answer tracking documentation, etc., are to be discarded.

**Table 1. Aging Management Program Element Descriptions**

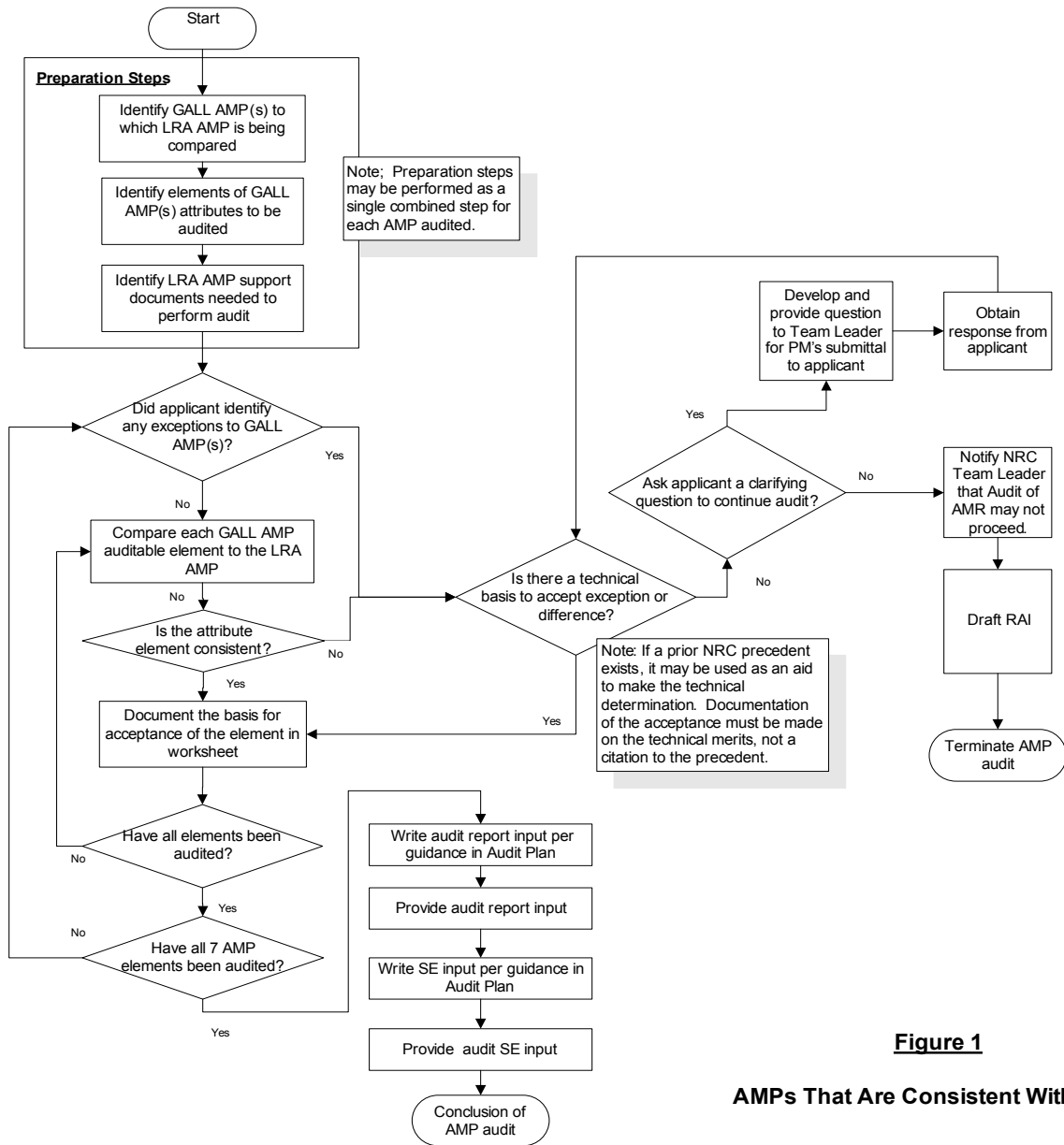
Element		Description
1	Scope of the program	The scope of the program should include the specific structures and components subject to an aging management review.
2	Preventive actions	Preventive actions should mitigate or prevent the applicable aging effects.
3	Parameters monitored or inspected	Parameters monitored or inspected should be linked to the effects of aging on the intended functions of the particular structure and component.
4	Detection of aging effects	Detection of aging effects should occur before there is loss of any structure and component intended function. This includes aspects such as method or technique (i.e., visual, volumetric, surface inspection), frequency, sample size, data collection and timing of new/one-time inspections to ensure timely detection of aging effects.
5	Monitoring and trending	Monitoring and trending should provide prediction of the extent of the effects of aging and timely corrective or mitigative actions.
6	Acceptance criteria	Acceptance criteria, against which the need for corrective action will be evaluated, should ensure that the particular structure and component intended functions are maintained under all current licensing basis design conditions during the period of extended operation.
7	Corrective actions	Corrective actions, including root cause determination and prevention of recurrence, should be timely.
8	Confirmation process	The confirmation process should ensure that preventive actions are adequate and appropriate corrective actions have been completed and are effective.
9	Administrative controls	Administrative controls should provide a formal review and approval process.
10	Operating experience	Operating experience involving the aging management program, including past corrective actions resulting in program enhancements or additional programs, should provide objective evidence to support a determination that the effects of aging will be adequately managed so that the structure and component intended functions will be maintained during the period of extended operation.

**Table 2. Notes for License Renewal Application Tables 3.x.2-y<sup>15</sup>**

Note	Description
A	Consistent with NUREG-1801 [GALL Report] 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.
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.

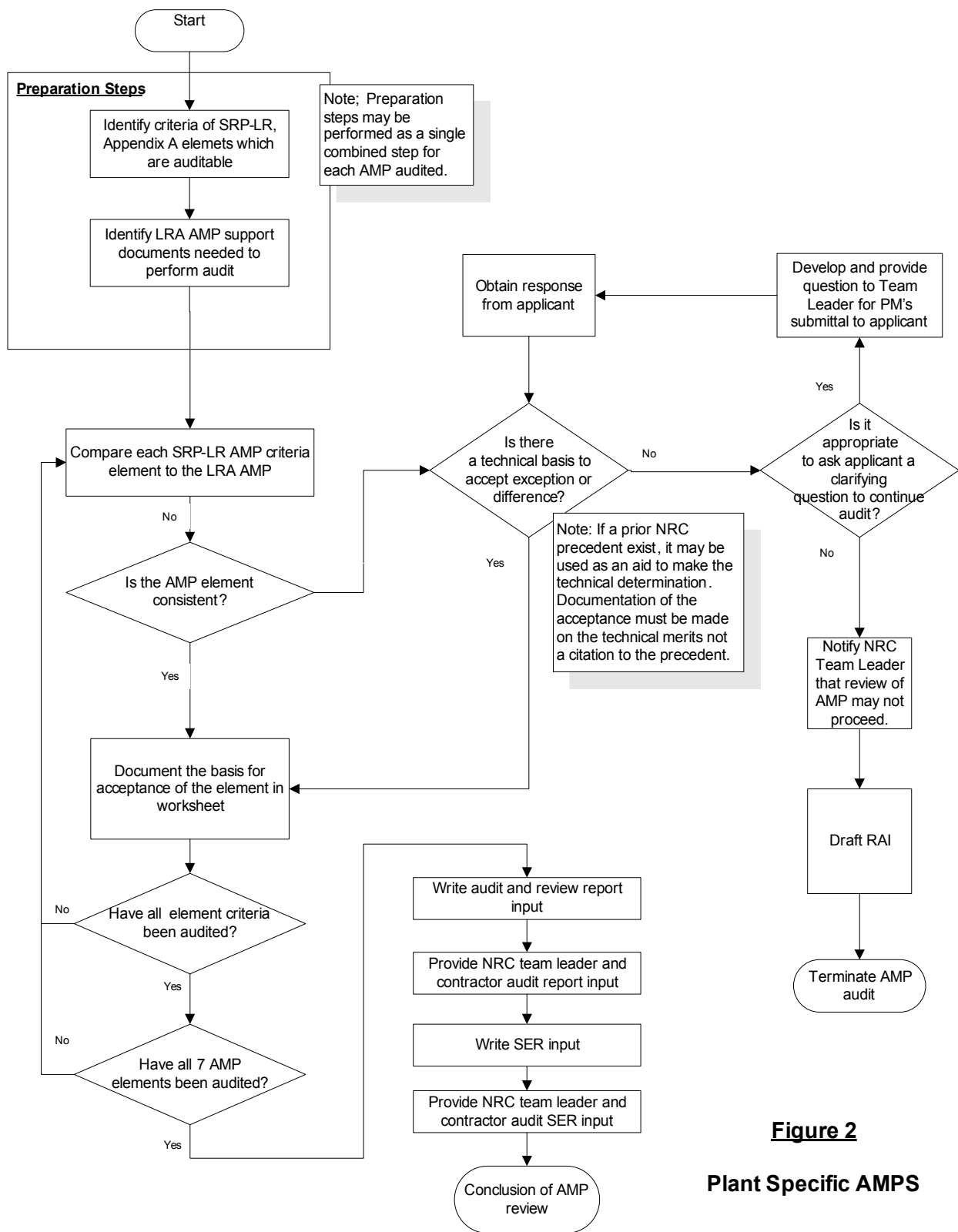
<sup>15</sup> Each AMR line item is coded with a letter which represents a standard note designation based on a letter from A. Nelson, NEI, to P.T. Kuo, NRC, "U.S. Nuclear Industry's Proposed Standard License Renewal Application Format Package, Request NRC Concurrence," dated January 24, 2003 (ML030290201). The staff concurred in the format of the standardized format for license renewal applications by letter dated April 7, 2003, from P.T. Kuo, NRC, to A. Nelson, NEI (ML030990052).



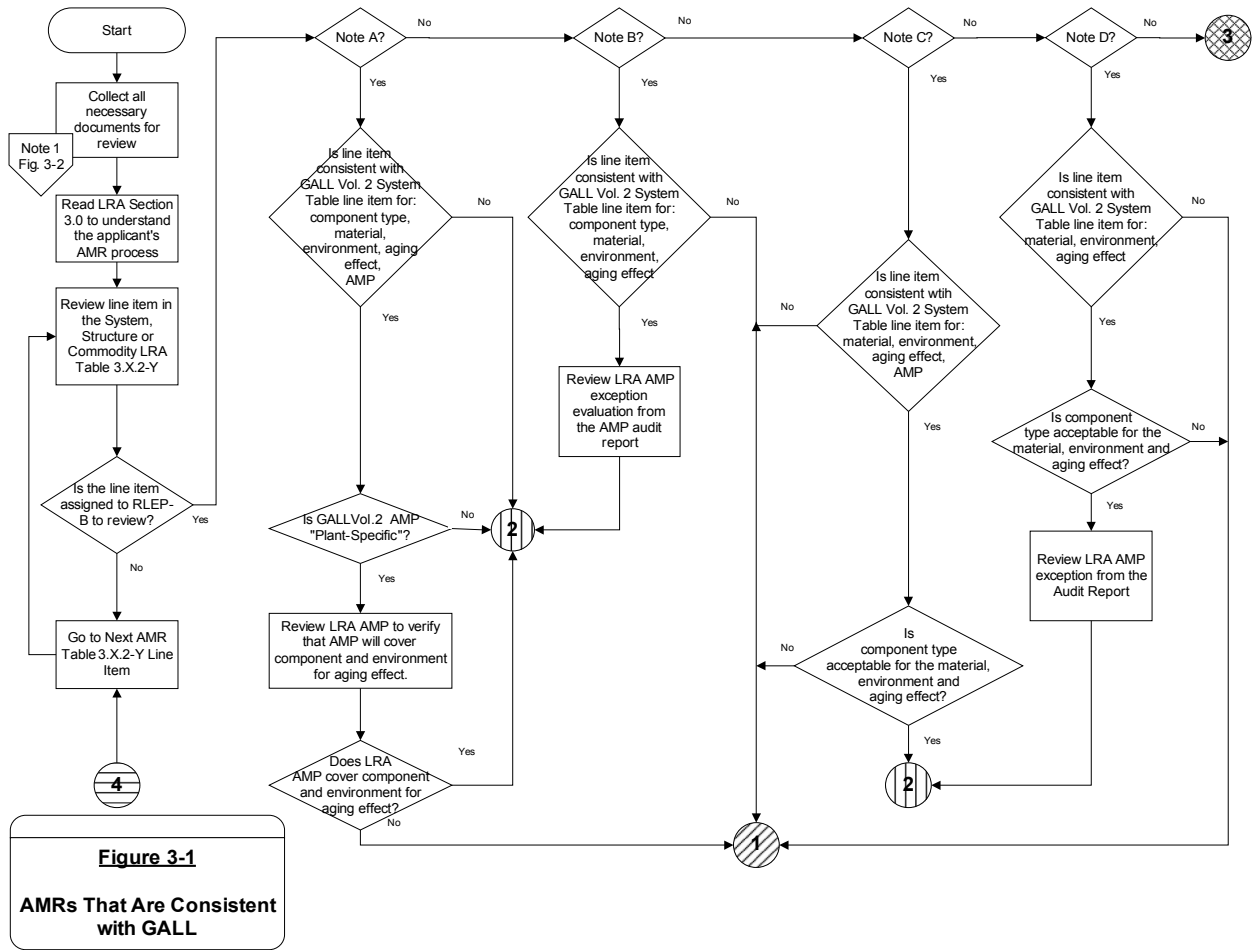


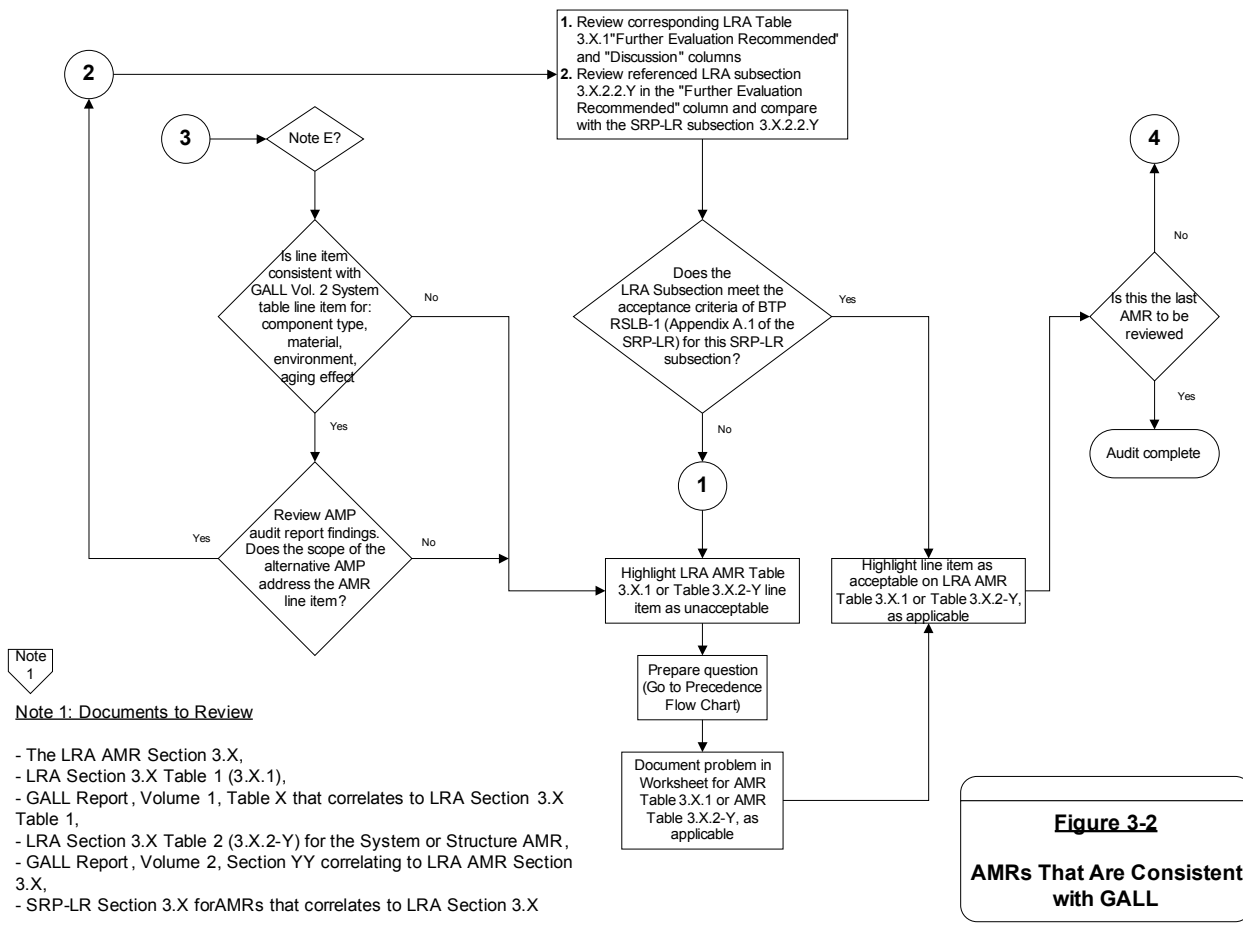
**Figure 1**

**AMPs That Are Consistent With GALL**



**Figure 2**  
**Plant Specific AMPs**



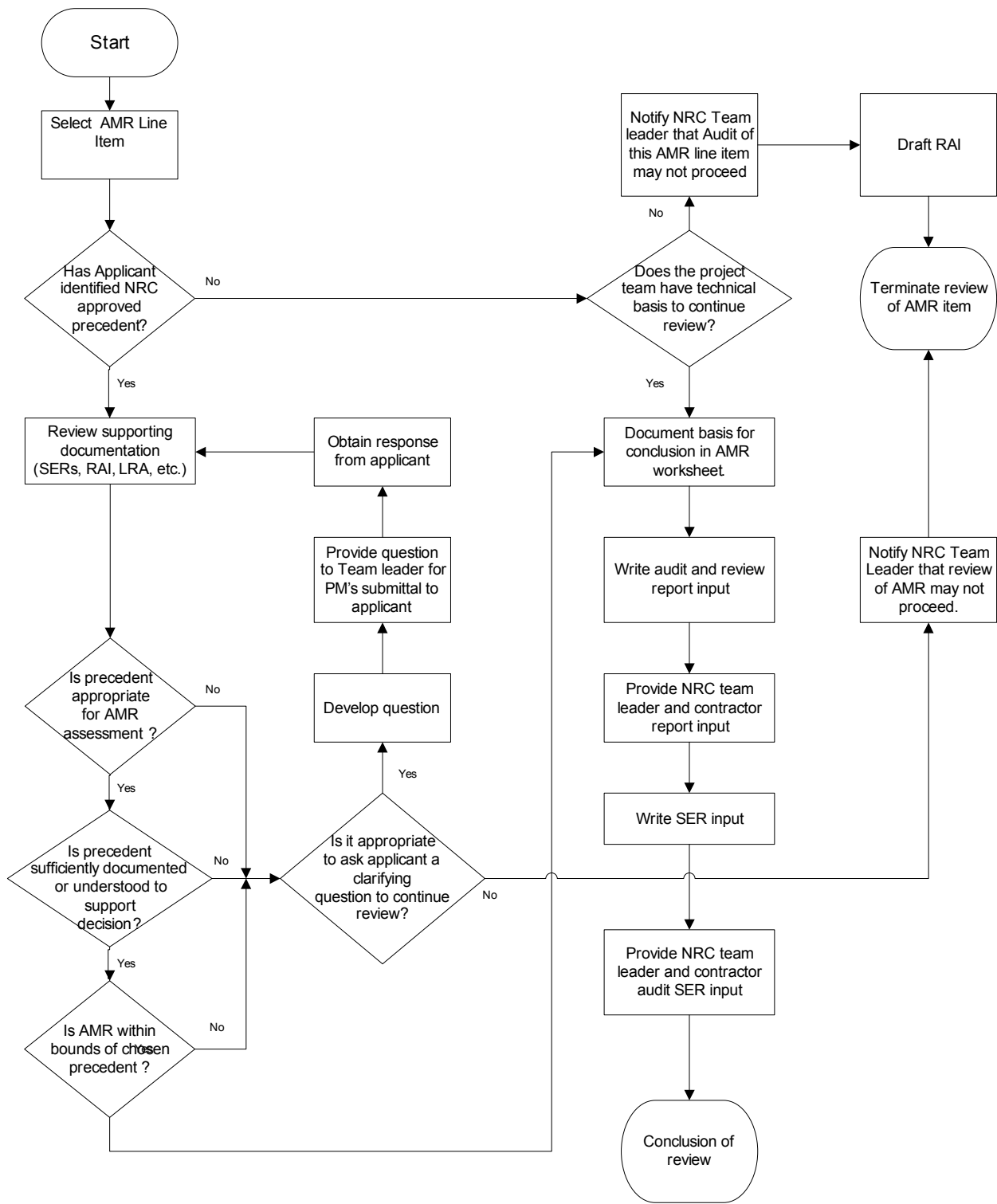


Note 1

**Note 1: Documents to Review**

- The LRA AMR Section 3.X,
- LRA Section 3.X Table 1 (3.X.1),
- GALL Report, Volume 1, Table X that correlates to LRA Section 3.X Table 1,
- LRA Section 3.X Table 2 (3.X.2-Y) for the System or Structure AMR,
- GALL Report, Volume 2, Section YY correlating to LRA AMR Section 3.X,
- SRP-LR Section 3.X for AMRs that correlates to LRA Section 3.X

**Figure 3-2**  
**AMRs That Are Consistent with GALL**



**Figure 4**

**AMRs Using NRC Approved Precedents**

## **Appendix A**

### **Project Team Membership**

## Appendix A

### Project Team Membership

Organization	Name	Function
NRC/NRR/DRIP/RLEP-B	Greg Cranston	Team leader
NRC/NRR/DRIP/RLEP-B	Ram Subbaratnam	Backup team leader
NRC/NRR/DRIP/RLEP-B	Mark Lintz	Reviewer - AMPs
BNL	Rich Morante	Contractor lead reviewer – Mechanical, Materials, Structural
BNL	Mano Subudhi	Reviewer – Materials, Mechanical
BNL	Bob Lofaro	Reviewer – Electrical, Systems, Mechanical
BNL	Charlie Hofmayer	Reviewer – Structural, Mechanical
BNL	Ken Sullivan	Reviewer – Systems, Electrical

## **Appendix B**

### **RLEP-B Schedule for LRA Safety Review**



## Appendix B

### Schedule for LRA Safety Review

**Plant:** Browns Ferry 1, 2, 3  
**Team Leader:** Greg Cranston  
**Backup Team Leader:** Ram Subbaratnam  
**Project Manager:** Yoria Diaz Sanabria  
**Contractor:** Brookhaven National Laboratory

Activity/Milestone		Scheduled Completion
1	Receive license renewal application	02/06/2004
2	Make review assignments-Work Split Tables (project manager)	04/05/2004
3	Train project team	05/25-26/2004
4	Hold team planning (kick-off) meeting	05/25-26/2004
5	Issue audit plan to project manager	06/18/2004
6	Conduct first site visit (AMP reviews)	06/21-25/2004
7	Draft AMP audit report input (team members)	07/09/2004
8	Draft SER input for AMP reviews (team members)	07/09/2004
9	Conduct in-office AMR review preparations	07/07-16/2004
10	Conduct AMR site visit (resolve AMP questions)	07/19-23/2004 08/02-06/2004
11	Draft AMR audit report input (team members )	08/11/2004
12	Draft SER input for AMR reviews (team members )	08/11/2004
13	Conduct third site visit (resolve outstanding issues and questions)	08/16-20/2004
14	Conduct public exit meeting	08/20/2004
15	Cutoff for providing RAIs to project manger	08/20/2004
16	Final audit and review report (AMP and AMR sections)	08/27/2004
17	Final input for draft SER with open items	09/03/2004

## **Appendix C**

### **Aging Management Program Assignments**

The following AMPs have been assigned to the BFN LRA Audit and Review team:

LRA AMP Number	GALL Report AMP Number	LRA AMP Title	Consistent with NUREG-1801 (GALL)		Assigned Reviewer
			New/Existing	Yes/No	
B.2.1.1	XI.E1	Accessible Non-Environmental Qualification Cables and Connections Inspection Program	New	Yes	Lofaro (BNL)
B.2.1.2	XI.E2	Electrical Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program	Existing	No*	Lofaro
B.2.1.4	XI.M1	ASME Section XI Subsections IWB, IWC, and IWD Inservice Inspection Program	Existing	Yes	Morante (BNL)
B.2.1.6	XI.M3	Reactor Head Closure Studs Program	Existing	Yes	Lintz (NRC)
B.2.1.7	XI.M4	Boiling Water Reactor Vessel Inside Diameter Attachment Welds Program	Existing	Yes <sup>\$</sup>	Subudhi (BNL)
B.2.1.8	XI.M5	Boiling Water Reactor Feedwater Nozzle Program	Existing	Yes <sup>\$</sup>	Subudhi
B.2.1.9	XI.M6	Boiling Water Reactor Control Rod Drive Return Line Nozzle Program	Existing	Yes	Subudhi
B.2.1.10	XI.M7	Boiling Water Reactor Stress Corrosion Cracking Program	Existing	Yes <sup>\$</sup>	Subudhi
B.2.1.11	XI.M8	Boiling Water Reactor Penetrations Program	Existing	Yes <sup>\$</sup>	Subudhi
B.2.1.12	XI.M9	Boiling Water Reactor Vessel Internals Program	Existing	Yes <sup>\$</sup>	Subudhi
B.2.1.14	XI.M13	Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel Program	Existing	Yes <sup>\$</sup>	Morante



B.2.1.15	XI.M17	Flow-Accelerated Corrosion Program	Existing	Yes <sup>\$</sup>	Morante
B.2.1.17	XI.M20	Open-Cycle Cooling Water Program	Existing	Yes <sup>\$</sup>	Sullivan (BNL)
B.2.1.18	XI.M21	Closed-Cycle Cooling Water System Program	Existing	Yes <sup>\$</sup>	Sullivan
B.2.1.20	XI.M23	Inspection of Overhead Heavy Load and Light Load Handling Systems Program	Existing	No*	Lofaro
B.2.1.21	XI.M24	Compressed Air Monitoring Program	Existing	Yes <sup>\$</sup>	Sullivan
B.2.1.22	XI.M25	BWR Reactor Water Cleanup System Program	Existing	Yes <sup>\$</sup>	Sullivan
B.2.1.26	XI.M29	Aboveground Carbon Steel Tanks Program	Existing	Yes	Lintz
B.2.1.27	XI.M30	Fuel Oil Chemistry Program	Existing	No*	Sullivan
B.2.1.29	XI.M32	One-Time Inspection Program	New	Yes	Hofmayer (BNL)
B.2.1.30	XI.M33	Selective Leaching of Materials Program	New	Yes	Morante
B.2.1.31	XI.M34	Buried Piping and Tanks Inspection Program	Existing	Yes	Lintz
B.2.1.34	XI.S4	10 CFR 50 Appendix J Program	Existing	Yes	Hofmayer
B.2.1.35	XI.S5	Masonry Wall Program	Existing	Yes <sup>\$</sup>	Hofmayer
B.2.1.36	XI.S6	Structures Monitoring Program	Existing	Yes <sup>\$</sup>	Hofmayer
B.2.1.37	XI.S7	Inspection of Water-Control Structures Program	Existing	Yes <sup>\$</sup>	Hofmayer
TLAA AMPs					
B.3.1	X.E1	Environmental Qualification Program	Existing	Yes <sup>\$</sup>	Lofaro
B.3.2	X.M1	Fatigue Monitoring Program	Existing	Yes <sup>\$</sup>	Morante

\* = exceptions  
\$ = enhancements

## **Appendix D**

### **Aging Management Review Assignments**

### Aging Management Review Assignments

Aging Management Reviews	Reviewer
3.1 Aging Management of Reactor Vessel, Internals, and Reactor Coolant System	Subudhi, Morante, BNL
3.2 Aging Management of Engineered Safety Features	Morante, BNL; Subbaratnam, NRC
3.3 Aging Management of Auxiliary Systems	Lofaro, Hofmayer, Morante, BNL
3.4 Aging Management of Steam and Power Conversion Systems	Subbaratnam, NRC; Morante, BNL
3.5 Aging Management of Containment, Structures, and Component Supports	Hofmayer, BNL
3.6 Aging Management of Electrical and Instrumentation and Controls	Lofaro, BNL

The specific AMRs to be reviewed by the project team are shown in the following table. The project team will review all the AMRs identified in the table except for those grayed out in the "Notes" column. The AMR line items that are grayed out will be evaluated by other NRC staff. The results of those evaluations will be reported in Section 3 of the BFN SER.

**[Caution:** These tables are for work split determinations only and not to be used for the audit. Note definitions for each of the tables have been deleted along with some of the plant specific note numbers.]

## Work Split Tables

**Table 3.1.2.1: 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 1 Item	Notes
Other External Attachments	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.2-e	None	F
Reactor Vessel Attachment Welds	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.2-e	None	F, 1
Reactor Vessel Attachment Welds	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	BWR Vessel ID Attachment Welds (B.2.1.7) Chemistry Control Program (B.2.1.5)	IV.A1.2-e	None	F
Reactor Vessel Attachment Welds	PB, SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel ID Attachment Welds (B.2.1.7) Chemistry Control Program (B.2.1.5)	IV.A1.2-e	None	H, 2
Reactor Vessel Attachment Welds	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel ID Attachment Welds (B.2.1.7) Chemistry Control Program (B.2.1.5)	IV.A1.2-e	3.1.1.28	B
Reactor Vessel Closure Studs and Nuts	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	Reactor Head Closure Studs Program (B.2.1.6)	IV.A1.1-c	3.1.1.22	A
Reactor Vessel Closure Studs and Nuts	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to crevice, general, and pitting corrosion.	Reactor Head Closure Studs Program (B.2.1.6)	IV.A1.1-c	None	H, 2
Reactor Vessel Closure Studs and Nuts	PB	Carbon and Low Alloy Steel	Inside Air (external)	Distortion/plastic deformation due to stress relaxation. Loss of material due to mechanical wear.	Reactor Head Closure Studs Program (B.2.1.6)	IV.A1.1-c	None	G, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Crack initiation/growth due to cyclic loading. Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection (B.2.1.29)	IV.A1.1-d	None	F, 2



**Table 3.1.2.1: 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 1 Item	Notes
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.1-a	None	G, 1
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.1-d	None	F, 1
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.2-a	None	G, 1
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.2-b	None	G, 1
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.6-a	None	G, 1
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.1-a	None	H, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.1-a	3.1.1.34	B
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.1-b	None	H, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.1-b	3.1.1.1	A
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.1-b	None	H, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.2-a	3.1.1.1	A

**Table 3.1.2.1: 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 1 Item	Notes
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.2-a	None	H, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.2-b	None	H, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.2-b	3.1.1.1	A
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to neutron irradiation embrittlement.	None	IV.A1.2-c	3.1.1.4	A
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to neutron irradiation embrittlement.	Reactor Vessel Surveillance Program (B.2.1.2B)	IV.A1.2-d	3.1.1.5	A
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.6-a	3.1.1.1	A
Reactor Vessel Heads, Flanges, Shell	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.6-a	None	H, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Nickel Alloy	Air/gas (internal)	Crack initiation/growth due to stress corrosion cracking (SCC). Loss of material due to crevice and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	None	None	J, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Nickel Alloy	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC). Loss of material due to crevice and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.6-a	None	H, 2

**Table 3.1.2.1: 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 1 Item	Notes
Reactor Vessel Heads, Flanges, Shell	PB, SS	Stainless Steel	Air/gas (internal)	Crack initiation/growth due to stress corrosion cracking (SCC). Loss of material due to crevice and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.2-a	None	F, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC). Loss of material due to crevice and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.2-a	None	F, 2
Reactor Vessel Heads, Flanges, Shell	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC). Loss of material due to crevice and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.2-b	None	H, 2
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.1-a	None	G, 1
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.3-a	None	G, 1
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.3-b	None	G, 1
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV-A1.3-c	None	G, 1
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.1-a	3.1.1.34	B
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.1-a	None	H, 2
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.3-a	None	H, 2
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.3-a	3.1.1.1	A

**Table 3.1.2.1: 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 1 Item	Notes
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	BWR Feedwater Nozzle Program (B.2.1.8)	IV.A1.3-b	3.1.1.27	A
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	BWR Feedwater Nozzle Program (B.2.1.8) Chemistry Control Program (B.2.1.5)	IV.A1.3-b	None	H, 2
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	BWR Control Rod Drive Return Line Nozzle (B.2.1.9)	IV.A1.3-c	3.1.1.27	A
Reactor Vessel Nozzles	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.3-d	3.1.1.1	A
Reactor Vessel Nozzles	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC). Loss of material due to crevice and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.3-a	None	H, 2
Reactor Vessel Nozzles	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC). Loss of material due to crevice and pitting corrosion.	BWR Control Rod Drive Return Line Nozzle (B.2.1.9) Chemistry Control Program (B.2.1.5)	IV.A1.3-c	None	H, 2
Reactor Vessel Nozzles Safe Ends	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.4-a	None	G, 1
Reactor Vessel Nozzles Safe Ends	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion..	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.4-a	None	F, 2
Reactor Vessel Nozzles Safe Ends	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.4-a	None	H, 2
Reactor Vessel Nozzles Safe Ends	PB	Stainless Steel	Inside Air (external)	None	None	IV.A1.4-a	None	G, 2
Reactor Vessel Nozzles Safe Ends	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.3-b	3.1.1.1	A

**Table 3.1.2.1: 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 1 Item	Notes
Reactor Vessel Nozzles Safe Ends	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.A1.4-a	None	H, 2
Reactor Vessel Nozzles Safe Ends	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.A1.4-a	3.1.1.29	B
Reactor Vessel Nozzles Safe Ends	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.4-a	None	H, 2
Reactor Vessel Penetrations	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.A1.5-a	None	F, 1
Reactor Vessel Penetrations	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	BWR Penetrations Program (B.2.1.11) Chemistry Control Program (B.2.1.5)	IV.A1.5-a	None	F, 2
Reactor Vessel Penetrations	PB, SS	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.A1.5-a	None	F, 2
Reactor Vessel Penetrations	PB, SS	Nickel Alloy	Inside Air (external)	None	None	IV.A1.5-a	None	G, 2
Reactor Vessel Penetrations	PB, SS	Nickel Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Penetrations Program (B.2.1.11) Chemistry Control Program (B.2.1.5)	IV.A1.5-a	None	H, 2
Reactor Vessel Penetrations	PB, SS	Nickel Alloy	Treated Water (internal)	Crack initiation/growth due to cyclic loading, stress corrosion cracking (SCC).	BWR Penetrations Program (B.2.1.11) Chemistry Control Program (B.2.1.5)	IV.A1.5-a	3.1.1.30	B
Reactor Vessel Penetrations	PB, SS	Nickel Alloy	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.5-b	3.1.1.1	A
Reactor Vessel Penetrations	PB, SS	Stainless Steel	Inside Air (external)	None	None	IV.A1.5-a	None	G, 2

**Table 3.1.2.1: 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 1 Item	Notes
Reactor Vessel Penetrations	PB, SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Penetrations Program (B.2.1.11) Chemistry Control Program (B.2.1.5)	IV.A1.5-a	None	H, 2
Reactor Vessel Penetrations	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading, stress corrosion cracking (SCC).	BWR Penetrations Program (B.2.1.11) Chemistry Control Program (B.2.1.5)	IV.A1.5-a	<b>3.1.1.30</b>	B
Reactor Vessel Penetrations	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.A1.5-b	<b>3.1.1.1</b>	A
Reactor Vessel Support Skirt and Attachment Welds	SS	Carbon and Low Alloy Steel	Inside Air (external)	Crack initiation/growth due to fatigue.	None	IV.A1.7-a	<b>3.1.1.1</b>	A
Refueling Bellows Support Skirt	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Crack initiation/growth due to fatigue.	None	IV.A1.7-a	<b>3.1.1.1</b>	A
Stabilizer Bracket	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Crack initiation/growth due to fatigue.	None	IV.A1.7-a	<b>3.1.1.1</b>	A

**Table 3.1.2.2: 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 1 Item	Notes
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Nickel alloy	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.B1.1-d	3.1.1.32	B
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Nickel alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.1-d	None	*H
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Nickel alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.1-f	None	*H, 1
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Nickel alloy	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.1-f	3.1.1.31	B
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.1-a	None	*H, 1
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.1-a	3.1.1.31	B
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.1-b	None	*H, 1
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.1-b	3.1.1.31	B
Reactor Vessel Internals Core Shroud and Core Plate	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.B1.1-c	3.1.1.1	A

**Table 3.1.2.2: 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 1 Item	Notes
Reactor Vessel Internals Core Spray Lines and Spargers	PB, SPR, SS	Nickel alloy	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC). Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.3-a	None	*F
Reactor Vessel Internals Core Spray Lines and Spargers	PB, SPR, SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.3-a	None	*H, 1
Reactor Vessel Internals Core Spray Lines and Spargers	PB, SPR, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.3-a	3.1.1.31	B
Reactor Vessel Internals Core Spray Lines and Spargers	PB, SPR, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.B1.3-b	3.1.1.1	A
Reactor Vessel Internals CRD Housing	PB, SS	Stainless Steel	Inside Air (external)	None	None	IV.B1.5-c	None	*G, 2
Reactor Vessel Internals CRD Housing	PB, SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.5-c	None	*H, 1
Reactor Vessel Internals CRD Housing	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.5-c	3.1.1.31	B
Reactor Vessel Internals Dry Tubes and Guide Tubes	PB, SS	Stainless Steel	Air/gas (internal)	None	None	IV.B1.6-a	None	*G, 2
Reactor Vessel Internals Dry Tubes and Guide Tubes	PB, SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.6-a	None	*H, 1
Reactor Vessel Internals Dry Tubes and Guide Tubes	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.B1.6-b	3.1.1.1	A



**Table 3.1.2.2: 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 1 Item	Notes
Reactor Vessel Internals Dry Tubes and Guide Tubes	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.4-d	3.1.1.31	B
Reactor Vessel Internals Fuel Support	SS	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to thermal aging and neutron irradiation embrittlement.	Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) (B.2.1.14)	IV.B1.5-a	3.1.1.33	A
Reactor Vessel Internals Fuel Support	SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.5-a	None	*H, 1
Reactor Vessel Internals Fuel Support	SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.5-a	None	*H, 1
Reactor Vessel Internals Fuel Support	SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.B1.5-b	3.1.1.1	A
Reactor Vessel Internals Jet Pump Assemblies	PB, SS	Nickel alloy	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.B1.4-b	3.1.1.1	A
Reactor Vessel Internals Jet Pump Assemblies	PB, SS	Nickel alloy	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV-B1.4-a	3.1.1.31	B
Reactor Vessel Internals Jet Pump Assemblies	PB, SS	Nickel alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV-B1.4-a	None	*H, 1
Reactor Vessel Internals Jet Pump Assemblies	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B.1.4-a	3.1.1.31	B
Reactor Vessel Internals Jet Pump Assemblies	PB, SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.B1.4-b	3.1.1.1	A
Reactor Vessel Internals Jet Pump Assemblies	PB, SS	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to thermal aging and neutron irradiation embrittlement.	Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) (B.2.1.14)	IV.B1.4-c	3.1.1.33	A

**Table 3.1.2.2: 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 1 Item	Notes
Reactor Vessel Internals Jet Pump Assemblies	PB, SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV-B1.4-a	None	*H, 1
Reactor Vessel Internals Top Guide	SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to stress corrosion cracking (SCC).	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.2-a	3.1.1.31	B
Reactor Vessel Internals Top Guide	SS	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	BWR Vessel Internals (B.2.1.12) Chemistry Control Program (B.2.1.5)	IV.B1.2-a	None	*H, 1
Reactor Vessel Internals Top Guide	SS	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.B1.2-b	3.1.1.1	A

**Table 3.1.2.3: Reactor Vessel Vents and Drains System (010) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.2-b	None	I, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion	Bolting Integrity Program (B.2.1.16)	VIII.H.2-a	3.4.1.8	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear	Bolting Integrity Program (B.2.1.16)	None	None	J, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program(B.2.1.29)	None	None	*J, 3
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to general, crevice, pitting, and galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	VIII.H.1-b	None	*G, 3

**Table 3.1.2.3: Reactor Vessel Vents and Drains System (010) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general, crevice, pitting, and galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	None	None	*J, 3, 4
Fittings	PB	Stainless Steel	Air/Gas (internal)	None	None	None	None	*J, 5
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 5
Fittings	PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	VIII.H.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	None	None	*J, 3, 4
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion	One-Time Inspection Program(B.2.1.29)	IV.C1.1-i	None	*G, 3
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 6
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-i	None	*H, 3
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general, crevice, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV C1.1-i	None	*H, 3
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 5

**Table 3.1.2.3: Reactor Vessel Vents and Drains System (010) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to general, crevice, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	VIII.H.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general, crevice, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	None	None	*J, 3, 4
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 5
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 5
Piping	PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	VIII.H.1-b	None	*F, 3

**Table 3.1.2.3: Reactor Vessel Vents and Drains System (010) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	None	None	*J, 3, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*G, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 6
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-i	None	*H, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general, crevice, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Piping - RCPB	PB	Stainless Steel	Air/Gas (internal)	None	None	IV.C1.1-i	None	*G, 5
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*G, 5
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3

**Table 3.1.2.3: Reactor Vessel Vents and Drains System (010) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 5
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 5
Valves - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*G, 3
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-a	None	*G, 6
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general, crevice, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	IV.C1.3-a	None	*H, 3
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.3-a	3.1.1.25	A
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A
Valves - RCPB	PB	Stainless Steel	Air/Gas (internal)	None	None	IV.C1.3-c	None	*G, 5
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 5
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	IV.C1.3-c	None	*H, 3

**Table 3.1.2.3: Reactor Vessel Vents and Drains System (010) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) BWR Stress Corrosion Cracking Program (B.2.1.10) One-Time Inspection Program(B.2.1.29)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A
Valves - RCPB	PB	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to thermal aging	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.C1.3-b	3.1.1.23	A

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	IV.C1.2-d	3.1.1.26	F,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to stress relaxation.	Bolting Integrity Program (B.2.1.16)	IV.C1.2-e	None	F, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to fatigue.	None	IV.C1.2-f	None	F, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.I.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.I.2-b	None	
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	IV.C1.2-d	3.1.1.26	B
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to stress relaxation.	Bolting Integrity Program (B.2.1.16)	IV.C1.2-e	3.1.1.26	B
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to fatigue.	None	IV.C1.2-f	3.1.1.1	A
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.I.2-a	None	F, 4
Bolting	MC, SS	Stainless Steel	Treated Water (external)	Loss of bolting function due to crevice and pitting corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	None	F, 2



**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H,
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I,
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4
Fittings	PB	Glass	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4
Fittings	PB	Glass	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VIII.1.1-b	None	F, 4
Fittings	PB	Copper Alloy	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.1-a	None	*F, 2
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C2.1-a	None	*F, 4
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 4
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Fittings	PB	Stainless Steel	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4
Fittings	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 6
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 5
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, ,
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A, 8
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 2, 8

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G, 4, 8
Fittings - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 4, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.1-f	3.1.1.29	B, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*H, 2, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to (SCC).	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 2, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A, 8
Flexible Connectors	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Flexible Connectors	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Flexible Connectors	PB	Stainless Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Heat Exchangers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Heat Exchangers	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	None	None	*J, 2
Heat Exchangers	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 4
Heat Exchangers	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 4
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Heat Exchangers	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Heat Exchangers	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Heat Exchangers	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4
Heat Exchangers	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Heat Exchangers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4
Piping	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Piping	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4
Piping	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 4
Piping	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C2.1-a	None	*F, 2
Piping	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.1-a	None	*F, 2
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 6
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 5
Piping - RCPB	PB	Stainless Steel	Air/gas (internal)	None	None	IV.C1.1-f	None	*G, 4

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G, 4
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 4
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.1-f	3.1.1.29	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*H, 2
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 2
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Pumps	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.C2.3-a	None	*G, 4

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VIII.1.1-b	None	*F, 2
Pumps	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	VII.C2.3-a	None	*G, 4
Reactor Coolant Pumps	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.2-b	None	*G, 4
Reactor Coolant Pumps	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.2-a	3.1.1.1	A
Reactor Coolant Pumps	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.2-b	None	*H, 2
Reactor Coolant Pumps	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.2-b	3.1.1.29	B
Reactor Coolant Pumps	PB	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to thermal aging.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.C1.2-c	3.1.1.23	A
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.C2.5-a	None	*G, 4
Restricting Orifice	FR, PB	Copper Alloy	Inside Air (external)	None	None	VIII.1.1-b	None	F, 4
Restricting Orifice	FR, PB	Copper Alloy	Lubricating Oil (internal)	None	None	VII.C2.5-a	None	*G, 4
Restricting Orifice	FR, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Restricting Orifice	FR, PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4
Restricting Orifice	FR, PB	Stainless Steel	Lubricating Oil (internal)	None	None	VII.C2.5-a	None	*G, 4

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 5
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	None	None	*J, 4
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	D
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	C
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 2
Strainers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Strainers	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Strainers	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VIII.I.1-b	None	*F, 2



**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 4
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C2.4-a	None	*G, 2
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Tanks	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.C2.4-a	None	*G, 4
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 4
Tubing	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 4
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 5
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.C2.2-a	None	*G, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	VII.C2.2-a	None	*G, 4
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 4
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 4
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 4
Valves	PB	Copper Alloy	Lubricating Oil (internal)	None	None	VII.C2.2-a	None	*G, 4
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.2-a	None	*F, 2
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C2.2-a	None	*F, 2
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 4
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Valves	PB	Stainless Steel	Lubricating Oil (internal)	None	None	VII.C2.2-a	None	*G, 4
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 5
Valves	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	I, 6

**Table 3.1.2.4: Reactor Recirculation System (068) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Stainless Steel	Air/gas (internal)	None	None	IV.C1.3-c	None	*G, 4
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 4
Valves - RCPB	PB	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to thermal aging.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.C1.3-b	3.1.1.23	A
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 2
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A

**Table 3.2.2.1: Containment System (064) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I, 1
Bolting	MC, SS	Nickel Alloy	Inside Air (external)	None	None	V.E.2-a	None	F, 2
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F, 2

**Table 3.2.2.1: Containment System (064) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Stainless Steel	Outside Air (external)	None	None	V.E.2-a	None	F, 2
Ductwork	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Ductwork	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Ductwork	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Ductwork	PB	Elastomer	Air/gas (internal)	None	None	None	None	*J, 2
Ductwork	PB	Elastomers	Inside Air (external) Outside Air (external)	Hardening and loss of strength due to elastomer degradation (ultraviolet radiation)	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Ductwork	PB	Aluminum Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Ductwork	PB	Zinc Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Ductwork	PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Ductwork	PB	Zinc Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Ductwork	PB	Aluminum Alloy	Outside Air (external)	None	None	V.E.1-b	None	*F, 2
Ductwork	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Fire Dampers	FB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Fire Dampers	FB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3

**Table 3.2.2.1: Containment System (064) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	V.E.1-b	None	*G, 3
Fittings	PB	Carbon and Low Alloy Steel	Embedded/encased (external)	None	None	V.E.1-b	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Fittings	PB	Glass	Air/gas (internal), Treated Water (internal)	None	None	V.C.1-a	None	*F, 2
Fittings	PB	Glass	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2

**Table 3.2.2.1: Containment System (064) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 4
Fittings	PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Flexible Connectors	PB	Nickel Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Flexible Connectors	PB	Nickel Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Flexible Connectors	PB	Nickel Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Flexible Connectors	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Flexible Connectors	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	D
Heat Exchangers	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Heat Exchangers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*H, 3
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	C

**Table 3.2.2.1: Containment System (064) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Aluminum Alloy	Air/gas (internal)	Fouling due to particulate buildup.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Heat Exchangers	HT, PB	Copper Alloy	Air/gas (internal)	Fouling due to particulate buildup.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Heat Exchangers	HT, PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Heat Exchangers	HT, PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Fouling due to biological and particulate build up. Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	None	None	*J, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	V.E.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Embedded/encased (external)	None	None	V.E.1-b	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 4

**Table 3.2.2.1: Containment System (064) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to galvanic, crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 4
Strainers	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Strainers	DP, PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Strainers	DP, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Traps	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Traps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2



**Table 3.2.2.1: Containment System (064) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	D
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 5
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B

**Table 3.2.2.1: Containment System (064) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 4

**Table 3.2.2.2: Standby Gas Treatment System (065) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Copper Alloy	Inside Air (external)	None	None	V.E.2-a	None	F,
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F, 2
Ductwork	PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.B.1-a	3.2.1.3	A
Ductwork	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Ductwork	PB, SS	Elastomers - Neoprene	Air/gas (internal)	None	None	V.B.1-b	None	*I,
Ductwork	PB, SS	Elastomers - Neoprene	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Ductwork	PB, SS	Aluminum Alloy	Air/gas (internal)	None	None	V.B.1-a	None	*F,
Ductwork	PB, SS	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Ductwork	PB, SS	Stainless Steel	Air/gas (internal)	None	None	V.B.1-a	None	*F, 4
Ductwork	PB, SS	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.B.1-a	3.2.1.3	A, 2

**Table 3.2.2.2: Standby Gas Treatment System (065) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, general, pitting, and crevice corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	V.E.1-b	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Cast Iron and Cast Iron Alloys	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Fittings	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Fittings	PB	Elastomers - Silicon sealant	Air/gas (internal)	None	None	None	None	*J, 3
Fittings	PB	Elastomers - Silicon sealant	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 3
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings	PB	Polymers	Air/gas (internal)	None	None	None	None	*J, 4
Fittings	PB	Polymers	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings - test ports	PB	Zinc Alloys	Air/gas (internal)	None	None	None	None	*J, 4
Fittings - test ports	PB	Zinc Alloys	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Flexible Connectors	PB	Elastomers - Neoprene	Air/gas (internal)	None	None	V.B.1-b	None	*I, 3
Flexible Connectors	PB	Elastomers - Neoprene	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.B.1-a	3.2.1.3	C, 2
Piping	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, general, pitting, and crevice corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	V.E.1-b	None	*G, 2

**Table 3.2.2.2: Standby Gas Treatment System (065) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 4
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.B.1-a	3.2.1.3	C, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 4
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 4
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I, 2
Condenser	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Condenser	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Condenser	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Condenser	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 4
Condenser	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Condenser	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Expansion Joint	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Expansion Joint	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Expansion Joint	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H,5
Expansion Joint	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.1-f	3.2.1.14	C, 6
Expansion Joint	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Expansion Joint	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Expansion Joint	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 3
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*G, 3
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	V.D2.1-a	None	*G, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, 5
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to galvanic, crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*G, 3
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	V.D2.1-b	3.2.1.1	A, 6
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.1-f	3.2.1.14	A
Fittings	PB	Cast Iron and Cast Iron Alloys	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 3
Fittings	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Fittings	PB	Glass	Lubricating Oil (internal)	None	None	None	None	*J, 4
Fittings	PB	Glass	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 4

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Copper Alloy	Lubricating Oil (internal)	None	None	V.D2.1-a	None	*G, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice corrosion, galvanic corrosion, pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 3
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.1-a	None	*F, 3
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.1-c	None	*G, 4
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings	PB	Stainless Steel	Lubricating Oil (internal)	None	None	V.D2.1-c	None	*G, 4
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	V.D2.1-b	3.2.1.1	A
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 3
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	B
Fittings	PB	Stainless Steel	Treated Water (internal)	None	None	V.D2.1-d	None	*I, 6
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*G, 7, 8
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3, 8
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	3.1.1.7	A, 8

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-a	3.1.1.25	A, 6, 8
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*H, 5, 8
Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-e	3.1.1.1	A, 8
Fittings - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 4, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B, 8
Flexible Connectors	PB	Elastomer	Air/gas (internal)	None	None	None	None	J, 4
Flexible Connectors	PB	Elastomer	Inside Air (external)	Elastomer degradation due to ultraviolet radiation.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Flexible Connectors	PB	Non-ferrous-Nickel Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Flexible Connectors	PB	Non-ferrous-Nickel Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3



**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Flexible Connectors	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Flexible Connectors	PB	Stainless Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Gland Seal Blower	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Gland Seal Blower	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Heat Exchangers	HT, PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 4
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Fouling product buildup due to particulates Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	V.D2.1-a	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, 5
Piping	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to galvanic, crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*G, 3

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	V.D2.1-b	3.2.1.1	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.1-f	3.2.1.14	A, 6
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.1-c	None	*G, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	V.D2.1-b	3.2.1.1	A
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	B
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 3
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.D2.1-d	None	*I, 6
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*G, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*G, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 7
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-a	3.1.1.25	A, 6

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*H, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-e	3.1.1.1	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 4
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.2-a	3.2.1.2, 3.2.1.4	B
Pumps	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Cast Iron and Cast Iron Alloys	Lubricating Oil (internal)	None	None	None	None	*J, 4
Pumps	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.2-a	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.2-a	None	*F, 3
Restricting Orifice	FR, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Restricting Orifice	FR, PB	Stainless Steel	Lubricating Oil (internal)	None	None	V.D2.1-c	None	*G, 4
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 3
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	D
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	None	None	*J, 4
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29) System Monitoring Program (B.2.1.39)	IV.C1.1-i	3.1.1.7	C
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Strainers	DP, PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Strainers	DP, PB	Cast Iron and Cast Iron Alloys	Lubricating Oil (internal)	None	None	None	None	*J, 4
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Tanks	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Traps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Traps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Traps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.1-f	3.2.1.14	C, 6
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 4
Tubing	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 4
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Tubing	PB	Stainless Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 3
Turbines	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Turbines	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	V.D2.3-b	None	*G, 4
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.3-a	3.2.1.14	A, 6
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*H, 3
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	3.2.1.2, 3.2.1.4	B
Valves	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloys	Lubricating Oil (internal)	None	None	V.D2.3-b	None	*G, 4
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 4

**Table 3.2.2.3: High Pressure Coolant Injection System (073) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Lubricating Oil (internal)	None	None	V.D2.3-b	None	*G, 4
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.3-c	None	*G, 4
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Valves	PB	Stainless Steel	Lubricating Oil (internal)	None	None	V.D2.3-c	None	*G, 4
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-c	None	*H, 5
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.3-c	3.2.1.16	B
Valves - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*G, 3
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-a	None	*G, 7
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.3-a	3.1.1.25	A, 6
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*H, 5
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 4
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 5
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A,

**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J,
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F,
Bolting	MC, SS	Stainless Steel	Treated Water (external)	Loss of bolting function due to crevice and pitting corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	None	F, 3
Fittings	SPR, FR, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.D2.1-a	None	*G, 3, 6
Fittings	SPR, FR, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.D2.5-a	3.2.1.3	A, 6
Fittings	SPR, FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A, 6
Fittings	SPR, FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-a	None	*H, 3, 6
Fittings	SPR, FR, PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to galvanic, crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.E.1-b	None	*G, 3, 6
Fittings	SPR, FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	B, 6
Fittings	SPR, FR, PB	Copper Alloy	Air/gas (internal)	None	None	V.D2.1-c	None	*F, 4, 6



**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	SPR, FR, PB	Copper Alloy	Air/gas (internal)	None	None	V.D2.5-a	None	*F, 4, 6
Fittings	SPR, FR, PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 4, 6
Fittings	SPR, FR, PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 4, 6
Fittings	SPR, FR, PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-c	None	*F, 3, 6
Fittings	SPR, FR, PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.1-c	None	*F, 3, 6
Fittings	SPR, FR, PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-c	None	*F, 3, 6
Fittings	SPR, FR, PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.1-c	None	*G, 4, 6
Fittings	SPR, FR, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4, 6
Fittings	SPR, FR, PB	Stainless Steel	Treated Water (external)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.E.1-b	None	*F, 3, 6
Fittings	SPR, FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	B, 6
Fittings	SPR, FR, PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.E.1-b	None	*F, 3, 6
Fittings	SPR, FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-c	None	*H, 3, 6
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*F, 1

**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	IV.C1.1-f	None	*F, 3
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G, 4
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 4
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	IV.C1.1-f	None	*H, 3
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.1-f	3.1.1.29	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	None	None	IV.C1.1-g	None	*I,
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection (B.2.1.29)	IV.C1.1-i	3.1.1.7	A

**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	IV.C.1.1-i	None	*H, 3
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.D2.4-a	3.2.1.12	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.D2.4-a	None	*H, 3
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	None	None	V.D2.4-b	None	*1, 5
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.4-a	None	E, 3
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.4-a	None	*H, 3
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloys	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.D2.4-a	None	*F, 3
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloys	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.4-a	None	*H, 3
Heat Exchangers	HT, PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.D2.4-a	3.2.1.12	A
Heat Exchangers	HT, PB	Stainless Steel	Raw Water (internal)	Fouling product buildup due to particulate.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.D2.4-b	None	*H, 3

**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Stainless Steel	Raw Water (internal)	Fouling product buildup due to biological.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.D2.4-b	3.2.1.12	A
Heat Exchangers	HT, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program One-Time Inspection (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.4-a	None	*H, 3
Heat Exchangers	HT, PB	Stainless Steel	Treated Water (internal)	Fouling product buildup due to particulate. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.4-a	None	E, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.D2.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.D2.5-a	3.2.1.3	A
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-a	None	*H, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to galvanic, crevice, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.E.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	B
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.1-c	None	*G, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-c	None	*H, 3

**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	B
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	IV.C1.1-f	None	*F, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*F, 1
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	IV.C1.1-f	None	*F, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G, 4
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G,4
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.1-f	3.1.1.29	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	IV.C1.1-f	None	*H, 3
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	IV.C1.1-i	3.1.1.7	B

**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	IV.C.1.1-i	3.1.1.7	*H, 3
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection (B.2.1.29)	IV.C.1.1-i	3.1.1.7	A
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.2-a	3.2.1.2, 3.2.1.4	B
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.2-a	None	*H, 3
Pumps	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.2-a	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.2-a	None	*F, 3
Restricting Orifice	FR, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (external)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.E.1-b	None	*F, 3
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D

**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.E.1-b	None	*F, 3
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-c	None	*H, 3
Strainers	DP, PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Strainers	DP, PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	None	None	*J, 3
Strainers	DP, PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Strainers	DP, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Strainers	DP, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-c	None	*H, 3
Strainers	DP, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.1-c	None	*J, 4
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.1-c	None	*H, 3
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D

**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.D2.3-b	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.3-b	None	*H, 3
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.3-b	3.2.1.2, 3.2.1.4	B
Valves	PB	Cast Iron and Cast Iron Alloys	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.D2.3-b	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.3-b	None	*F, 3
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.3-c	None	*G, 4
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.3-c	3.2.1.16	B
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection (B.2.1.29)	V.D2.3-c	None	*H, 3
Valves - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	IV.C1.3-a	None	*G, 3



**Table 3.2.2.4: Residual Heat Removal System (074) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-a	None	*G, 1
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	<b>3.1.1.1</b>	A
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program ( <b>B.2.1.5</b> ) One-Time Inspection ( <b>B.2.1.29</b> )	IV.C1.3-a	None	*H, 3
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-b	None	*G, 4
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking ( <b>B.2.1.10</b> ) Chemistry Control Program ( <b>B.2.1.5</b> )	IV.C1.3-c	<b>3.1.1.29</b>	B
Valves - RCPB	PB	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture due to thermal aging.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program ( <b>B.2.1.4</b> )	IV.C1.3-b	<b>3.1.1.23</b>	A
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program ( <b>B.2.1.5</b> ) One-Time Inspection ( <b>B.2.1.29</b> )	IV.C1.3-c	None	*H, 3
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	<b>3.1.1.1</b>	A

**Table 3.2.2.5: Core Spray System (075) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I, 2
Fittings	FR, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	G, 3, 8
Fittings	FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A, 8
Fittings	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	B, 8
Fittings	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, 4, 8
Fittings	FR, PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 5, 8
Fittings	FR, PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 3, 8
Fittings	FR, PB	Stainless Steel	Air/Gas (internal)	None	None	V.D2.1-a	None	*F, 5, 8
Fittings	FR, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5, 8
Fittings	FR, PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*F, 3, 8
Fittings	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 3, 8
Fittings	FR, PB	Stainless Steel	Treated Water (internal)	None	None	V.D2.1-c	None	*I, 6, 8

**Table 3.2.2.5: Core Spray System (075) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB (F.5)	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*F, 7
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 7
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB (F.5)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*F,3
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 5
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3

**Table 3.2.2.5: Core Spray System (075) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, 4
Piping	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	B
Piping	FR, PB	Stainless Steel	Air/Gas (internal)	None	None	V.D2.1-a	None	*F, 5
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 3
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.D2.1-c	None	*I, 6
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*F, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*F, 3
Piping - RCPB (F.5)	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G,7
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 7
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A

**Table 3.2.2.5: Core Spray System (075) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB (F.5)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*F, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 5
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.2-a	3.2.1.2, 3.2.1.4	B
Pumps	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3

**Table 3.2.2.5: Core Spray System (075) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Pumps	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Restricting Orifice	FR, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*F, 3
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 5
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	D
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	C

**Table 3.2.2.5: Core Spray System (075) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Strainers	DP, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Strainers	DP, PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.5)	V.E.1-b	None	*F, 3
Strainers	DP, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.5)	None	None	*J, 3
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.5)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Tubing	PB	Polymer	Air/Gas (internal)	None	None	V.D2.1-a	None	*F, 5
Tubing	PB	Polymer	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.5)	None	None	J, 3
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A

**Table 3.2.2.5: Core Spray System (075) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	3.2.1.2, 3.2.1.4	B
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	H, 4
Valves	PB	Cast Iron and Cast Iron Alloys	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.D2.3-b	None	F, 3
Valves	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	F, 3
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	F, 5
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	F, 3
Valves - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	F, 3
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-c	None	F, 7
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*F, 3
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 5
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to thermal aging.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.C1.3-b	3.1.1.23	A



**Table 3.2.2.5: Core Spray System (075) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 3
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A

**Table 3.2.2.6: Containment Inerting System (076) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	G, 3
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Cast Iron and Cast Iron Alloys	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 3
Fittings	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	F, 3
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F,
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	A
Flexible Connectors	PB	Nickel Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Flexible Connectors	PB	Nickel Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Heat Exchangers	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Heat Exchangers	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Heat Exchangers	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	C
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A

**Table 3.2.2.6: Containment Inerting System (076) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Pumps	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Pumps	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Strainers	DP, PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Strainers	DP, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Traps	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Traps	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5 3.2.1.6	C
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Aluminum Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2
Valves	PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2

**Table 3.2.2.6: Containment Inerting System (076) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	A

**Table 3.2.2.7: Containment Atmosphere Dilution System (084) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	V.E.2-b	None	I, 1
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F,
Bolting	MC, SS	Stainless Steel	Outside Air (external)	None	None	V.E.2-a	None	F, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Cast Iron and Cast Iron Alloys	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.C.1-a	None	*F, 3
Fittings	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Fittings	PB	Stainless Steel	Buried (external)	Crack initiation/growth due to SCC. Loss of material due to MIC, crevice and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	V.E.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Outside Air (external)	None	None	V.E.1-b	None	*F, 2
Flex Hose	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Flex Hose	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Heat Exchangers	PB	Stainless Steel	Air/gas (internal)	Fouling product buildup due to particulate.	One-Time Inspection (B.2.1.29)	None	None	*J, 3
Heat Exchangers	PB	Stainless Steel	Outside Air (external)	None	None	V.E.1-b	None	*F, 2

**Table 3.2.2.7: Containment Atmosphere Dilution System (084) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	V.C.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Piping	PB	Stainless Steel	Buried (external)	Crack initiation/growth due to SCC. Loss of material due to MIC, crevice and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	V.E.1-b	None	*F, 3
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Piping	PB	Stainless Steel	Outside Air (external)	None	None	V.E.1-b	None	*F, 2
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	None	None	*J, 3
Tanks	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Tanks	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Tanks	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Tubing	PB	Copper Alloy	Outside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Outside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Aluminum Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2

**Table 3.2.2.7: Containment Atmosphere Dilution System (084) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2
Valves	PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Stainless Steel	Outside Air (external)	None	None	V.E.1-b	None	*F, 2

**Table 3.3.2.1: Auxiliary Boiler System (012) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, general, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39) One-Time Inspection Program (B.2.1.29)	V.E.1-b	3.2.1.10	A,

**Table 3.3.2.1: Auxiliary Boiler System (012) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	E
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H,
Fittings	PB	Stainless Steel	Air/gas (internal) - moist air	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F,
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, general, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39) One-Time Inspection Program (B.2.1.29)	V.E.1-b	3.2.1.10	A, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	E
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, 4
Piping	PB	Stainless Steel	Air/gas (internal) - moist air	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Traps	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*G, 2
Traps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A



**Table 3.3.2.1: Auxiliary Boiler System (012) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Stainless Steel	Air/gas (internal) - moist air	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 2
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*H, 2
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	E
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) - moist air	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.3-b	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) - moist air	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Valves	PB	Copper Alloy	Air/gas (internal) - moist air	Loss of material due to crevice, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*F, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 5
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*F, 4
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*F, 2

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I,
Fittings	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.G.8-a	None	*G,
Fittings	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H1.4-a	None	*G, 2
Fittings	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.5-a	None	*G, 2
Fittings	DP, PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G,
Fittings	DP, PB	Carbon and Low Alloy Steel	Embedded/ Encased (external)	None	None	VII.1.1-b	None	*G,
Fittings	DP, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*H, 3
Fittings	DP, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.G.8-a	None	I,
Fittings	DP, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	3.3.1.7	B
Fittings	DP, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	3.3.1.7	B
Fittings	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	DP, PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	None	None	VII.G.8-a	None	*F, 2
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	None	None	VII.H1.4-a	None	*F, 2

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	None	None	VII.H2.5-a	None	*F, 2
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.I.1-b	None	*F, 3
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.I.1-b	None	*F, 3
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Embedded/ Encased (external)	None	None	VII.I.1-b	None	*F, 4
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*F, 3
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	*F, 3
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 3
Fittings	DP, PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 3
Fittings	DP, PB	Aluminum Alloy and Copper Alloy	Air/gas (internal)	None	None	VII.G.8-a	None	*F, 4
Fittings	DP, PB	Copper Alloy	Air/gas (internal)	None	None	VII.H1.4-a	None	*F, 4
Fittings	DP, PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.5-a	None	*F, 4
Fittings	DP, PB	Copper Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	F, 3

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	DP, PB	Copper Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	F, 3
Fittings	DP, PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 4
Fittings	DP, PB	Aluminum Alloy and Copper Alloy	Outside Air (external)	None	None	VII.1.1-b	None	*F, 4
Fittings	DP, PB	Stainless Steel	Air/gas (internal)	None	None	VII.G.8-a	None	*F, 4
Fittings	DP, PB	Stainless Steel	Air/gas (internal)	None	None	VII.H2.5-a	None	*F, 4
Fittings	DP, PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*F, 3
Fittings	DP, PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Fittings	DP, PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	*F, 3
Fittings	DP, PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4
Fittings	DP, PB	Stainless Steel	Outside Air (external)	None	None	VII.1.1-b	None	*F, 4
Flex Hose	PB	Elastomer - Rubber	Fuel Oil (internal)	Elastomer degradation due to oxidation	One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*F, 4
Flex Hose	PB	Elastomer - Rubber	Fuel Oil (internal)	Elastomer degradation due to oxidation	One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	*F, 4
Flex Hose	PB	Elastomer - Rubber	Inside Air (external)	Elastomer degradation due to ultraviolet radiation.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 3
Flex Hose	PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*F, 3

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Flex Hose	PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Flex Hose	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.G.8-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H1.4-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.5-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Embedded/Encased (external)	None	None	VII.1.1-b	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.G.8-a	None	I, 5
Piping	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*H, 3
Piping	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	3.3.1.7	B
Piping	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	3.3.1.7	B
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4
Pumps	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*H, 3
Pumps	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.G.8-a	None	I, 5
Pumps	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	3.3.1.7	B
Pumps	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	3.3.1.7	B
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Pumps	PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 3
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.G.8-a	None	I, 5

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*H, 3
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	3.3.1.7	B
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Restricting Orifice	FR, PB	Copper Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	F, 3
Restricting Orifice	FR, PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 4
Strainers	DP, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*H, 3
Strainers	DP, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.G.8-a	None	I, 5
Strainers	DP, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	3.3.1.7	B
Strainers	DP, PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	3.3.1.7	B
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*F, 3

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	*F, 3
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 3
Strainers	DP, PB	Nickel Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Strainers	DP, PB	Aluminum Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Strainers	DP, PB	Aluminum Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4
Strainers	DP, PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	*F, 3
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.G.8-a	None	*G, 2
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H1.4-a	None	*G, 2
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.5-a	None	*G, 2
Tanks	PB	Carbon and Low Alloy Steel	Embedded/ Encased (external)	None	None	VII.1.1-b	None	*G, 4
Tanks	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*H, 5



**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tanks	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to crevice, general, and pitting corrosion.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	E
Tanks	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.G.8-a	None	I,
Tanks	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	3.3.1.7	B
Tanks	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.H1.4-a	None	I,
Tanks	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	3.3.1.7	B
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tubing	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.G.8-a	None	I, 5
Tubing	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*H, 3
Tubing	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	3.3.1.7	B
Tubing	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tubing	PB	Copper Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	F, 3
Tubing	PB	Copper Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	F, 3

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 4
Tubing	PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H1.4-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.5-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	*H, 3
Valves	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	None	None	VII.G.8-a	None	I, 5
Valves	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	3.3.1.7	B
Valves	PB	Carbon and Low Alloy Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	3.3.1.7	B
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	None	None	VII.H1.4-a	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	None	None	VII.H2.5-a	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3

**Table 3.3.2.2: Fuel Oil System (018) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Cast Iron and Cast Iron Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 3
Valves	PB	Copper Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.G.8-a	None	F, 3
Valves	PB	Copper Alloy	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	F, 3
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 4
Valves	PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H1.4-a	None	*F, 3
Valves	PB	Stainless Steel	Fuel Oil (internal)	Loss of material due to MIC.	Fuel Oil Chemistry Program (B.2.1.27) One-Time Inspection Program (B.2.1.29)	VII.H2.5-a	None	*F, 3
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2

**Table 3.3.2.3: Residual Heat Removal Service Water System (023) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to pitting corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	H, 6
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	VII.1.2-b	None	I, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Raw Water (external)	Loss of bolting function due to MIC, crevice, general, and pitting corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	G, 2
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.1.2-a	None	F, 3
Bolting	MC, SS	Stainless Steel	Outside Air (external)	None	None	VII.1.2-a	None	F, 3
Bolting	MC, SS	Stainless Steel	Raw Water (external)	Loss of bolting function due to MIC, crevice and pitting corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	G, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice corrosion, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.C1.1-b	3.3.1.18	A
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to pitting corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*H, 6
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.1.1-b	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A

**Table 3.3.2.3: Residual Heat Removal Service Water System (023) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.I.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.1-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	None	*F, 2
Fittings	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 2
Fittings	PB	Polymer	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Polymer	Treated Water (internal)	None	None	VII.C1.1-a	None	*F, 3
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	VII.C1.1-a	None	*G, 3
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII I.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	<b>3.3.1.17</b>	A
Fittings	PB	Stainless Steel	Raw Water (internal)	None	None	VII.C1.1-a	None	*1, 7

**Table 3.3.2.3: Residual Heat Removal Service Water System (023) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.C.1.1-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C.1.1-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to crevice, general, and pitting corrosion and MIC.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.C.1.1-b	3.3.1.18	A
Piping	PB	Carbon and Low Alloy Steel	Embedded/ Encased (external)	None	None	VII.I.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to pitting corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*H, 6
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C.1.1-a	3.3.1.17	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.C.1.1-a	None	*G, 2
Piping	PB	Cast Iron and Cast Iron Alloy	Embedded/ Encased	None	None	VII.I.1-b	None	*G, 3
Piping	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.I.1-b	None	*F, 2
Piping	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C.1.1-a	None	*F, 2
Piping	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*F, 2

**Table 3.3.2.3: Residual Heat Removal Service Water System (023) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	None	*F, 2
Piping	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Piping	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 2
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	VII.C1.1-a	None	*G, 3
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Piping	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Piping	PB	Stainless Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*F, 2
Piping	PB	Stainless Steel	Raw Water (internal)	None	None	VII.C1.1-a	None	*I, 7
Piping	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII C1.1-a	3.3.1.17	A
Pumps	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Pumps	PB	Carbon and Low Alloy Steel	Raw Water (external)	Loss of material due to biofouling, MIC, galvanic, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*G, 2
Pumps	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII C1.5-a	3.3.1.17	A
Pumps	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.5-a	None	*H, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.I.1-b	None	*F, 2
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.5-a	None	*F, 2

**Table 3.3.2.3: Residual Heat Removal Service Water System (023) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*F, 2
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.5-a	None	*F, 2
Pumps	PB	Stainless Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*F, 2
Pumps	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.5-a	None	*F, 2
Restricting Orifice	FR, PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Restricting Orifice	FR, PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.4-a	3.3.1.17	A
Strainers	DP	Carbon and Low Alloy Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*G, 2
Strainers	DP	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	3.3.1.17	A
Strainers	DP	Stainless Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*F, 2
Strainers	DP	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	3.3.1.17	A
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Tubing	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	None	C, 2
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to pitting corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*H, 6
Valves	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A



**Table 3.3.2.3: Residual Heat Removal Service Water System (023) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Raw Water (external)	Loss of material due to biofouling, MIC, galvanic, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	None	*H, 4
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*G, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.I.1-b	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.2-a	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.I.1-b	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	None	*F, 2
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	VII.C1.2-a	None	*G, 3
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.2-a	3.3.1.29	A
Valves	PB	Aluminum Alloy and Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice corrosion and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*G, 2

**Table 3.3.2.3: Residual Heat Removal Service Water System (023) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	VII.C1.2-a	None	*G, 3
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program ( <b>B.2.1.17</b> ) One-Time Inspection Program ( <b>B.2.1.29</b> )	VII.C1.2-a	<b>3.3.1.17</b>	A, 5

**Table 3.3.2.4: Raw Cooling Water System (024) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.I.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.I.2-b	None	I, 1
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.I.2-a	None	F, 2
Expansion Joint	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Expansion Joint	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 3
Expansion Joint	PB	Elastomer	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Expansion Joint	PB	Elastomer	Raw Water (internal)	None	None	None	None	*J, 2
Fittings	FR, PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 3, 4
Fittings	FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A, 4
Fittings	FR, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, general, galvanic, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A, 4
Fittings	FR, PB	Cast Iron and Cast Iron Alloy	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	F, 3, 4
Fittings	FR, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	None	F, 3, 4
Fittings	FR, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, general, galvanic, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	None	F, 4, 6
Fittings	FR, PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 4, 2
Fittings	FR, PB	Copper Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, galvanic, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A, 4
Fittings	FR, PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.1-a	3.3.1.29	A, 4

**Table 3.3.2.4: Raw Cooling Water System (024) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	FR, PB	Polymer	Air/Gas (internal) Inside Air (external)	None	None	VII.C1.1-a	None	*F, 2, 4
Fittings	FR, PB	Polymer	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2, 4
Fittings	FR, PB	Stainless Steel	Air/Gas (internal)	None	None	VII.C1.1-a	None	*G, 2, 4
Fittings	FR, PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4, 2
Fittings	FR, PB	Stainless Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A, 4
Fittings	FR, PB	Stainless Steel	Raw Water (internal)	None	None	VII.C1.1-a	None	*I, 4, 9
Fittings	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*F, 4, 7
Flex Hose	PB	Stainless Steel	Inside Air (external)	None	None	VIII.1.1-b	None	*F, 2
Flex Hose	PB	Stainless Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	C, 3
Piping	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, pitting and galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A
Piping	PB	Polymer	Air/Gas (internal)	None	None	VII.C1.1-a	None	*F, 2
Piping	PB	Polymer	Inside Air (external)	None	None	VIII.1.1-b	None	*F, 2
Piping	PB	Stainless Steel	Air/Gas (internal)	None	None	VII.C1.1-a	None	*G, 2
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VIII.1.1-b	None	*F, 2
Piping	PB	Stainless Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A

**Table 3.3.2.4: Raw Cooling Water System (024) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Raw Water (internal)	None	None	VII.C1.1-a	None	*I, 9
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.5-a	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.5-a	None	*F, 3
Strainers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Strainers	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	None	*H, 3
Strainers	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	3.3.1.17	A
Strainers	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	F, 2
Strainers	PB	Stainless Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	3.3.1.17	A, 3
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 2
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, galvanic, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	C, 3, 8
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	C, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	None	*H, 3

**Table 3.3.2.4: Raw Cooling Water System (024) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Cast Iron and Cast Iron Alloy	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, pitting and galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.2-a	None	*F, 3
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.2-a	3.3.1.29	A
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 2
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	None	*H, 3
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A

**Table 3.3.2.5: Raw Service Water System (025) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	V.E.2-b	None	I, 1

**Table 3.3.2.5: Raw Service Water System (025) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	A
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*H, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to selective leaching	Selective Leaching of Materials Program (B.2.1.30)	V.E.1-b	None	*G,
Fittings	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to MIC, general, crevice, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	V.E.1-b	None	*G, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, general, galvanic, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*F, 2
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F,
Fittings	PB	Copper Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*F, 2
Fittings	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*F, 2

**Table 3.3.2.5: Raw Service Water System (025) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*H, 2
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Tanks	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Tanks	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	C, 2
Tubing	PB	Copper Alloy	Buried (external)	Loss of material due to MIC, crevice and pitting.	Buried Piping and Tanks Inspection Program (B.2.1.31)	V.E.1-b	None	*G, 2
Tubing	PB	Copper Alloy	Buried (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.E.1-b	None	*G, 2
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, galvanic, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	None	None	*J, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, general, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*H, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2



**Table 3.3.2.5: Raw Service Water System (025) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, general, galvanic, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*F, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Valves	PB	Copper Alloy	Outside Air (external)	None	None	V.E.1-b	None	*F, 3
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, galvanic, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*F, 2
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*F, 2

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Buried (external)	Loss of bolting function due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31) Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	G,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	VII.1.2-b	None	I, 2
Bolting	MC, SS	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of bolting function due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31) Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	F, 1
Bolting	MC, SS	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of bolting function due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30) Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	F, 1
Fan (Housings)	PB	Aluminum Alloy	Air/gas (internal)	None	None	None	None	*J,
Fan (Housings)	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Fire Hose Stations	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fire Hydrants	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 1

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fire Hydrants	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.1.1-b	None	*G, 1
Fire Hydrants	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 1
Fire Hydrants	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	None	None	VII.G.6-b	None	*I,
Fire Hydrants	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-b	None	*H, 2
Fire Hydrants	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	None	*G, 1
Fittings	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 1
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general corrosion, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	3.3.1.21	B
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	None	*G, 1
Fittings	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 1
Fittings	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.1.1-b	None	*G, 1

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 1
Fittings	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 1
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-a	None	*H, 1
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	3.3.1.21	B
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-a	None	*G, 1
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.G.6-a	None	*G, 1
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	VII.G.6-a	None	*F, 3
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 3
Fittings	PB	Copper Alloy	Outside Air (external)	None	None	VII.1.1-b	None	*F, 3
Fittings	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-a	None	*F, 1
Fittings	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	None	*F, 1
Fittings	PB	Glass	Air/gas (internal) AFFF (internal)	None	None	VII.G.6-a	None	*F, 3
Fittings	PB	Glass	Inside Air (external) AFFF (internal)	None	None	VII.1.1-b	None	*F, 3
Fittings	PB	Stainless Steel	AFFF (internal)	None	None	VII.G.6-a	None	*G, 3

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	3.3.1.21	B
Flexible Connectors	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Flexible Connectors	PB	Elastomer (Rubber, reinforced fabric)	Inside Air (external)	Elastomer degradation due to ultraviolet radiation.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 1
Flexible Connectors	PB	Elastomer (Rubber, reinforced fabric)	Raw Water (internal) Air/gas (internal)	None	None	None	None	*J, 3
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Flexible Connectors	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	3.3.1.21	D, 1
Heat Exchangers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 1
Heat Exchangers	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 1
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	D, 1
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	None	None	VII.G.6-b	None	*I,
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-b	None	*H, 1
Heat Exchangers	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 1

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice corrosion, pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 1
Heaters	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Heaters	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 1
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	None	*G, 1
Piping	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 1
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	3.3.1.21	B
Piping	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	None	*G, 1
Piping	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 1
Piping	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.1.1-b	None	*G, 1
Piping	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 1

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-a	None	*H, 1
Piping	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general corrosion, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	3.3.1.21	B
Piping	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice corrosion, galvanic corrosion, general corrosion, pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.G.6-a	None	*G, 1
Piping	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-a	None	*G, 1
Piping	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Piping	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-a	None	*F, 1
Piping	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	None	*F, 1
Piping	PB	Stainless Steel	AFFF (internal)	None	None	VII.G.6-a	None	*G, 3
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Piping	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	3.3.1.21	B
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 1
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.I.1-b	None	*F, 1
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-b	None	*H, 1
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (external)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.I.1-b	None	*F, 1

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Restricting Orifice	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 3
Restricting Orifice	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Restricting Orifice	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	None	None	*J, 1
Restricting Orifice	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 1
Silencer	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 1
Silencer	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Sprinkler Heads	PB, SPR	Copper Alloy	Air/gas (internal)	None	None	VII.G.6-b	None	*G, 3
Sprinkler Heads	PB, SPR	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Sprinkler Heads	PB, SPR	Copper Alloy	Raw Water (internal)	None	None	VII.G.6-b	None	*I,
Sprinkler Heads	PB, SPR	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-b	None	*H, 1
Sprinkler Heads	PB, SPR	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	None	*G, 1



**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 1
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-b	None	*H, 1
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Strainers	DP, PB	Nickel Based Alloys	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	None	*F, 1
Strainers	DP, PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Strainers	DP, PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-b	None	*H, 1
Strainers	DP, PB	Copper Alloy	Raw Water (internal)	None	None	VII.G.6-b	None	*I,
Strainers	DP, PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Strainers	DP, PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 1
Tanks	PB	Elastomer Buna N	Treated Water (internal)	None	None	None	None	*J, 3
Tubing	PB	Copper Alloy	AFFF (internal) Inside Air (external)	None	None	VII.1.1-b	None	F, 3
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 1

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, and pitting corrosion.	Fire Water System Program (B.2.1.24)	None	None	*J, 1
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-a	3.3.1.21	D, 1
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	None	*G, 1
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.G.6-b	None	*G, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	None	*G, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.I.1-b	None	*G, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Buried (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.I.1-b	None	*G, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B

**Table 3.3.2.6: High Pressure Fire Protection System (026) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-b	None	*H, 1
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	VII.G.6-b	None	*G, 3
Valves	PB	Copper Alloy	Buried (external)	Loss of material due to MIC, crevice, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.I.1-b	None	*G, 1
Valves	PB	Copper Alloy	Buried (external)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.I.1-b	None	*G, 1
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Valves	PB	Copper Alloy	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.G.6-b	None	*H, 1
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B
Valves	PB	Copper Alloy	Raw Water (internal)	None	None	VII.G.6-b	None	*I,
Valves	PB	Stainless Steel	AFFF (internal)	None	None	VII.G.6-b	None	*G, 3
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Fire Water System Program (B.2.1.24)	VII.G.6-b	3.3.1.21	B

**Table 3.3.2.7: Potable Water System (029) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	V.E.2-b	None	I, 1
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H,
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to general, crevice, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*I,
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F,
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to general, crevice, pitting, and galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 4
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F,
Fittings	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 4
Fittings	PB	Copper Alloy	Raw Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5

**Table 3.3.2.7: Potable Water System (029) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*I, 3
Fittings	PB	Stainless Steel	Raw Water (internal)	Crack initiation and growth due to SCC	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H,
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	<b>3.2.1.10</b>	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to general, crevice, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*I, 2
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 2
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 5
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to crevice and pitting corrosion. Crack initiation/growth due to SCC	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*I, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	<b>3.2.1.10</b>	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to general, crevice, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*I, 3
Valves	PB	Cast Iron and Alloy - gray	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4
Valves	PB	Cast Iron and Alloy - gray	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 4
Valves	PB	Cast Iron and Alloy - gray	Raw Water (internal)	Loss of material due to general, crevice, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4

**Table 3.3.2.7: Potable Water System (029) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 5
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 4
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 5
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*1, 3
Valves	PB	Stainless Steel	Raw Water (internal)	Crack initiation/growth due to SCC	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6

**Table 3.3.2.8: Ventilation System (030) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	SS, MC	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion	Bolting Integrity Program (B.2.1.16)	VII.I.2-a	3.3.1.24	B
Bolting	SS, MC	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.I.2-b	None	I,
Bolting	SS, MC	Aluminum Alloy	Outside Air (external)	None	None	VII.I.2-a	None	F,
Bolting	SS, MC	Stainless Steel	Inside Air (external)	None	None	VII.I.2-a	None	F, 2
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.F2.1-a VII.F4.1-a	None	I, ,
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	VII.F2.1-a VII.F4.1-a	3.3.1.5	A, 4
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A, 4
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A, 4
Ductwork	DP, PB, SS	Elastomer - Rubber and Silicone Rubber	Air/gas (internal)	None	None	VII.F2.1-a VII.F4.1-a	None	F, 4,
Ductwork	DP, PB, SS	Elastomer - Rubber and Silicone Rubber.	Inside Air (external)	Elastomer degradation due to ultraviolet radiation.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4, 5
Ductwork	DP, PB, SS	Aluminum Alloy	Air/gas (internal)	None	None	VII.F2.1-a VII.F4.1-a	None	*F, 4, 5
Ductwork	DP, PB, SS	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4, 5
Ductwork	DP, PB, SS	Aluminum Alloy	Outside Air (external)	None	None	VII.I.1-b	None	*F, 4, 5

**Table 3.3.2.8: Ventilation System (030) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Ductwork	DP, PB, SS	Zinc Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4, 5
Ductwork	DP, PB, SS	Zinc Alloys	Air/gas (internal)	None	None	VII.F2.1-a VII.F4.1-a	None	*F, 4, 5
Fire Dampers	FB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Fire Protection Program (B.2.1.23)	None	None	*J, 5
Fire Dampers	FB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 5
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	VII.1.2-b	None	I, 1



**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Aluminum Alloy and Copper Alloy	Inside Air (external)	None	None	VII.I.2-a	None	F, 2
Bolting	MC, SS	Copper Alloy	Outside Air (external)	None	None	VII.I.2-a	None	F, 2
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.I.2-a	None	F, 2
Ductwork	DP, PB, SS	Aluminum Alloy	Air/gas (internal)	None	None	VII.F1.1-a	None	*F, 2
Ductwork	DP, PB, SS	Aluminum Alloy	Air/gas (internal)	None	None	VII.F4.1-a	None	*F, 2
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII F1.1-a	None	*I, 3
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII F4.1-a	None	*I, 3
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.1-a	3.3.1.5	A
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.1-a	3.3.1.5	A
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Ductwork	DP, PB, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Ductwork	DP, PB, SS	Elastomer	Air/gas (internal)	None	None	VII.F1.1-b	None	I, 2
Ductwork	DP, PB, SS	Elastomer	Air/gas (internal)	None	None	VII.F4.1-b	None	I, 2

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Ductwork	DP, PB, SS	Elastomer	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Ductwork	DP, PB, SS	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Ductwork	DP, PB, SS	Stainless Steel	Air/gas (internal)	None	None	VII.F1.1-a	None	*F, 2
Ductwork	DP, PB, SS	Stainless Steel	Air/gas (internal)	None	None	VII.F4.1-a	None	*F, 2
Ductwork	DP, PB, SS	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Fire Dampers	FB, PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.1-a	3.3.1.5	C, 4
Fire Dampers	FB, PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.1-a	3.3.1.5	C, 4
Fire Dampers	FB, PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII F1.1-a	None	*1, 3
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII F4.1-a	None	*1, 3
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.1-a	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal) Freon	None	None	VII.F1.3-a	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.1-a	3.3.1.5	A

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal) Freon	None	None	VII.F4.3-a	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.3-a	None	*G, 5
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.3-a	None	*G, 5
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII F1.3-a	3.3.1.15	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*H, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.3-a	None	*H, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.3-a	3.3.1.15	A
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.1-a	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) Freon	None	None	VII.F1.3-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.1-a	None	*F, 4

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) Freon	None	None	VII.F4.3-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.3-a	None	*F, 5
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.3-a	None	*F, 6
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.3-a	None	*F, 5
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F4.3-a	None	*F, 6
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.3-a	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F4.3-a	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.3-a	None	*H, 4
Fittings	PB	Elastomer	Air/gas (internal)	None	None	VII.F1.1-b	None	I, 2
Fittings	PB	Elastomer	Air/gas (internal)	None	None	VII.F4.1-b	None	I, 2
Fittings	PB	Elastomer	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Fittings	PB	Glass	Inside Air (external)	None	None	None	None	*J, 2

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Glass	Air/gas (internal)	None	None	None	None	*J, 2
Fittings	PB	Glass	Air/gas (internal)	None	None	VII.F1.1-a	None	*F, 2
Fittings	PB	Glass	Treated Water (internal) Freon	None	None	VII.F1.3-a	None	*F, 2
Fittings	PB	Glass	Freon	None	None	VII.F1.3-a	None	*F, 2
Fittings	PB	Glass	Raw Water (internal) Potable Water	None	None	VII.F4.3-a	None	*F, 2
Fittings	PB	Glass	Treated Water (internal) Freon	None	None	VII.F4.3-a	None	*F, 2
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	VII.F1.1-a	None	*F, 2
Fittings	PB	Copper Alloy	Air/gas (internal) Freon	None	None	VII.F1.3-a	None	*F, 2
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	VII.F4.1-a	None	*F, 2
Fittings	PB	Copper Alloy	Air/gas (internal) Freon	None	None	VII.F4.3-a	None	*F, 2
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 2
Fittings	PB	Copper Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.3-a	None	*F, 6
Fittings	PB	Copper Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.3-a	None	*F, 5
Fittings	PB	Copper Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F4.3-a	None	*F, 6

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Copper Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.3-a	None	*F, 5
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*F, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.3-a	None	*F, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.3-a	None	*F, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F4.3-a	None	*F, 4
Fittings	PB	Polymer	Air/gas (internal)	None	None	VII.F1.1-a	None	*F, 2
Fittings	PB	Polymer	Air/gas (internal)	None	None	VII.F4.1-a	None	*F, 2
Fittings	PB	Polymer	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Air/gas (internal) Freon	None	None	VII.F1.1-a	None	*F, 2
Fittings	PB	Stainless Steel	Air/gas (internal) Freon	None	None	VII.F1.3-a	None	*F, 2
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	VII.F4.1-a	None	*F, 2
Fittings	PB	Stainless Steel	Air/gas (internal) Freon	None	None	VII.F4.3-a	None	*F, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Raw Water (internal) Potable Water	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.3-a	None	*F, 5

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Raw Water (internal) Potable Water	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.3-a	None	*F, 5
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*F, 4
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.3-a	None	*F, 4
Flexible Connectors	PB	Elastomer	Air/gas (internal)	None	None	VII.F1.1-b	None	I, 2
Flexible Connectors	PB	Elastomer	Air/gas (internal)	None	None	VII.F4.1-b	None	I, 2
Flexible Connectors	PB	Elastomer	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Flexible Connectors	PB	Polymer	Air/gas (internal)	None	None	None	None	*J, 2
Flexible Connectors	PB	Polymer	Air/gas (internal)	None	None	VII.F4.1-b	None	*F, 2
Flexible Connectors	PB	Polymer	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Flexible Connectors	PB	Stainless Steel	Raw Water (internal) Potable Water	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 5, 7
Flexible Connectors	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 4, 7

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*F, 5
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 5
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.1-b	None	*F, 4
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) Freon	None	None	VII.F1.2-a	None	*F, 2



**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) Freon	None	None	VII.F4.2-a	None	*F, 2
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.2-a	None	*F, 6
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*F, 5
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to MIC, biofouling, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*G, 6

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 5
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Copper Alloy	Air/gas (internal) Freon	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII F1.2-a	3.3.1.5	A
Heat Exchangers	HT, PB	Copper Alloy	Air/gas (internal) Freon	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII F4.2-a	3.3.1.5	A
Heat Exchangers	HT, PB	Aluminum Alloy	Air/gas (internal)	Crack initiation/growth due to SCC. Fouling product buildup due to particulate. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Copper Alloy	Air/gas (internal)	Fouling product buildup due to particulate.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*H, 4
Heat Exchangers	HT, PB	Copper Alloy	Air/gas (internal)	None	None	VII.F1.2-a	None	*G, 2
Heat Exchangers	HT, PB	Copper Alloy	Air/gas (internal)	None	None	VII.F4.2-a	None	*G, 2
Heat Exchangers	HT, PB	Copper Alloy	Air/gas (internal)	Fouling product buildup due to particulate.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*H, 4

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Aluminum Alloy	Air/gas (internal)	Crack initiation/growth due to SCC. Fouling product buildup due to particulate. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 2
Heat Exchangers	HT, PB	Copper Alloy	Lubricating Oil (internal)	None	None	VII.F1.2-a	None	*G, 2
Heat Exchangers	HT, PB	Copper Alloy	Lubricating Oil (internal)	None	None	VII.F4.2-a	None	*G, 2
Heat Exchangers	HT, PB	Aluminum Alloy and Copper Alloy	Outside Air (external)	None	None	VII.I.1-b	None	*F, 2
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.2-a	None	*G, 6
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.2-a	None	*G, 4
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Fouling product buildup due to biological and particulate. Loss of material due to MIC, biofouling, crevice, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.F1.2-a	None	*G, 4
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal) Potable Water	Fouling product buildup due to particulate. Loss of material due to crevice, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*G, 5
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal) Potable Water	Fouling product buildup due to particulate. Loss of material due to crevice, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*G, 5

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Fouling product buildup due to biological and particulate. Loss of material due to biofouling, MIC, crevice, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.F4.2-a	None	*G, 4
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F4.2-a	None	*G, 6
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Fouling product buildup due to particulate. Loss of material due to crevice, galvanic, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.2-a	None	*G, 4
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F1.2-a	None	*G, 4
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Fouling product buildup due to particulate. Loss of material due to crevice, galvanic, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.2-a	None	*G, 4
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.F4.2-a	None	*G, 4
Heat Exchangers	HT, PB	Stainless Steel	Air/gas (internal) Freon	None	None	VII.F1.2-a	None	*F, 2
Heat Exchangers	HT, PB	Stainless Steel	Air/gas (internal)	Fouling product buildup due to particulate. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Stainless Steel	Air/gas (internal) Freon	None	None	VII.F4.2-a	None	*F, 2

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Stainless Steel	Air/gas (internal)	Fouling product buildup due to particulate. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 4
Heat Exchangers	HT, PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Heat Exchangers	HT, PB	Stainless Steel	Raw Water (internal)	Fouling product buildup due to biological and particulate. Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.F1.2-a	None	*F, 4
Heat Exchangers	HT, PB	Stainless Steel	Raw Water (internal)	Crack initiation/growth due to SCC. Fouling product buildup due to particulate. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*F, 5
Heat Exchangers	HT, PB	Stainless Steel	Raw Water (internal)	Crack initiation/growth due to SCC. Fouling product buildup due to particulate. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 5
Heaters	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.2-a	None	*F, 4
Heaters	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.2-a	None	*F, 4
Heaters	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal) Freon	None	None	VII.F1.3-a	None	*G, 2

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.3-a	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal) Freon	None	None	VII.F4.3-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.3-a	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.3-a	None	*G, 5
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.3-a	None	*G, 5
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII F1.3-a	3.3.1.15	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII F4.3-a	3.3.1.15	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*H, 4
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.3-a	None	*H, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Raw Water (internal) Potable Water	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F1.3-a	None	*F, 5
Piping	PB	Stainless Steel	Raw Water (internal) Potable Water	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.3-a	None	*F, 5
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*F, 4
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F4.3-a	None	*F, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 5, 7
Pumps	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 6, 7
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 4, 7
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4, 7
Pumps	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 2

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 4, 7
Refrigerant Compressor	PB	Carbon and Low Alloy Steel	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Refrigerant Compressor	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Refrigerant Compressor	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Refrigerant Compressor	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Refrigerant Compressor	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Strainers	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 2, 7
Strainers	DP, PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 5, 7
Strainers	DP, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*H, 4, 7



**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	DP, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	3.3.1.15	C, 4, 7
Strainers	DP, PB	Copper Alloy	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Strainers	DP, PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 2, 7
Strainers	DP, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 4, 7
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4, 7
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	A
Tanks	PB	Carbon and Low Alloy Steel	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 5, 7
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	3.3.1.15	C, 4, 7
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*H, 4, 7
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 2, 7
Tubing	PB	Aluminum Alloy	Air/gas (internal)	None	None	None	None	*J, 2, 7
Tubing	PB	Copper Alloy	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Aluminum Alloy Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Tubing	PB	Copper Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 6, 7
Tubing	PB	Copper Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 5, 7
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4, 7
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 4, 7
Tubing	PB	Polymer	Air/gas (internal)	None	None	None	None	*J, 2, 7
Tubing	PB	Polymer	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2, 7
Tubing	PB	Stainless Steel	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 4, 7
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4, 7

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 5, 7
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	3.3.1.15	C, 4, 7
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.F1.3-a	None	*H, 4, 7
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4, 7
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 5, 7
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal) Potable Water	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 6, 7
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4, 7
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 4, 7

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 2, 7
Valves	PB	Aluminum Alloy	Air/gas (internal)	None	None	None	None	*J, 2, 7
Valves	PB	Aluminum Alloy and Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Valves	PB	Copper Alloy	Outside Air (external)	None	None	VII.1.1-b	None	*F, 2
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 6, 7
Valves	PB	Copper Alloy	Raw Water (internal) Potable Water	Loss of material due to crevice, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 5, 7
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4, 7
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 4, 7
Valves	PB	Polymer	Air/gas (internal)	None	None	None	None	*J, 2, 7
Valves	PB	Polymer	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2, 7
Valves	PB	Stainless Steel	Air/gas (internal) Freon	None	None	None	None	*J, 2, 7
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Valves	PB	Stainless Steel	Outside Air (external)	None	None	VII.1.1-b	None	*F, 2

**Table 3.3.2.9: Heating, Ventilation, and Air Conditioning System (031) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Stainless Steel	Raw Water (internal) Potable Water	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	* J, 5, 7
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	* J, 4, 7

**Table 3.3.2.10: Control Air System (032) - Summary of Aging Management**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Boiling	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of boiling function due to general corrosion.	Boiling Integrity Program (B.2.1.16)	VII.I.2-a	3.3.1.24	B
Boiling	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.I.2-b	None	I, 1
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Compressed Air Monitoring Program (B.2.1.21)	VII.D.1-a	3.3.1.19	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.D.1-a	None	*I, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.D.1-a	None	*G, 3
Fittings	PB	Cast Iron and Cast Iron Alloys	Air/gas (internal)	Loss of material due to general corrosion.	Compressed Air Monitoring Program (B.2.1.21)	VII.D.1-a	None	*F, 6
Fittings	PB	Cast Iron and Cast Iron Alloys	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 6
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	VII.D.1-a	None	*F, 4
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 5
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.D.1-a	None	*G, 3
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.D.1-a	None	*G, 3
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	VII.D.1-a	None	*F, 4
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 5
Flexible Connectors	PB	Nickel Alloy	Air/gas (internal)	None	None	None	None	*J, 4
Flexible Connectors	PB	Nickel Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 5

**Table 3.3.2.10: Control Air System (032) - Summary of Aging Management**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Flexible Connectors	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 5
Heat Exchangers	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Compressed Air Monitoring Program (B.2.1.21)	VII.D.1-a	3.3.1.19	C, 6
Heat Exchangers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Compressed Air Monitoring Program (B.2.1.21)	VII.D.1-a	3.3.1.19	A
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.D.1-a	None	*I, 2
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.D.1-a	None	*G, 3
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	VII.D.1-a	None	*F, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 5
Restricting Orifice	FR, PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Restricting Orifice	FR, PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 5
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Compressed Air Monitoring Program (B.2.1.21)	VII.D.1-a	3.3.1.19	C, 6
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 4
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 5

**Table 3.3.2.10: Control Air System (032) - Summary of Aging Management**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 3
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.D.2-a	None	*I, 4
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Compressed Air Monitoring Program (B.2.1.21)	VII.D.2-a	3.3.1.19	A
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.D.2-a	None	*G, 3
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	VII.D.2-a	None	*F, 4
Valves	PB	Aluminum Alloy	Air/gas (internal)	None	None	VII.D.2-a	None	*F, 4
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 5
Valves	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.D.2-a	None	*G, 3
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.D.2-a	None	*G, 3
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	VII.D.2-a	None	*F, 4



**Table 3.3.2.10: Control Air System (032) - Summary of Aging Management**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5

**Table 3.3.2.11: Service Air System (033) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel.	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G,
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, BF-2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel.	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel.	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2

**Table 3.3.2.12: CO<sub>2</sub> System (039) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I, 1
Ductwork	PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2, 3, 4
Ductwork	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Ductwork	PB, SS	Elastomers	Air/gas (internal)	None	None	None	None	*J, 2
Ductwork	PB, SS	Elastomers	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Fire Dampers	FB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Fire Dampers	FB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2, 4
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to pitting corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	None	*H, 8
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general and pitting corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 5, 8
Fittings	PB	Glass	Air/gas (internal)	None	None	None	None	*J, 6
Fittings	PB	Glass	Inside Air (external)	None	None	VII.1.1-b	None	*F, 6
Fittings	PB	Aluminum Alloy Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 6
Fittings	PB	Aluminum Alloy Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 6

**Table 3.3.2.12: CO<sub>2</sub> System (039) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 6
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 6
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2, 4
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to pitting corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	None	*H, 8
Rupture Disk	PB	Nickel Based Alloys	Air/gas (internal)	None	None	None	None	*J, 6
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal) - Co2	None	None	None	None	*J, 7
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tubing	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2, 4
Tubing	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 6
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 6
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 6
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 6
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2, 4
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to pitting corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	None	*H, 8

**Table 3.3.2.12: CO<sub>2</sub> System (039) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 6
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 6
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 6
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 6

**Table 3.3.2.13: Station Drainage System (040) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	V.E.2-b	None	I, 1
Bolting	MC, SS	Stainless Steel	Outside Air (external)	None	None	V.E.2-a	None	F,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A

**Table 3.3.2.13: Station Drainage System (040) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*G, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2

**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Nickel Alloy	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J,
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 2
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I,
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H,
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4



**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 4
Fittings	PB	Glass	Treated Water (internal)	None	None	V.C.1-a	None	*F, 3
Fittings	PB	Glass	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Fittings	PB	Nickel Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*F, 4
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4
Fittings	PB	Polymer	Air/gas (internal)	None	None	V.C.1-a	None	*F, 3
Fittings	PB	Polymer	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Fittings	PB	Polymer	Treated Water (internal)	None	None	V.C.1-a	None	*F, 3
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 3
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	A

**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 4
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Fittings	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 5
Fittings - RCPB	PB	Stainless Steel	Air/gas (internal)	None	None	IV.C1.1-i	None	*G, 3
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 3
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 4
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Flexible Connectors	PB	Nickel Alloy	Air/gas (internal)	None	None	None	None	*J, 3
Flexible Connectors	PB	Nickel Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 3

**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Flexible Connectors	PB	Nickel Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Flexible Connectors	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 3
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Flexible Connectors	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Flexible Connectors	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6
Heat Exchangers	PB	Nickel Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Heat Exchangers	PB	Nickel Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Heat Exchangers	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Heat Exchangers	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Heat Exchangers	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4
Heat Exchangers	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Heat Exchangers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D, 4

**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 5
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 6
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 3
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 3
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B

**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping- RCPB	PB	Stainless Steel	Air/gas (internal)	None	None	IV.C1.1-i	None	*G, 3
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 3
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 6
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4
Pumps	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Pumps	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D

**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6
Strainers	PB	Polymer	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Strainers	PB	Polymer	Treated Water (internal)	None	None	None	None	*J, 3
Strainers	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Strainers	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6
Strainers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	D
Tanks	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Tanks	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Tanks	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6

**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4
Tubing	PB	Polymer	Air/gas (internal)	None	None	None	None	*J, 3
Tubing	PB	Polymer	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Tubing	PB	Polymer	Treated Water (internal)	None	None	None	None	*J, 3
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 3
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	C
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 4
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A

**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice corrosion, general corrosion, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*H, 6
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 6
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 5
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 3
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 4
Valves	PB	Polymer	Air/gas (internal)	None	None	V.C.1-a	None	*F, 3
Valves	PB	Polymer	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Valves	PB	Polymer	Treated Water (internal)	None	None	V.C.1-a	None	*F, 3
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 3



**Table 3.3.2.14: Sampling and Water Quality System (043) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	A
Valves	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 5
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*H, 6
Valves - RCPB	PB	Stainless Steel	Air/gas (internal)	None	None	IV.C1.3-c	None	*G, 3
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 3
Valves - RCPB	PB	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture due to thermal aging.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.C1.3-b	3.1.1.23	A
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 6
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A

**Table 3.3.2.15: Building Heat System (044) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general pitting, and crevice corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3 3.2.1.5	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I,
Heaters	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Heaters	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H,
Heaters	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 2
Heaters	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general pitting, and crevice corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3 3.2.1.5	D, 3
Heaters	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F,
Heaters	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3

**Table 3.3.2.15: Building Heat System (044) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general pitting, and crevice corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3 3.2.1.5	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*1, 2
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general pitting, and crevice corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3 3.2.1.5	D
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*1, 2
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general pitting, and crevice corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3 3.2.1.5	B

**Table 3.3.2.16: Raw Water Chemical Treatment System (050) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.I.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	VII.I.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	E,
Fittings	PB	Nickel Alloy	Outside Air (external)	None	None	VII.I.1-b	None	*F,
Fittings	PB	Nickel Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*F,
Fittings	PB	Polymer	Raw Water (internal)	None	None	VII.C1.1-a	None	*F, 3
Fittings	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	E, 2
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	E, 2
Piping	PB	Nickel Alloy	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Piping	PB	Nickel Alloy	Raw Water (external)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.I.1-b	None	*F, 4
Piping	PB	Nickel Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*F, 4
Piping	PB	Polymer	Raw Water (internal)	None	None	VII.C1.1-a	None	*F, 3
Piping	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Piping	PB	Stainless Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.I.1-b	None	*F, 4
Piping	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*F, 4
Piping	PB	Stainless Steel	Raw Water (external)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.I.1-b	None	*F, 3
Piping	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	E, 2

**Table 3.3.2.16: Raw Water Chemical Treatment System (050) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Restricting Orifice	FR	Nickel Alloy	Raw Water (external)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.I.1-b	None	*F, 4
Restricting Orifice	FR	Nickel Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.4-a	None	*F, 4
Valves	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	<b>3.3.1.5</b>	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	E, 2
Valves	PB	Polymer	Raw Water (internal)	None	None	VII.C1.2-a	None	*F, 3
Valves	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	E, 2

**Table 3.3.2.17: Demineralizer Backwash Air System (053) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Traps	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) - pooled moisture	Loss of material due to general, crevice, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Traps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Traps	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal) - pooled moisture	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Traps	PB	Copper Alloy	Air/gas (internal) - pooled moisture	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Traps	PB	Copper Alloy	Air/gas (internal) - pooled moisture	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	J, 2
Traps	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 3

**Table 3.3.2.17: Demineralizer Backwash Air System (053) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F,
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3

**Table 3.3.2.18: Standby Liquid Control System (063) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I, 1
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.1.2-a	None	F, 2
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear	Bolting Integrity Program (B.2.1.16)	None	None	J, 3
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to wear	Bolting Integrity Program (B.2.1.16)	None	None	J, 3
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	J, 4
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*F, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water Borated (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*F, 4
Fittings	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Fittings	PB	Aluminum Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion. Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Fittings	PB	Polymer - Delrin	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2
Fittings	PB	Polymer - Delrin	Treated Water (internal)	None	None	None	None	*J, 2
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	VII.E2.1-a	None	*G, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 2



**Table 3.3.2.18: Standby Liquid Control System (063) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*G, 4
Fittings	PB	Stainless Steel	Treated Water (internal) Borated	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*H, 5, 7
Fittings	PB	Stainless Steel	Treated Water (internal) Borated	None	None	VII.E2.1-a	None	*I, 6
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 2
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program(B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 5
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4

**Table 3.3.2.18: Standby Liquid Control System (063) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*F, 4
Piping	PB	Carbon and Low Alloy Steel	Treated Water Borated (internal)	Loss of material due to crevice, galvanic, general and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*F, 4
Piping	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Piping	PB	Aluminum Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion. Crack initiation/growth due to SCC.	Chemistry Control Program One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Piping	PB	Stainless Steel	Treated Water (internal) Borated	None	None	VII.E2.1-a	None	*I, 6
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	VII.E2.1-a	None	*G, 2
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*G, 2
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*G, 4
Piping	PB	Stainless Steel	Treated Water (internal) Borated	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*H, 5, 7
Piping - RCPB	PB	Stainless Steel	Air/Gas (internal)	None	None	IV.C1.1-i	None	*G, 2
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 2

**Table 3.3.2.18: Standby Liquid Control System (063) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 5
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Pumps	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Pumps	PB	Stainless Steel	Treated Water (internal) Borated	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.4-a	None	*H, 5, 7
Pumps	PB	Stainless Steel	Treated Water (internal) Borated	None	None	VII.E2.4-a	None	*I, 6
Tanks	PB	Stainless Steel	Air/gas (internal)	None	None	VII.E2.2-a	None	*G, 2
Tanks	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Tanks	PB	Stainless Steel	Treated Water (internal) Borated	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.2-a	None	*H, 5, 7

**Table 3.3.2.18: Standby Liquid Control System (063) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tanks	PB	Stainless Steel	Treated Water (internal) Borated	None	None	VII.E2.2-a	None	*I, 6
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Treated Water (internal) Borated	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.1-a	None	*H, 5, 7
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	VII.E2.3-a	None	*G, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 2
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.3-a	None	*G, 5
Valves	PB	Stainless Steel	Treated Water (internal) Borated	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E2.3-a	None	*H, 5, 7
Valves	PB	Stainless Steel	Treated Water (internal) Borated	None	None	VII.E2.3-a	None	*I, 6
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 2
Valves - RCPB	PB	Stainless Steel	Air/Gas (internal)	None	None	IV.C1.3-c	None	*G, 2
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 5

**Table 3.3.2.18: Standby Liquid Control System (063) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack Initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) BWR Stress Corrosion Cracking Program (B.2.1.10)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack Initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A

**Table 3.3.2.19: Off-Gas System (066) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Ductwork	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.B.1-a	3.2.1.3	A
Ductwork	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.B.1-a	3.2.1.3	A
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	V.B.1-a	None	*F,
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.B.1-a	None	*F, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2

**Table 3.3.2.19: Off-Gas System (066) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.B.1-a	3.2.1.3	C
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A

**Table 3.3.2.20: Emergency Equipment Cooling Water System (067) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Buried (external)	Loss of bolting function due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31) Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	G,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	VII.1.2-b	None	I, 2
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.1.2-a	None	F,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 1
Fittings	PB	Carbon and Low Alloy Steel	Embedded/encased	None	None	VII.1.1-b	None	*G, 3
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A

**Table 3.3.2.20: Emergency Equipment Cooling Water System (067) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, galvanic and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 1
Fittings	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, galvanic and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	None	*F, 1
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	VII.C1.1-a	None	*G, 3
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Fittings	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A
Fittings	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.1-a	3.3.1.29	A
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	VII.C1.1-a	None	*G, 3
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A
Flexible Connectors	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Flexible Connectors	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, galvanic and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	C



**Table 3.3.2.20: Emergency Equipment Cooling Water System (067) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Flexible Connectors	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	C
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.3-a	None	*G, 1
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, galvanic and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.3-a	3.3.1.17	A
Heat Exchangers	HT, PB	Aluminum Alloy	Air/gas (internal)	Fouling product buildup due to particulate	One-Time Inspection Program (B.2.1.29)	VII.C1.3-a	None	*G, 1
Heat Exchangers	HT, PB	Copper Alloy	Air/gas (internal)	Fouling product buildup due to particulate	One-Time Inspection Program (B.2.1.29)	VII.C1.3-a	None	*G, 1
Heat Exchangers	HT, PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 3
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.3-a	3.3.1.29	A
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.3-a	3.3.1.17	A
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Fouling product buildup due to biological and particulate.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.3-b	3.3.1.17	A
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 1

**Table 3.3.2.20: Emergency Equipment Cooling Water System (067) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Embedded/encased	None	None	VII.1.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	VII.C1.1-a	None	*G, 3
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Piping	PB	Stainless Steel	Outside Air (external)	None	None	VII.1.1-b	None	*F, 3
Piping	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A
Restricting Orifice	FR, PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Restricting Orifice	FR, PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.4-a	3.3.1.17	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	3.3.1.17	A

**Table 3.3.2.20: Emergency Equipment Cooling Water System (067) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	DP, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	None	*H, 1
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 1
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	None	*F, 1
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.6-a	None	*F, 1
Strainers	DP, PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Strainers	DP, PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.6-a	3.3.1.17	A
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 3
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Tubing	PB	Copper Alloy	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.1-a	3.3.1.29	A
Tubing	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	C
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 3
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Tubing	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3

**Table 3.3.2.20: Emergency Equipment Cooling Water System (067) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion..	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	C
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*G, 1
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	None	*H, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*F, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	None	*F, 1
Valves	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.2-a	None	*F, 1
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3

**Table 3.3.2.20: Emergency Equipment Cooling Water System (067) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to galvanic corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	None	*H, 1
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.2-a	3.3.1.29	A
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	VII.C1.2-a	None	*G, 3
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Stainless Steel	Outside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I, 2
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.1.2-a	None	F, 5
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.1.2-b	None	I, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.1-a	None	*F, 3
Fittings	PB	Glass	Treated Water (internal)	None	None	None	None	*J, 5
Fittings	PB	Glass	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	VII.E3.1-a	None	*G, 5

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.1-a	None	*H, 4
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Reactor Water Cleanup System Program (B.2.1.22) Chemistry Control Program (B.2.1.5)	VII.E3.1-a	3.3.1.26	B
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	VII.E3.1-b	3.3.1.3	A
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G, 5
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*F, 3
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Fittings - RCPB	PB	Stainless Steel	Air/Gas (internal)	None	None	IV.C1.1-i	None	*G, 5
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G, 5

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*H, 4
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.1-f	3.1.1.29	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Heat Exchangers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.E3.4-b	None	*F, 3
Heat Exchangers	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 3
Heat Exchangers	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3



**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 3
Heat Exchangers	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Heat Exchangers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.3-d	None	*H, 3
Heat Exchangers	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.3-d	3.3.1.4	B
Heat Exchangers	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.4-a	3.3.1.4	B
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.1-a	None	*F, 3
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	VII.E3.1-a	None	*G, 5
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Reactor Water Cleanup System Program (B.2.1.22) Chemistry Control Program (B.2.1.5)	VII.E3.1-a	3.3.1.26	B
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.1-a	None	*H, 4
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	VII.E3.1-b	3.3.1.3	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G, 5
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*F, 3
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Piping - RCPB	PB	Stainless Steel	Air/Gas (internal)	None	None	IV.C1.1-i	None	*G, 5
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-f	None	*G, 5

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.1-f	3.1.1.29	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-f	None	*H, 4
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.2-a	None	*F, 3
Pumps	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 5
Pumps	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	VII.E3.2-b	3.3.1.3	A

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Restricting Orifice	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Restricting Orifice	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Strainers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Strainers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.E3.1-a	None	*J, 3
Strainers	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Strainers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Tanks	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 5
Tanks	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Traps	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Traps	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Traps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 4
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 5
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Reactor Water Cleanup System Program (B.2.1.22) Chemistry Control Program (B.2.1.5)	VII.E3.1-a	3.3.1.26	D
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 5
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 5
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-a	None	*G, 5
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 5
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	None	None	*J, 3
Valves	PB	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to thermal aging.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5)	None	None	*J, 3
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-a	None	*G, 5
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*H, 4

**Table 3.3.2.21: Reactor Water Cleanup System (069) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A
Valves - RCPB	PB	Stainless Steel	Air/Gas (internal)	None	None	IV.C1.3-c	None	*G, 5
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 5
Valves - RCPB	PB	Stainless Steel - CASS	Treated Water (internal)	Change in material properties/reduction in fracture toughness due to thermal aging.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4)	IV.C1.3-b	3.1.1.23	A
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 3
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A

**Table 3.3.2.22: Reactor Building Closed Cooling Water System (070) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.I.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.I.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C2.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	3.3.1.15	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*H,
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy - gray	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.1-a	None	*F, 2
Fittings	PB	Glass	Treated Water (internal)	None	None	VII.C2.1-a	None	*F,
Fittings	PB	Glass	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	VII.C2.1-a	None	*F, 4
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*F, 2



**Table 3.3.2.22: Reactor Building Closed Cooling Water System (070) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.1-a	None	*F, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*F, 2
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Flexible Connectors	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 2
Heat Exchangers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling and MIC. Loss of material due to crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	None	None	*J, 2
Heat Exchangers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*H, 2
Heat Exchangers	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 4
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling and MIC. Loss of material due to crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	None	None	*J, 2
Heat Exchangers	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 2

**Table 3.3.2.22: Reactor Building Closed Cooling Water System (070) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Piping	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C2.1-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	3.3.1.15	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*H, 3
Piping	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 4
Piping	PB	Copper Alloy	Air/Gas (internal)	None	None	VII.C2.1-a	None	*F, 5
Piping	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.1-a	None	*F, 2
Piping	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*F, 2
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	*F, 2
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.3-a	3.3.1.15	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.3-a	None	*H, 3

**Table 3.3.2.22: Reactor Building Closed Cooling Water System (070) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.3-a	3.3.1.29	A
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.3-a	3.3.1.15	A
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to galvanic and general corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.3-a	None	*H, 3
Strainers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Strainers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.1-a	None	C, 2
Strainers	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Strainers	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 2
Strainers	PB	Cast Iron and Cast Iron Alloy -gray	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Strainers	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Strainers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 2
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C2.4-a	None	*G, 2
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.4-a	3.3.1.15	A

**Table 3.3.2.22: Reactor Building Closed Cooling Water System (070) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.4-a	None	*H, 3
Tanks	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection (B.2.1.29)	VII.C2.4-a	None	*F, 2
Tanks	PB	Cast Iron and Cast Iron Alloy - gray	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Tanks	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.4-a	None	*F, 2
Tanks	PB	Cast Iron and Cast Iron Alloy - gray	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.4-a	None	*F, 2
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.2-a	3.3.1.15	A
Valves	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.C2.2-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.2-a	None	*H, 3
Valves	PB	Aluminum Alloy	Air/gas (internal)	None	None	VII.C2.2-a	None	*F, 4
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	VII.C2.2-a	None	*F, 4
Valves	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 4

**Table 3.3.2.22: Reactor Building Closed Cooling Water System (070) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 4
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.C2.2-a	None	*F, 2
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C2.2-a	None	*F, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 4
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII C2.2-a	3.3.1.15	A

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I, 2
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F, 3
Condenser	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	J, 4
Condenser	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Condenser	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Expansion Joint	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Expansion Joint	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Expansion Joint	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, <sup>5</sup>
Expansion Joint	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Expansion Joint	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	None	None	*J, 3
Expansion Joint	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Expansion Joint	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D
Expansion Joint	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 4
Fittings	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 4
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*G, 4
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	V.D2.1-a	None	*G, 3
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*G, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.1-f	3.2.1.14	*A, 7
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 4

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	V.D2.1-a	None	*G, 3
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy - gray	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.1-a	None	*F, 4
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	V.D2.1-a	None	*F, 3
Fittings	PB	Copper Alloy	Lubricating Oil (internal)	None	None	V.D2.1-a	None	*F, 3
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.1-a	None	*F, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*F, 4
Fittings	PB	Copper Alloy and Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Fittings	PB	Glass	Air/gas (internal), Inside Air (external), Lubricating Oil (internal), Treated Water (internal)	None	None	V.D2.1-a	None	*F, 3
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.1-c	None	*G, 3
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Lubricating Oil (internal)	None	None	V.D2.1-c	None	*G, 3



**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 5
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	B
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*G, 4
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*G, 4
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*G, 6
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 6
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-a	3.1.1.25	A, 7
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*H, 5
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-e	3.1.1.1	A
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 5
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 3

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	3.1.1.7	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	None	*H, 4
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	3.1.1.7	A
Flexible Connectors	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 3
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Flexible Connectors	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D, 4
Flexible Connectors	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.4-c	None	*F, 4
Heat Exchangers	HT, PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.4-c	None	*F, 4

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Heat Exchangers	HT, PB	Copper Alloy	Lubricating Oil (internal)	None	None	V.D2.4-c	None	*F, 3
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.4-c	None	*F, 4
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Fouling product buildup due to particulates. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.4-c	None	*F, 4
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	V.D2.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	H, 4
Piping	PB	Carbon and Low Alloy Steel	Treated Water (external)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.1-f	3.2.1.14	A, 7
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.1-c	None	*G, 3
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 5
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	B
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*G, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*G, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*G, 6
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 6
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*H, 5
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-a	3.1.1.25	A, 7
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-e	3.1.1.1	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 5
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 3

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	3.1.1.7	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	3.1.1.7	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	None	*H, 5
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.2-a	3.2.1.2, 3.2.1.4	B
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.2-a	None	*H, 6
Pumps	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.2-a	None	*F, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	V.D2.2-a	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloy - gray	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.2-a	None	*F, 4

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.2-a	None	*F, 4
Pumps	PB	Copper Alloy	Air/gas (internal)	None	None	V.D2.2-a	None	*F, 3
Pumps	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Pumps	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.2-a	None	*F, 4
Pumps	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.2-a	None	*F, 4
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Restricting Orifice	FR, PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Restricting Orifice	FR, PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 3
Restricting Orifice	FR, PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 5
Restricting Orifice	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	None	None	*J, 3
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	3.1.1.7	C

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	None	*H, 5
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	3.1.1.7	D
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Strainers	DP, PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 3
Strainers	DP, PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Strainers	DP, PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Strainers	DP, PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4
Tanks	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Tanks	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tanks	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Tanks	PB	Cast Iron and Cast Iron Alloy - gray	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4
Traps	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Traps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Traps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, 5
Traps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Traps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.1-f	3.2.1.14	C
Tubing	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Tubing	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 3
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Tubing	PB	Stainless Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.1-c	3.2.1.16	D



**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-c	None	*H, 5
Turbines	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Turbines	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Turbines	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	3.2.1.2, 3.2.1.4	D
Turbines	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.1-a	None	*H, 5
Turbines	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.1-f	3.2.1.14	C, 7
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*G, 4
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	V.D2.3-b	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.3-a	3.2.1.14	A, 7
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	3.2.1.2, 3.2.1.4	B
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*H, 5
Valves	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*F, 4

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	V.D2.3-b	None	*G, 3
Valves	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.3-a	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloys	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.3-b	None	*F, 4
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.D2.3-b	None	*F, 3
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Valves	PB	Copper Alloy	Lubricating Oil (internal)	None	None	V.D2.3-b	None	*G, 3
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	V.D2.3-a	None	*F, 4
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-b	None	*F, 4
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.D2.3-b	None	*F, 4
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.D2.3-c	None	*G, 3
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 3
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	V.D2.3-c	3.2.1.16	B
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.D2.3-c	None	*H, 5

**Table 3.3.2.23: Reactor Core Isolation Cooling System (071) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*G, 4
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-a	None	*G, 6
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.3-a	3.1.1.25	A, 7
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*H, 5
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 3
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 5
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A

**Table 3.3.2.24: Auxiliary Decay Heat Removal System (072) - Summary of Aging Management Evaluation (F.11)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Boiling Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I, 1
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F, 2
Fittings	PB	Stainless Steel	Air/Gas (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*G, 5
Fittings	PB	Stainless Steel	Air/Gas (internal)	None	None	V.D2.1-a	None	*F,
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*1, 3
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	A
Heat Exchangers	PB	Stainless Steel	Air/Gas (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*G, 5
Heat Exchangers	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Heat Exchangers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	C, 4
Piping	PB	Stainless Steel	Air/Gas (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*G, 5
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*1, 3
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	A
Pumps	PB	Stainless Steel	Air/Gas (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*G, 5
Pumps	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2

**Table 3.3.2.24: Auxiliary Decay Heat Removal System (072) - Summary of Aging Management Evaluation (F.11)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	C, 4
Strainers	PB	Stainless Steel	Air/Gas (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*G, 5
Strainers	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Strainers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	C, 4
Tubing	PB	Stainless Steel	Air/Gas (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*G, 5
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	C, 4
Valves	PB	Stainless Steel	Air/Gas (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	None	*G, 5
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	A
Valves	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*1, 3

**Table 3.3.2.25: Radioactive Waste Treatment System (077) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Embedded/Encased (external)	None	None	V.E.1-b	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	A
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I,
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 3
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Fittings	PB	Elastomers - Neoprene and silicon	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2

**Table 3.3.2.25: Radioactive Waste Treatment System (077) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Elastomers - Neoprene and silicon	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5, 3.2.1.6	A
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	A
Fittings	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 5
Heat Exchangers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	C
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Embedded/Encased (external)	None	None	V.E.1-b	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Raw Water (external)	Loss of material due to galvanic, biofouling, MIC, crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.E.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	A
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 5

**Table 3.3.2.25: Radioactive Waste Treatment System (077) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	A
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Piping	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5, 3.2.1.6	A
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 5
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	A
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Pumps	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Restricting Orifice	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Restricting Orifice	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5, 3.2.1.6	C
Restricting Orifice	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	C
Strainers	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Strainers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Strainers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	C
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J,
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A



**Table 3.3.2.25: Radioactive Waste Treatment System (077) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	C
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5, 3.2.1.6	C
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	C
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 4
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Valves	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5, 3.2.1.6	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V C.1-a	None	*I, 5
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	A
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Valves	PB	Copper Alloy	Lubricating Oil (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 4
Valves	PB	Copper Alloy	Lubricating Oil (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 4

**Table 3.3.2.25: Radioactive Waste Treatment System (077) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 3
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 3
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5, 3.2.1.6	A
Valves	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 5
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	A

**Table 3.3.2.26: Fuel Pool Cooling And Cleanup System (078) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Treated Water (external)	Loss of bolting function due to crevice, general, and pitting corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	G,
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VII.1.2-a	None	F,
Bolting	MC, SS	Stainless Steel	Treated Water (external)	Loss of bolting function due to crevice and pitting corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	None	G, 2
Expansion Joint	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Expansion Joint	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	None	None	*J, 2
Expansion Joint	PB	Stainless Steel	Inside Air (external)	None	None	None	None	*F, 3
Expansion Joint	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	3.3.1.1	D
Fittings	PB	Aluminum Alloy	Air/gas (internal)	None	None	VII.A4.1-a	None	*G, 3
Fittings	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Fittings	PB	Aluminum Alloy	Treated Water (external)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.1.1-b	None	*F, 2
Fittings	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	None	*F, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Embedded/Encased (external)	None	None	VII.1.1-b	None	*G, 3
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A

**Table 3.3.2.26: Fuel Pool Cooling And Cleanup System (078) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	None	*F, 3
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	None	*G, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	None	*F, 2
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	VII.A4.1-a	None	*G, 3
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.I.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	3.3.1.1	B
Heat Exchangers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.A4.4-a	3.3.1.15	A
Heat Exchangers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.4-b	None	*F, 2
Piping	PB	Aluminum Alloy	Air/gas (internal)	None	None	VII.A4.1-a	None	*G, 3
Piping	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3

**Table 3.3.2.26: Fuel Pool Cooling And Cleanup System (078) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Aluminum Alloy	Treated Water (external)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.I.1-b	None	*F, 2
Piping	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	None	*F, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Embedded/ Encased (external)	None	None	VII.I.1-b	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	None	*F, 2
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	VII.A4.1-a	None	*G, 3
Piping	PB	Stainless Steel	Embedded/ Encased (external)	None	None	VII.I.1-b	None	*F, 3
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Piping	PB	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.I.1-b	None	*F, 2
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	3.3.1.1	B
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A

**Table 3.3.2.26: Fuel Pool Cooling And Cleanup System (078) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.6-a	None	*F, 2
Restricting Orifice	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Restricting Orifice	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	3.3.1.1	D
Tanks	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 3
Tanks	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Tanks	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	3.3.1.1	D
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.1-a	3.3.1.1	D
Valves	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Aluminum Alloy	Treated Water (external)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.I.1-b	None	*F, 2
Valves	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.3-a	None	*F, 2
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.A4.3-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A

**Table 3.3.2.26: Fuel Pool Cooling And Cleanup System (078) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.3-a	None	*F, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	VII.A4.3-a	3.3.1.1	B

**Table 3.3.2.27: Fuel Handling and Storage System (079) - Summary of Aging Management**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting & Fasteners	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to stress relaxation. Loss of material due to general corrosion.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	None	None	H,
Bolting & Fasteners	SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to stress relaxation.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	None	None	J, 1
Bolting & Fasteners	SS	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	None	None	J, 1
Bolting & Fasteners	SS	Stainless Steel	Treated Water (external)	Loss of bolting function due to stress relaxation.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	None	None	J, 1
Fuel Preparation Machines	SS	Aluminum Alloy	Inside Air (external)	None	None	VII.B.1-b	None	*F,
Fuel Preparation Machines	SS	Aluminum Alloy	Treated Water (external)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.1-b	None	*F, 1
Fuel Preparation Machines	SS	Stainless Steel	Inside Air (external)	None	None	VII.B.1-b	None	*F, 2
Fuel Preparation Machines	SS	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.1-b	None	*F, 1
Refueling Platform (Assembly, Rails, Main Fuel Grapple)	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.1-b	3.3.1.16	B
Refueling Platform (Assembly, Rails, Main Fuel Grapple)	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to mechanical wear.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.2-a	3.3.1-16	B



**Table 3.3.2.27: Fuel Handling and Storage System (079) - Summary of Aging Management**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Refueling Platform (Assembly, Rails, Main Fuel Grapple)	SS	Stainless Steel	Inside Air (external)	None	None	VII.B.1-b	None	*F, 2
Refueling Platform (Assembly, Rails, Main Fuel Grapple)	SS	Stainless Steel	Treated Water (external)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.1-b	None	*F, 1

**Table 3.3.2.28: Diesel Generator System (082) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.I.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.I.2-b	None	I,
Ductwork	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.F4.1-a	3.3.1.5	*I,
Ductwork	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fan (Housings)	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII F4.1-a	3.3.1.5	*I, 2
Fan (Housings)	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H2.3-a	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.3-a	None	*I, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.4-a	None	*I, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H2.4-a	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J,
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	3.3.1.15	A
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H2.4-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F,

**Table 3.3.2.28: Diesel Generator System (082) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Glass	Treated Water (internal), Air/gas (internal), Inside Air (external)	None	None	VII.H2.1-a	None	*F, 3
Fittings	PB	Glass	Lubricating Oil (internal), Air/gas (internal), Inside Air (external)	None	None	VII.H2.3-a	None	*F, 3
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.1-a	None	*F, 4
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Fittings	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	None	*F, 4
Flexible Connectors	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H.2.3-a	None	*I, 2
Flexible Connectors	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H2.3-a	3.3.1.5	A
Flexible Connectors	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Flexible Connectors	PB	Elastomer	Treated Water (internal), Inside Air (external)	Elastomer degradation due to thermal exposure.	Systems Monitoring Program (B.2.1.39)	None	None	*J, 4

**Table 3.3.2.28: Diesel Generator System (082) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Flexible Connectors	PB	Elastomer	Air/gas (internal)	Elastomer degradation due to thermal exposure.	One-Time Inspection Program (B.2.1.29)	VII.F4.1-b	3.3.1.2	A
Flexible Connectors	PB	Elastomer	Inside Air (external)	Loss of material due to wear.	Systems Monitoring Program (B.2.1.39)	VII.F4.1-c	3.3.1.2	A
Flexible Connectors	PB	Elastomer	Inside Air (external)	Elastomer degradation due to thermal exposure and ultraviolet radiation.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Flexible Connectors	PB	Stainless Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Heat Exchangers	HT, PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.H2.1-b	3.3.1.17	A
Heat Exchangers	HT, PB	Aluminum Alloy	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Heat Exchangers	HT, PB	Aluminum Alloy and Copper Alloy	Lubricating Oil (internal)	None	None	VII.H2.1-a	None	*I,
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Crack initiation/growth due to SCC. Fouling product buildup due to biological and particulate. Loss of material due to biofouling, MIC, crevice, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.H2.1-b	None	*F,
Heat Exchangers	HT, PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.17)	VII.H2.1-b	None	*F, 6
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	None	*F,

**Table 3.3.2.28: Diesel Generator System (082) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchangers	HT, PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.17)	VII.H2.1-a	None	*F, 7
Heaters	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Heaters	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	3.3.1.5	C
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.2.3-a	None	*I, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H.2.4-a	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H.2.4-a	None	*I, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H2.3-a	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	3.3.1.15	A
Piping	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Piping	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Pumps	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	3.3.1.15	C

**Table 3.3.2.28: Diesel Generator System (082) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 4
Pumps	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Silencer	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H.2.4-a	3.3.1.5	A
Silencer	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H.2.4-a	None	*I, 3
Silencer	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H.2.3-a	3.3.1.5	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H.2.3-a	None	*I, 2
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Strainers	DP, PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Strainers	DP, PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H.2.3-a	None	*G,
Strainers	DP, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H.2.1-a	3.3.1.15	C
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	VII.H.2.1-a	None	*H, 4
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H.2.1-a	3.3.1.15	C
Tubing	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tubing	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3

**Table 3.3.2.28: Diesel Generator System (082) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.1-a	None	*F, 3
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Tubing	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Tubing	PB	Copper Alloy	Lubricating Oil (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Tubing	PB	Copper Alloy	Lubricating Oil (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	None	*F, 4
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.H2.1-a	None	*F, 4
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Tubing	PB	Stainless Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.H2.1-a	None	*F, 4

**Table 3.3.2.28: Diesel Generator System (082) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.1-a	None	*F, 3
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Valves	PB	Copper Alloy	Lubricating Oil (internal)	Loss of material due to crevice and pitting corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 4
Valves	PB	Copper Alloy	Lubricating Oil (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 4
Valves	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	VII.H2.1-a	None	*F, 4
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.H2.1-a	None	*F, 4



**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear and general corrosion.	Bolting Integrity Program (B.2.1.16)	None	None	J,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I, 2
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I,

**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Fittings	PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 3
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 4
Fittings	PB	Copper Alloy	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 4
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Fittings	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 5
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-h	None	*G,
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-h	None	*H, 3

**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 4
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program(B.2.1.29)	IV.C1.1-i	None	*H, 3
Heat Exchangers	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 3
Heat Exchangers	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.3-a	None	*F,
Heat Exchangers	PB	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.3-a	None	*F, 7
Heat Exchangers	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 4
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.3-a	3.3.1.29	A
Heat Exchangers	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.3-a	3.3.1.17	A
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.C2.1-a	None	*G, 4

**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, general, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.1-a	3.3.1.17	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 5
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 4
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 5
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-h	None	*G, 6
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-h	None	*H, 3
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 4

**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H, 3
Pumps	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	D
Pumps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Pumps	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 7
Pumps	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	VII.C2.3-a	None	*G, 4
Restricting Orifice	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Restricting Orifice	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Rupture Disk	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Rupture Disk	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Strainer - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 4

**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainer - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C.1.1-i	None	*H, 3
Strainers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Strainers	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Strainers	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	None	None	*J, 4
Strainers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	D
Strainers	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Strainers	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Strainers	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A

**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3 3.2.1.5	D
Tanks	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Tanks	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Tanks	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 4
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	D
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B

**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 4
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	None	*F, 7
Valves	PB	Cast Iron and Cast Iron Alloy	Lubricating Oil (internal)	None	None	VII.C2.2-a	None	*G, 4
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 4
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VII.C1.2-a	3.3.1.29	A
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to crevice and pitting corrosion. Loss of material due to biofouling and MIC.	Open-Cycle Cooling Water System Program (B.2.1.17)	VII.C1.2-a	3.3.1.17	A
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 4
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 4
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	V.C.1-b	3.2.1.5	B
Valves	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 5



**Table 3.3.2.29: Control Rod Drive System (085) - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-d	None	*G, 6
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, galvanic, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-d	None	*H, 3
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 4
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking Program (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 3

**Table 3.3.2.30: Diesel Generator Starting Air System (086) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I,
Diesel Air Start Motor	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41)	VII.H2.2-a	3.3.1.5	A
Diesel Air Start Motor	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*G,
Diesel Air Start Motor	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Diesel Air Start Motor	PB	Aluminum Alloy	Air/gas (internal)	None	None	VII.H2.2-a	None	*F,
Diesel Air Start Motor	PB	Aluminum Alloy	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41) One-Time Inspection Program (B.2.1.29)	VII.H2.2-a	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Lubricating Oil (internal)	None	None	VII.H2.2-a	None	*G, 3
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41) One-Time Inspection Program (B.2.1.29)	VII.H2.2-a	None	*F,
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 2
Fittings	PB	Glass	Inside Air (external)	None	None	None	None	*J, 3
Fittings	PB	Glass	Lubricating Oil (internal)	None	None	None	None	*J, 3
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.2-a	None	*F, 3

**Table 3.3.2.30: Diesel Generator Starting Air System (086) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Fittings	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Fittings	PB	Stainless Steel	Air/gas (internal) - dry air	None	None	VII.H2.2-a	None	*F, 3
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VII.I.1-b	None	*F, 3
Flexible Connectors	PB	Elastomer	Air/gas (internal) Inside Air (external)	None	None	None	None	*J, 3
Flexible Connectors	PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.2-a	None	*F, 3
Flexible Connectors	PB	Copper Alloy	Inside Air (external)	None	None	None	None	J, 3
Flexible Connectors	PB	Stainless Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*F, 3
Flexible Connectors	PB	Stainless Steel	Inside Air (external)	None	None	None	None	*J, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*G, 3
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41) One-Time Inspection Program (B.2.1.29)	VII.H2.2-a	3.3.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.I.1-b	3.3.1.5	A
Piping	PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.2-a	None	*F, 3
Piping	PB	Copper Alloy	Inside Air (external)	None	None	VII.I.1-b	None	F, 3
Strainers	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41)	VII.H2.2-a	3.3.1.5	A

**Table 3.3.2.30: Diesel Generator Starting Air System (086) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	DP, PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*G, 3
Strainers	DP, PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41)	VII.H2.2-a	None	*F, 4
Strainers	DP, PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 4
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*G, 3
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41) One-Time Inspection Program (B.2.1.29)	VII.H2.2-a	3.3.1.5	A
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tubing	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*G, 3
Tubing	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41) One-Time Inspection Program (B.2.1.29)	VII.H2.2-a	3.3.1.5	A
Tubing	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Tubing	PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.2-a	None	*F, 3
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 3
Tubing	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*F, 3
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Diesel Starting Air Program (B.2.1.41)	VII.H2.2-a	3.3.1.5	A

**Table 3.3.2.30: Diesel Generator Starting Air System (086) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*G, 3
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	<b>3.3.1.5</b>	A
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	VII.H2.2-a	None	*F, 3
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VII.1.1-b	None	F, 3
Valves	PB	Copper Alloy	Lubricating Oil (internal)	None	None	None	None	*J, 3
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	VII.H2.2-a	None	*F, 3
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3

**Table 3.3.2.31: Radiation Monitoring System (090) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	V.E.2-a	None	F,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Glass	Treated Water (internal)	None	None	V.C.1-a	None	*F, 2
Fittings	PB	Glass	Raw Water (internal)	None	None	V.C.1-a	None	*F, 2
Fittings	PB	Glass	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	A
Fittings	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I,
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	V.C.1-b	3.2.1.5	A
Flex Hose	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Flex Hose	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Piping	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2

**Table 3.3.2.31: Radiation Monitoring System (090) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Piping	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	A
Piping	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 4
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	V.C.1-b	3.2.1.5	A
Pumps	PB	Aluminum Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Pumps	PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Pumps	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Pumps	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Pumps	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*J, 3
Pumps	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 3
Pumps	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice, galvanic, and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	None	None	*J, 3
Strainers	PB	Glass	Air/gas (internal)	None	None	None	None	*J, 2
Strainers	PB	Glass	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Strainers	PB	Aluminum Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Strainers	PB	Copper Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Strainers	PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Strainers	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2

**Table 3.3.2.31: Radiation Monitoring System (090) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Strainers	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Traps	PB	Glass	Air/gas (internal)	None	None	None	None	*J, 2
Traps	PB	Glass	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Traps	PB	Aluminum Alloy	Air/gas (internal)	None	None	None	None	*J, 2
Traps	PB	Aluminum Alloy	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Traps	PB	Aluminum Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, galvanic, and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	None	None	*J, 3
Traps	PB	Aluminum Alloy	Raw Water (internal)	Crack initiation/growth due to SCC.	One-Time Inspection Program (B.2.1.29)	None	None	*J, 3
Traps	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Traps	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Polymer – Tygon Tubing	Air/gas (internal)	None	None	None	None	*J, 2
Tubing	PB	Polymer – Tygon Tubing	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 2
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	C, 3
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	V.C.1-b	3.2.1.5	C, 3
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One-Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 3



**Table 3.3.2.31: Radiation Monitoring System (090) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 2
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-a	None	*F, 3
Valves	PB	Copper Alloy	Raw Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 3
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 2
Valves	PB	Stainless Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice and pitting corrosion.	Open-Cycle Cooling Water System Program (B.2.1.17)	V.C.1-b	3.2.1.5, 3.2.1.6	A
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Closed-Cycle Cooling Water System Program (B.2.1.18)	V.C.1-b	3.2.1.5	A
Valves	PB	Stainless Steel	Treated Water (internal)	None	None	V.C.1-b	None	*I, 4

**Table 3.3.2.32: Neutron Monitoring System (092) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion and wear.	Bolting Integrity Program (B.2.1.16)	None	None	J,
Fittings-RCPB	PB	Stainless Steel	Air/gas (internal)	None	None	IV.C1.1-i	None	*G,
Fittings-RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-i	None	*G, 2
Fittings-RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*H,
Fittings-RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings-RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One-Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B

**Table 3.3.2.33: Traversing In-Core Probe System (094) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G,
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 1
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 1
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 1
Valves	PB	Stainless Steel	Air/gas (internal)	None	None	V.C.1-b	None	*G, 1
Valves	PB	Stainless Steel	Inside Air (external)	None	None	V.E.1-b	None	*F, 1

**Table 3.4.2.1: Main Steam System (001) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.2-a	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*G,

**Table 3.4.2.1: Main Steam System (001) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	3.4.1.7	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*H, 4
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.1-b	3.4.1.6	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	VIII.B2.1-c	3.4.1.1	A
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 5
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*F, 4
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*G, 2
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	*I, 4
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*H, 7

**Table 3.4.2.1: Main Steam System (001) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-a	3.1.1.25	A
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-b	3.1.1.1	A
Fittings - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*F, 5, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice corrosion, pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*F, 4, 8
Fittings - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading, and SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B, 8
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*H, 4
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	3.4.1.7	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.1-b	3.4.1.6	A

**Table 3.4.2.1: Main Steam System (001) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	VIII.B2.1-c	3.4.1.1	A
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 5
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*F, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection (B.2.1.29)	IV.C1.1-a	None	*G, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*G, 2
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	*I, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-a	3.1.1.25	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*H, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-b	3.1.1.1	A
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*F, 5
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*F, 4

**Table 3.4.2.1: Main Steam System (001) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading and SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Restricting Orifice (F.1)	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Restricting Orifice (F.1)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*H, 6
Restricting Orifice (F.1)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	3.4.1.7	D
Restricting Orifice (F.1)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.1-b	3.4.1.6	C
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-a	None	*F, 5
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-a	None	*F, 4
Strainers (F.1)	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Strainers(F.1)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	3.4.1.7	D

**Table 3.4.2.1: Main Steam System (001) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers (F.1)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic and general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*H, 6
Strainers (F.1)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.1-b	3.4.1.6	C
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 5
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*F, 4
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	Compressed Air Monitoring Program (B.2.1.24)	VIII.B2.1-a	None	*G, 4
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*G, 4
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Valves (F.1)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII A.2-a	3.4.1.6	A, 7
Valves (F.1)	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII A.2-b	3.4.1.2	B
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.2-a	3.4.1.6	A



**Table 3.4.2.1: Main Steam System (001) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.2-b	3.4.1.7	B
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic and general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.2-b	None	*H, 4
Valves	PB	Aluminum Alloy	Air/gas (internal)	None	None	VIII.B2.2-b	None	*F, 4
Valves	PB	Aluminum Alloy	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 4
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 5
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.2-b	None	*F, 4
Valves - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*G, 4
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-a	None	*G, 2
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*H, 6
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.3-a	3.1.1.25	A
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*F, 5

**Table 3.4.2.1: Main Steam System (001) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	BWR Stress Corrosion Cracking (B.2.1.10) Chemistry Control Program (B.2.1.5)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*H, 6
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A

**Table 3.4.2.2: Condensate and Demineralized Water System (002) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VIII.H.2-a	3.4.1.8	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.2-b	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	VIII.H.2-a	3.4.1.8	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Outside Air (external)	None	None	VIII.H.2-b	None	I, 1
Bolting	MC, SS	Stainless Steel	Inside Air (external)	None	None	VIII.H.2-a	None	F,
Bolting	MC, SS	Stainless Steel	Outside Air (external)	None	None	VIII.H.2-a	None	F, 2
Condenser (F.1)	PL	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*I,
Condenser (F.1)	PL	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	VIII E.4-a	None	*I, 3
Condenser (F.1)	PL	Stainless Steel	Treated Water (internal)	None	None	VIII E.4-a	None	*I, 3
Expansion Joint	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Expansion Joint	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	3.4.1.2	D,
Expansion Joint	PB	Stainless Steel	Outside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Expansion Joint	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	None	None	*J, 4
Fittings	PB	Aluminum Alloy	Air/Gas (internal)	None	None	VIII.E.1-b	None	*F, 2

**Table 3.4.2.2: Condensate and Demineralized Water System (002) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*G, 4
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	VIII.E.1-a	None	*I,
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	3.4.1.2	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*H, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	None	*F, 4
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*F, 4
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	VIII.H.1-b	None	F, 2
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VIII.E.1-b	None	*F, 4
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*F, 4
Fittings	PB	Aluminum Alloy	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2

**Table 3.4.2.2: Condensate and Demineralized Water System (002) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Aluminum Alloy	Outside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Fittings	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*F, 5
Fittings	PB	Polymer	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Fittings	PB	Polymer	Treated Water (internal)	None	None	VIII.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Air/Gas (internal)	None	None	VIII.E.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Fittings	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*F, 4
Piping	PB	Aluminum	Air/Gas (internal)	None	None	VIII.E.1-b	None	*F, 2
Piping	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	VIII.E.1-a	None	*I, 5
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	3.4.1.2	B

**Table 3.4.2.2: Condensate and Demineralized Water System (002) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*H, 4
Piping	PB	Aluminum Alloy	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Piping	PB	Aluminum Alloy	Outside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Piping	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice, galvanic, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*F, 4
Piping	PB	Stainless Steel	Air/Gas (internal)	None	None	VIII.E.1-b	None	*F, 2
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Piping	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.1-b	None	*F, 4
Pumps	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Pumps	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.3-a	None	*F, 5
Restricting Orifice	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Restricting Orifice	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	None	None	*J, 5
Tanks	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VIII.E.5-a	None	*G, 4

**Table 3.4.2.2: Condensate and Demineralized Water System (002) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Tanks	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	Aboveground Carbon Steel Tanks Program (B.2.1.26)	VIII.E.5-c	3.4.1.11	A
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.5-a	3.4.1.2	B
Tubing	PB	Stainless Steel	Outside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Tubing	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	None	None	*J, 4
Valves	PB	Aluminum Alloy	Air/Gas (internal)	None	None	VIII.E.2-b	None	*F, 2
Valves	PB	Carbon and Low Alloy Steel	Air/Gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VIII.E.2-b	None	*G, 4
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Systems Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VIII.H.1-b	3.4.1.5	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	VIII.E.2-a	None	*I, 5
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.2-b	3.4.1.2	B
Valves	PB	Cast Iron and Cast Iron Alloys	Air/Gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VIII.E.2-b	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VIII.H.1-b	None	F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VIII.H.1-b	None	*F, 4

**Table 3.4.2.2: Condensate and Demineralized Water System (002) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VIII.E.2-b	None	*F, 4
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.2-b	None	*F, 4
Valves	PB	Aluminum Alloy	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Valves	PB	Aluminum Alloy	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.2-b	None	*F, 4
Valves	PB	Copper Alloy	Air/Gas (internal)	None	None	VIII.E.2-b	None	*F, 2
Valves	PB	Copper Alloy	Inside Air (external)	None	None	VIII.H.1-b	None	F, 2
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.2-b	None	*F, 4
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	VIII.E.2-b	None	*F, 4
Valves	PB	Stainless Steel	Air/Gas (internal)	None	None	VIII.E.2-b	None	*F, 2
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 2
Valves	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.E.2-b	None	*F, 4



**Table 3.4.2.3: Feedwater System (003) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.2-a	3.4.1.8	I, 2
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.2-b	None	I, 3
Bolting	MC, SS	Nickel Alloy	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1
Bolting	MC, SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to wear.	Bolting Integrity Program (B.2.1.16)	None	None	J, 1
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	None	*G, 4
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.D2.1-a	3.4.1.6	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	3.4.1.2	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	VIII.D2.1-c	3.4.1.1	A
Fittings	PB	Stainless Steel	Air/gas (internal) - moist air	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	None	*F, 5
Fittings	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 6

**Table 3.4.2.3: Feedwater System (003) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	None	*F, 4
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-c	None	*G, 2
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-c	3.1.1.25	A
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-d	3.1.1.1	A
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-c	None	*H, 5
Fittings - RCPB	PB	Stainless Steel	Air/gas (internal) - moist air	Crack initiation/growth due to cyclic loading and SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*G, 5
Fittings - RCPB	PB	Stainless Steel	Air/gas (internal) - moist air	Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	IV.C1.1-c	None	*F, 5
Fittings - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-c	None	*F, 6

**Table 3.4.2.3: Feedwater System (003) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Fittings - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-c	None	*F, 5
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	None	*G, 4
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.D2.1-a	3.4.1.6	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	3.4.1.2	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	VIII.D2.1-c	3.4.1.1	A
Piping	PB	Stainless Steel	Air/gas (internal) - moist air	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	None	*F, 5

**Table 3.4.2.3: Feedwater System (003) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 6
Piping	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	None	*F, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*G, 4
Piping - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, general, and pitting corrosion.	One Time Inspection Program (B.2.1.29)	IV.C1.1-c	None	*G, 5
Piping - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.1-c	None	*G, 2
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.1-c	3.1.1.25	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-d	3.1.1.1	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-c	None	*H, 5

**Table 3.4.2.3: Feedwater System (003) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping - RCPB	PB	Stainless Steel	Air/gas (internal) - moist air	Crack initiation/growth due to cyclic loading and SCC.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	None	*G, 5
Piping - RCPB	PB	Stainless Steel	Air/gas (internal) - moist air	Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	V.C1.1-c	None	*F, 5
Piping - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.1-c	None	*F, 6
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	B
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to cyclic loading.	ASME Section XI Subsections IWB, IWC and IWD Inservice Inspection Program (B.2.1.4) One Time Inspection Program (B.2.1.29)	IV.C1.1-i	3.1.1.7	A
Piping - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.1-c	None	*F, 4
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Air/gas (internal) - moist air	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	None	None	*J, 5
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Inside Air (external)	None	None	None	None	*J, 6
Restricting Orifice - RCPB	FR, PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	None	None	*J, 4

**Table 3.4.2.3: Feedwater System (003) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Stainless Steel	Air/gas (internal) - moist air	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	None	*F, 5
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 6
Tubing	PB	Stainless Steel	Treated Water (external)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.H.1-b	None	*F, 5
Tubing	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.D2.1-b	None	*F, 4
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, galvanic, general, and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VIII.D2.2-b	None	*G, 4
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.D2.2-a	3.4.1.6	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.D2.2-b	3.4.1.2	B
Valves	PB	Copper Alloys	Air/gas (internal)	None	None	VIII.D2.2-b	None	*F, 6
Valves	PB	Copper Alloys	Inside Air (external)	None	None	VIII.H.1-b	None	F, 6
Valves	PB	Stainless Steel	Air/gas (internal) - moist air	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VIII.D2.2-b	None	*F, 5

**Table 3.4.2.3: Feedwater System (003) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Stainless Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*F, 6
Valves	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC. Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.D2.2-b	None	*F, 4
Valves - RCPB	PB	Carbon and Low Alloy Steel	Air/gas (internal) - moist air	Loss of material due to crevice, general, and pitting corrosion.	One Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*G, 5
Valves - RCPB	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	IV.C1.3-a	None	*G, 2
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.3-a	None	*H, 5
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	IV.C1.3-a	3.1.1.25	A
Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A
Valves - RCPB	PB	Stainless Steel - CASS	Air/gas (internal) - moist air	Change in material properties/reduction in fracture toughness due to thermal aging.	One Time Inspection Program (B.2.1.29)	IV.C1.3-b	None	*G, 5
Valves - RCPB	PB	Stainless Steel	Air/gas (internal) - moist air	Crack initiation/growth due to SCC.	One Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*G, 5
Valves - RCPB	PB	Stainless Steel	Air/gas (internal) - moist air	Loss of material due to crevice and pitting corrosion.	One Time Inspection Program (B.2.1.29)	IV.C1.3-c	None	*G, 5
Valves - RCPB	PB	Stainless Steel	Inside Air (external)	None	None	IV.C1.3-c	None	*G, 6

**Table 3.4.2.3: Feedwater System (003) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29))	IV.C1.3-c	None	*H, 5
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to SCC.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	IV.C1.3-c	3.1.1.29	B
Valves - RCPB	PB	Stainless Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A



**Table 3.4.2.4: Heater Drains and Vents System (006) - Summary of Aging Management Evaluation (F.1)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H2-b	None	I, 1
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H2-a	None	I, 2
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*H, 3
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	3.4.1.7	B, 3
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.1-b	3.4.1.6	A
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H1-b	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	3.4.1.7	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*H, 3
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.1-b	3.4.1.6	A
Traps	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2

**Table 3.4.2.4: Heater Drains and Vents System (006) - Summary of Aging Management Evaluation (F.1)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Traps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	3.4.1.7	D
Traps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.1-a	None	*H, 3
Traps	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.1-b	3.4.1.6	C
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.2-a	3.4.1.6	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general and galvanic corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.2-b	None	*H, 3
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.2-b	3.4.1.7	B

**Table 3.4.2.5 Turbine Drains and Miscellaneous Piping System (008) - Summary of Aging Management Evaluation (F.1)**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.2-a	None	I,
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.2-b	None	I,
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VIII.H.1-b	None	*G, 1
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to flow-accelerated corrosion.	Flow-Accelerated Corrosion Program (B.2.1.15)	VIII.B2.2-a	3.4.1.6	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to general corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.D2.2-b	None	*H,
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	VIII.B2.2-b	3.4.1.7	B

**Table 3.4.2.6: Condenser Circulating Water System (027) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Boiling	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Boiling Integrity Program (B.2.1.16)	VII.1.2-a	3.3.1.24	B
Boiling	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	VII.1.2-b	None	I,
Fittings	PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G,
Fittings	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB, SS	Carbon and Low Alloy Steel	Outside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Fittings	PB, SS	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	E
Fittings	PB, SS	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 2
Fittings	PB, SS	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 2
Fittings	PB, SS	Stainless Steel	Air/gas (internal)	None	None	VII.C1.1-a	None	*G,
Fittings	PB, SS	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Piping	PB, SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	*G, 2
Piping	PB, SS	Carbon and Low Alloy Steel	Buried (external)	Loss of material due to MIC, crevice, general, and pitting corrosion.	Buried Piping and Tanks Inspection Program (B.2.1.31)	VII.1.1-b	None	*G, 2
Piping	PB, SS	Carbon and Low Alloy Steel	Embedded/ Encased (external)	None	None	VII.1.1-b	None	*G, 3
Piping	PB, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Piping	SS	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion..	One Time Inspection Program (B.2.1.29)	VII.C1.1-a	None	E
Strainers	SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.6-a	None	*G, 2

**Table 3.4.2.6: Condenser Circulating Water System (027) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Strainers	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Strainers	SS	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.6-a	None	E
Tubing	PB	Stainless Steel	Air/gas (internal)	None	None	None	None	*J, 3
Tubing	PB	Stainless Steel	Inside Air (external)	None	None	VII.1.1-b	None	*F, 3
Valves	SS	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*G, 2
Valves	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	3.3.1.5	A
Valves	SS	Carbon and Low Alloy Steel	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	E
Valves	SS	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*G, 2
Valves	SS	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	VII.1.1-b	None	*F, 2
Valves	SS	Cast Iron and Cast Iron Alloy	Raw Water (internal)	Loss of material due to biofouling, MIC, crevice, general, and pitting corrosion.	One Time Inspection Program (B.2.1.29)	VII.C1.2-a	None	*F, 2
Valves	SS	Copper Alloys	Air/gas (internal)	None	None	VII.C1.2-a	None	*G, 3
Valves	SS	Copper Alloys	Inside Air (external)	None	None	VII.1.1-b	None	F, 3

**Table 3.4.2.7: Gland Seal Water System (037) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to general corrosion.	Bolting Integrity Program (B.2.1.16)	V.E.2-a	3.2.1.18	B
Bolting	MC, SS	Carbon and Low Alloy Steel	Inside Air (external)	None	None	V.E.2-b	None	I,
Fittings	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	V.C.1-a	None	G,
Fittings	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 2
Fittings	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 2
Fittings	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 2
Fittings	PB	Glass	Air/gas (internal)	None	None	V.C.1-a	None	*F,
Fittings	PB	Glass	Treated Water (internal)	None	None	V.C.1-a	None	*F, 3
Fittings	PB	Glass	Inside Air (external)	None	None	V.E.1-b	None	*F, 3

**Table 3.4.2.7: Gland Seal Water System (037) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fittings	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 3
Fittings	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Fittings	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 2
Fittings	PB	Non-Ferrous	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 2
Piping	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Piping	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to galvanic corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*H, 2
Piping	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 2
Tanks	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	None	None	*J, 2
Tanks	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Tanks	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	None	D

**Table 3.4.2.7: Gland Seal Water System (037) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Tubing	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	None	None	*J, 2
Tubing	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	None	None	*J, 2
Valves	PB	Carbon and Low Alloy Steel	Air/gas (internal)	Loss of material due to general corrosion.	One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*G, 2
Valves	PB	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	3.2.1.10	A
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	3.2.1.3, 3.2.1.5	B
Valves	PB	Carbon and Low Alloy Steel	Treated Water (internal)	None	None	V.C.1-a	None	*I, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Inside Air (external)	Loss of material due to general corrosion.	System Monitoring Program (B.2.1.39)	V.E.1-b	None	*F, 3
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 2
Valves	PB	Cast Iron and Cast Iron Alloy	Treated Water (internal)	Loss of material due to crevice, general, and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 2
Valves	PB	Copper Alloy	Air/gas (internal)	None	None	V.C.1-a	None	*F, 3
Valves	PB	Copper Alloy	Inside Air (external)	None	None	V.E.1-b	None	F, 3



**Table 3.4.2.7: Gland Seal Water System (037) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to selective leaching.	Selective Leaching of Materials Program (B.2.1.30)	V.C.1-a	None	*F, 2
Valves	PB	Copper Alloy	Treated Water (internal)	Loss of material due to crevice and pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection Program (B.2.1.29)	V.C.1-a	None	*F, 2

**Table 3.3.2.34: Cranes System (111) - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bolting & Fasteners	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of bolting function due to stress relaxation. Loss of material due to general corrosion.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	None	None	H,
Bolting & Fasteners	SS	Stainless Steel	Inside Air (external)	Loss of bolting function due to stress relaxation.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	None	None	J, 1
Monorails	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.1-b	3.3.1.16	B
Monorails	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to mechanical wear.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.2-a	3.3.1.16	B
Rail/Rail Clips/Structural Girders	SS	Carbon and Low Alloy Steel	Inside Air (external)	Crack initiation/growth due to fatigue.	None	VII.B.1-a	3.3.1.3	A
Rail/Rail Clips/Structural Girders	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to general corrosion.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.1-b	3.3.1.16	B
Rail/Rail Clips/Structural Girders	SS	Carbon and Low Alloy Steel	Inside Air (external)	Loss of material due to mechanical wear.	Inspection of Overhead Heavy Load and Light Load Handling Systems Program (B.2.1.20)	VII.B.2-a	3.3.1.16	B

**Table 3.5.2.1: Primary Containment Structures - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Caulking and Sealants	SP	Elastomers	Containment Atmosphere	Loss of sealing and/or leakage through containment due to deterioration of seals, gaskets, and moisture barriers.	ASME Section XI Subsection IWE Program (B.2.1.32)	II.B4.3-a	3.5.1.6	B
Compressible Joints & Seals	PB	Elastomers	Containment Atmosphere, Inside Air	Loss of sealing and/or leakage through containment due to deterioration of seals, gaskets, and moisture barriers.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B4.3-a	3.5.1.6	B
Controlled Leakage Doors	PB	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B4.2-a	3.5.1.4	B
Controlled Leakage Doors	PB	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of leak tightness in closed position due to mechanical wear of locks, hinges, and closure mechanisms.	10 CFR Part 50 Appendix J Program (B.2.1.34)	II.B4.2-b	3.5.1.5	A
Controlled Leakage Doors	PB	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B4.2-a	3.5.1.4	B
Controlled Leakage Doors	PB	Carbon and Low Alloy Steel	Inside Air	Loss of leak tightness in closed position due to mechanical wear of locks, hinges, and closure mechanisms.	10 CFR Part 50 Appendix J Program (B.2.1.34)	II.B4.2-b	3.5.1.5	A

**Table 3.5.2.1: Primary Containment Structures - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Hatches/Plugs	PB, SP	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B4.2-a	3.5.1.4	B
Hatches/Plugs	PB, SP	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of leak tightness in closed position due to mechanical wear of locks, hinges, and closure mechanisms.	10 CFR Part 50 Appendix J Program (B.2.1.34)	II.B4.2-b	3.5.1.5	A
Hatches/Plugs	PB, SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B4.2-a	3.5.1.4	B
Hatches/Plugs	PB, SP	Carbon and Low Alloy Steel	Inside Air	Loss of leak tightness in closed position due to mechanical wear of locks, hinges, and closure mechanisms.	10 CFR Part 50 Appendix J Program (B.2.1.34)	II.B4.2-b	3.5.1.5	A
High Density Shielding Concrete	SH	Reinforced Concrete	Containment Atmosphere	None	None	III.A4.1-a	3.5.1.20	*I, 1
High Density Shielding Concrete	SH	Reinforced Concrete	Containment Atmosphere	None	None	III.A4.1-b	3.5.1.20	*I, 1
High Density Shielding Concrete	SH	Reinforced Concrete	Containment Atmosphere	None	None	III.A4.1-c	3.5.1.27	*I, 1
High Density Shielding Concrete	SH	Reinforced Concrete	Containment Atmosphere	None	None	III.A4.1-d	3.5.1.20	*I, 1
Penetrations, Electrical and I&C	PB, SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II. B4.1-a	3.5.1.3	B

**Table 3.5.2.1: Primary Containment Structures - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Penetrations, Electrical and I&C	PB, SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II. B4.1-a	3.5.1.3	B
Penetrations, Electrical and I&C	PB, SS	Stainless Steel (Dissimilar metal welds)	Containment Atmosphere	Crack initiation and growth due to SSC.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II. B4.1-d	3.5.1.2	D
Penetrations, Electrical and I&C	PB, SS	Stainless Steel (Dissimilar metal welds)	Inside Air	Crack initiation and growth due to SSC.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II. B4.1-d	3.5.1.2	D
Penetrations, Mechanical	PB, SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II. B4.1-a	3.5.1.3	B
Penetrations, Mechanical	PB, SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II. B4.1-a	3.5.1.3	B
Penetrations, Mechanical	SH	Permal	Containment Atmosphere	None	None	None	None	J, 2
Penetrations, Mechanical	SS	Non-ferrous - copper alloys	Containment Atmosphere	None	None	None	None	*J, 2

**Table 3.5.2.1: Primary Containment Structures - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A4.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A4.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	None	None	III.A4.1-c	3.5.1.27	*I, 3
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A4.1-d	3.5.1.20	A
Steel Containment Elements	PB, SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B1.1.1-a	3.5.1.12	B
Steel Containment Elements	PB, SS	Carbon and Low Alloy Steel	Embedded/encased	None	None	II.B1.1.1-a	3.5.1.12	*I, 2
Steel Containment Elements	PB, SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B1.1.1-a	3.5.1.12	B
Steel Containment Elements	PB, SS	Carbon and Low Alloy Steel	Submerged	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B1.1.1-a	3.5.1.12	B

**Table 3.5.2.1: Primary Containment Structures - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Structural Bellows	PB	Stainless Steel	Containment Atmosphere	Crack initiation and growth due to SSC.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B1.1.1-d	3.5.1.17	B
Structural Bellows	PB	Stainless Steel (Dissimilar metal welds)	Containment Atmosphere	Crack initiation and growth due to SSC.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B4.1-d	3.5.1.2	B
Structural Bellows	PB	Stainless Steel	Inside Air	Crack initiation and growth due to SSC.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B1.1.1-d	3.5.1.17	B
Structural Bellows	PB	Stainless Steel (Dissimilar metal welds)	Inside Air	Crack initiation and growth due to SSC.	10 CFR Part 50 Appendix J Program (B.2.1.34) ASME Section XI Subsection IWE Program (B.2.1.32)	II.B4.1-d	3.5.1.2	B
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A4.2-a	3.5.1.20	A
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Embedded/ Encased	None	None	III.A4.2-a	3.5.1.20	*I, 2
Structural Steel Beams, Columns, Plates, Trusses	SS	Non-ferrous - lubrite	Containment Atmosphere	None	None	III.A4.2-b	3.5.1.20	*I, 4

**Table 3.5.2.2: Reactor Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Bolting & Fasteners	SS, PB	Non-ferrous - aluminum	Inside Air	None	None	None	None	J,
Caulking and Sealants	FLB, PB	Elastomers	Inside Air, Outside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J,
Compressible Joints & Seals	FLB, PB	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Compressible Joints & Seals	FLB, PB	Elastomers	Embedded/encased	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 2
Compressible Joints & Seals	FLB, PB	Elastomers	Inside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 2
Compressible Joints & Seals	FLB, PB	Elastomers	Submerged	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 2
Controlled Leakage Doors	FLB, HE/ME, PB, SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion, mechanical wear.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Controlled Leakage Doors	FLB, HE/ME, PB, SP	Non-ferrous - copper alloys	Inside Air	Loss of material due to mechanical wear.	Structures Monitoring Program (B.2.1.36)	None	None	J,
Controlled Leakage Doors	FLB, HE/ME, PB, SP	Stainless Steel	Inside Air	None	None	None	None	*J, 1
Expansion Joint	ES/SEP	Elastomers - Polyurethane foam	Embedded/encased	Hardening, loss of strength due to elastomer degradation.	TLAA, (4.7)	None	None	*J,
Fire Barriers	FB	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Fire Protection Program (B.2.1.23)	None	None	*J, 2
Fire Barriers	FB	Carbon and Low Alloy Steel	Inside Air	Loss of material due to mechanical wear.	Fire Protection Program (B.2.1.23)	VII.G.3-d	3.3.1.20	A
Fire Barriers -	FB	Elastomers	Inside Air	Increased hardness, shrinkage due to weathering.	Fire Protection Program (B.2.1.23)	VII.G.3-a	3.3.1.20	A
Fire Barriers	FB	Gypsum	Inside Air	Cracking due to vibration. Loss of material due to abrasion.	Fire Protection Program (B.2.1.23)	None	None	J, 2
Fire Barriers	FB	Ceramic fiber	Inside Air	None	None	None	None	*J, 1



**Table 3.5.2.2: Reactor Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fire Barriers	FB	Coatings (ALBI CLAD-161)	Inside Air	Cracking due to vibration. Loss of material due to abrasion, flaking.	Fire Protection Program (B.2.1.23)	None	None	J, 2
Fire Barriers	FB	Masonry	Inside Air	Cracking due to restraint, shrinkage, creep, aggressive environment.	Fire Protection Program (B.2.1.23) Masonry Wall Program (B.2.1.35)	VII.G.3-c	None	*F, 2
Fire Barriers	FB	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates. Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.3-b	3.3.1.30	A
Fire Barriers	FB	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.3-c	3.3.1.30	A
Fire Barriers	FB	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates. Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack. Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.3-b	3.3.1.30	A
Fire Barriers	FB	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.3-c	3.3.1.30	A
Hatches/Plugs	SP, SS	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A2.2-a	None	*I, 1

**Table 3.5.2.2: Reactor Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Hatches/Plugs	SP, SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A2.1-c	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A2.1-d	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A2.1-f	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	None	None	III.A2.1-j	None	*I,
Masonry Block	SS, SS(NSR)	Masonry	Inside Air	Cracking due to restraint, shrinkage, creep, aggressive environment.	Masonry Wall Program (B.2.1.35)	III.A2.3-a	3.5.1.24	A
Metal Roofing	PB, SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Metal Siding	PB, SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Metal Siding	PB, SP	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A2.2-a	None	*I, 1
Penetrations, Electrical and I&C	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SS, SS(NSR)	Non-ferrous - aluminum	Embedded/encased	None	None	None	None	J, 1

**Table 3.5.2.2: Reactor Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Penetrations, Electrical and I&C	SS, SS(NSR)	Non-ferrous - aluminum	Inside Air	None	None	None	None	*J, 1
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A2.2-a	None	*I, 1
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Penetrations, Mechanical	SS, SS(NSR)	Stainless Steel	Embedded/encased	None	None	None	None	*J, 1
Penetrations, Mechanical	SS, SS(NSR)	Stainless Steel	Inside Air	None	None	None	None	*J, 1
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A2.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-b	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-c	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-e	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-g	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-h	None	*I, 10
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A2.1-c	3.5.1.20	A

**Table 3.5.2.2: Reactor Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A2.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A2.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Inside Air	None	None	III.A2.1-h	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Inside Air	None	None	III.A2.1-j	None	*I, 5
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A2.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A2.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A2.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A2.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A2.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, HE/ME, MB, PB, SH, SP, SS	Reinforced Concrete	Outside Air	None	None	III.A2.1-h	None	*I, 10

**Table 3.5.2.2: Reactor Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Roof Membrane	SP	Roof Membrane	Outside Air	Loss of weatherproofing integrity due to cracking, drying, organic decomposition, separation, shrinkage, wear, weathering.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 2
Spent Fuel Pool Liners	PB	Stainless Steel	Embedded/encased	None	None	III.A5.2-b	None	*G, 1
Spent Fuel Pool Liners	PB	Stainless Steel	Inside Air	None	None	III.A5.2-b	None	*G, 1
Spent Fuel Pool Liners	PB	Stainless Steel	Submerged	Loss of material due to crevice corrosion, pitting corrosion. Crack initiation and growth due to SSC.	Chemistry Control Program (B.2.1.5)	III.A5.2-b	3.5.1.23	B
Spent Fuel Storage Racks	CC, SS	Boral	Submerged	Reduction of neutron-absorbing capacity. Loss of material due to general corrosion.	Chemistry Control Program (B.2.1.5)	VII.A2.1-b	3.3.1.10	B
Spent Fuel Storage Racks (includes New Fuel Storage Racks)	CC, SS	Non-ferrous - aluminum	Inside Air	None	None	VII.A1.1-a	None	*F, 1
Spent Fuel Storage Racks	CC, SS	Stainless Steel	Submerged	Crack initiation and growth due to SSC.	Chemistry Control Program (B.2.1.5)	VII.A2.1-c	3.3.1.13	B
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A2.2-a	None	*I, 1
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A

**Table 3.5.2.3: Equipment Access Lock - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Caulking and Sealants	FLB, PB	Elastomers	Inside Air, Outside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J,
Compressible Joints & Seals	FLB, PB	Elastomers	Inside Air, Outside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Controlled Leakage Doors	FLB, PB, SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion, mechanical wear.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Controlled Leakage Doors	FLB, PB, SP	Carbon and Low Alloy Steel	Outside Air	Loss of material due to general corrosion, crevice corrosion, pitting corrosion, mechanical wear.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Controlled Leakage Doors	FLB, PB, SP	Non-ferrous - copper alloys	Outside Air	Loss of material due to mechanical wear.	Structures Monitoring Program (B.2.1.36)	None	None	J, 1
Controlled Leakage Doors	FLB, PB, SP	Stainless Steel	Outside Air	Loss of material due to mechanical wear.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A2.2-a	None	*I, 2
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A2.2-a	None	*I,
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A
Piles	SS	Carbon and Low Alloy Steel	Buried	None	None	III.A2.2-a	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A2.1-a	3.5.1.20	A

**Table 3.5.2.3: Equipment Access Lock - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-b	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-c	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-e	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-g	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Buried	None	None	III.A2.1-h	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A2.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling and scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A2.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A2.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Inside Air	None	None	III.A2.1-h	None	*I, 8
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Inside Air	None	None	III.A2.1-j	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A2.1-a	3.5.1.20	A

**Table 3.5.2.3: Equipment Access Lock - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A2.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A2.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A2.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A2.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, PB, SP, SS	Reinforced Concrete	Outside Air	None	None	III.A2.1-h	3.5.1.25	*I, 8
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to general corrosion, crevice corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A2.2-a	3.5.1.20	A



**Table 3.5.2.4: Earth Berm - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Intake Canals, Dikes, Embankments	SS	Rock and Earthfill	Outside Air, Buried	Loss of material, loss of form due to erosion, settlement, sedimentation, frost action.	Structures Monitoring Program (B.2.1.36)	None	None	*J,

**Table 3.5.2.5: Diesel Generator Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Caulking and Sealants	FLB, PB	Elastomers	Inside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Caulking and Sealants	FLB, PB	Elastomers	Outside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Compressible Joints & Seals	FLB	Elastomers	Inside Air, Outside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Controlled Leakage Doors	FLB, MB, SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion, mechanical wear.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Controlled Leakage Doors	FLB, MB, SP	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion, mechanical wear.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Controlled Leakage Doors	FLB, MB, SP	Non-ferrous - Copper alloy	Outside Air	Loss of material due to mechanical wear.	Structures Monitoring Program (B.2.1.36)	None	None	J, 1
Controlled Leakage Doors	FLB, MB, SP	Stainless Steel	Outside Air	Loss of material due to mechanical wear.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Fire Barriers	FB	Carbon and Low Alloy Steel	Inside Air	Loss of material due to mechanical wear.	Fire Protection Program (B.2.1.23)	VII.G.4-d	3.3.1.20	A
Fire Barriers	FB	Elastomers	Inside Air	Increased hardness, shrinkage due to weathering.	Fire Protection Program (B.2.1.23)	VII.G.4-a	3.3.1.20	A
Fire Barriers	FB	Ceramic fiber	Inside Air	None	None	None	None	*J, 2
Fire Barriers	FB	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates. Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.4-b	3.3.1.30	A
Fire Barriers	FB	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.4-c	3.3.1.30	A

**Table 3.5.2.5: Diesel Generator Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Fire Barriers	FB	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates. Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack, freeze-thaw.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.4-b	3.3.1.30	A
Fire Barriers	FB	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.4-c	3.3.1.30	A
Hatches/Plugs	SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Hatches/Plugs	SP	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*1, 3
Hatches/Plugs	SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A

**Table 3.5.2.5: Diesel Generator Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Hatches/Plugs	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Hatches/Plugs	SP, SS	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Masonry Block	SS(NSR)	Masonry	Inside Air	Cracking due to restraint, shrinkage, creep, aggressive environment.	Masonry Wall Program (B.2.1.35)	III.A3.3-a	3.5.1.24	A
Metal Siding	PB, SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Metal Siding	PB, SP	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I, 2
Penetrations, Electrical and I&C	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SS, SS(NSR)	Non-ferrous - aluminum	Embedded/encased	None	None	None	None	J, 2
Penetrations, Electrical and I&C	SS, SS(NSR)	Non-ferrous - aluminum	Inside Air	None	None	None	None	*J, 2

**Table 3.5.2.5: Diesel Generator Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Penetrations, Electrical and I&C	SS, SS(NSR)	Non-ferrous - aluminum	Outside Air	None	None	None	None	*J, 2
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*1, 2
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scalling), cracking, due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*1, 4
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*1, 5
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*1, 6
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*1, 7
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A

**Table 3.5.2.5: Diesel Generator Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*1, 3
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling), cracking, due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, MB, SP, SS	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Structural Steel Beams, Columns, Plates, Trusses	FLB, SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Structural Steel Beams, Columns, Plates, Trusses	FLB, SS, SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A

**Table 3.5.2.6: Standby Gas Treatment Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I,
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I, 1
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scalling), cracking due freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A

**Table 3.5.2.6: Standby Gas Treatment Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A



**Table 3.5.2.6: Standby Gas Treatment Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A

**Table 3.5.2.7: Off-Gas Treatment Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Caulking and Sealants	PB	Elastomers	Inside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	*J,
Penetrations, Mechanical	PB	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I,
Penetrations, Mechanical	PB	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Buried	None	None	III.A3.1-h	None	*I,

**Table 3.5.2.7: Off-Gas Treatment Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Inside Air	None	None	III.A3.1-h	None	*I, 7
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	PB	Reinforced Concrete	Outside Air	None	None	III.A3.1-h	None	*I, 7

**Table 3.5.2.8: Vacuum Pipe Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Hatches/Plugs	SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Hatches/Plugs	SP	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I,
Penetrations, Electrical and I&C	SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I, 1
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A

**Table 3.5.2.8: Vacuum Pipe Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, and loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A

**Table 3.5.2.8: Vacuum Pipe Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A

**Table 3.5.2.9: Residual Heat Removal Service Water Tunnels - Summary Of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Compressible Joints & Seals	DP, SP	Elastomers	Buried	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	J,
Penetrations, Electrical and I&C	SP, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I,
Penetrations, Electrical and I&C	SP, SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Piles	SS(NSR)	Carbon and Low Alloy Steel	Buried	None	None	III.A3.2-a	None	*I,
Piles	SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I, 2
Tunnels	SP, SS(NSR)	Carbon and Low Alloy Steel	Buried	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Tunnels	SP, SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*I,

**Table 3.5.2.8: Vacuum Pipe Building - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-h	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Outside Air	Cracking, loss of bond and loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Outside Air	None	None	III.A3.1-h	None	*I, 8

**Table 3.5.2.10: Electrical Cable Tunnel from Intake Pumping Station to the Powerhouse - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Fire Barriers	FB	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates. Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.2-b	3.3.1.30	A
Fire Barriers	FB	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Fire Protection Program (B.2.1.23) Structures Monitoring Program (B.2.1.36)	VII.G.2-c	3.3.1.30	A
Penetrations, Electrical and I&C	SP, SS	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I,
Penetrations, Electrical and I&C	SP, SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SP, SS	Non-ferrous - aluminum	Embedded/encased	None	None	None	None	J, 1
Penetrations, Electrical and I&C	SP, SS	Non-ferrous - aluminum	Inside Air	None	None	None	None	*J, 1
Tunnels	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-a	None	*I,
Tunnels	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*I,
Tunnels	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*I,
Tunnels	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*I,
Tunnels	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*I,
Tunnels	SP, SS	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A

**Table 3.5.2.10: Electrical Cable Tunnel from Intake Pumping Station to the Powerhouse - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Tunnels	SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Tunnels	SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Tunnels	SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Tunnels	SP, SS	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Tunnels	SP, SS	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*I,



**Table 3.5.2.11: Underground Concrete Encased Structures - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Caulking and Sealants	FLB, SP	Elastomers	Buried, Embedded/encased, Inside Air, Outside Air	Hardening, loss of strength due to elastomer degradation.	Structures Monitoring Program (B.2.1.36)	None	None	J,
Duct Banks, Manholes	SP, SS	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	I,
Duct Banks, Manholes	SP, SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	I,
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	I,
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	I,
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	I,
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A

**Table 3.5.2.11: Underground Concrete Encased Structures - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	I,
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Duct Banks, Manholes	SP, SS	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I, 1
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I, 1
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A

**Table 3.5.2.12: Intake Pumping Station - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Caulking and Sealants	FLB, SP	Elastomers	Outside Air, Inside Air	Hardening, loss of strength due to elastomer degradation	Inspection of Water-Control Structures Program (B.2.1.37)	None	None	*J,
Compressible Joints & Seals	FLB, SP	Elastomers	Outside Air	Hardening, loss of strength due to elastomer degradation	Inspection of Water-Control Structures Program (B.2.1.37)	None	None	*J, 1
Controlled Leakage Doors	FLB, SP, SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion, mechanical wear	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	A
Controlled Leakage Doors	FLB, SP, SS	Non-ferrous - copper alloys	Outside Air	Loss of material due to mechanical wear.	Inspection of Water-Control Structures Program (B.2.1.37)	None	None	J, 1
Controlled Leakage Doors	FLB, SP, SS	Stainless Steel	Outside Air	Loss of material due to mechanical wear.	Inspection of Water-Control Structures Program (B.2.1.37)	None	None	*J, 1
Fire Barriers	FB	Thermolag	Inside Air	Cracking due to vibration. Loss of material due to abrasion.	Fire Protection Program (B.2.1.23)	None	None	*J, 1
Masonry Block	SS(NSR)	Masonry Block	Inside Air	Cracking due to restraint, shrinkage, creep, aggressive environment.	Masonry Wall Program (B.2.1.35)	III.A6.3-a	3.5.1.24,	A
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A6.2-a	None	*I,
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	A
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	A
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Non-ferrous - aluminum	Embedded/encased	None	None	None	None	J, 2
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Non-ferrous - aluminum	Inside Air	None	None	None	None	*J, 2
Penetrations, Electrical and I&C	SP, SS, SS(NSR)	Non-ferrous - aluminum	Outside Air	None	None	None	None	*J, 2

**Table 3.5.2.12: Intake Pumping Station - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A6.2-a	None	*I, 2
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-a	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Buried	None	None	III.A6.1-b	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Buried	None	None	III.A6.1-c	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Buried	None	None	III.A6.1-d	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Buried	None	None	III.A6.1-e	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Buried	None	None	III.A6.1-f	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Inside Air	None	None	III.A6.1-a	None	I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-b	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-c	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-d	3.5.1.22	A

**Table 3.5.2.12: Intake Pumping Station - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-e	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Inside Air	None	None	III.A6.1-f	None	*1, 7
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-a	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-b	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-c	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-d	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-e	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Outside Air	None	None	III.A6.1-f	None	*1, 7
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Submerged	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-a	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Submerged	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	None	III.A6.1-b	None	*1, 3
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Submerged	None	None	III.A6.1-c	None	*1, 4

**Table 3.5.2.12: Intake Pumping Station - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Submerged	None	None	III.A6.1-d	None	*I, 5
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Submerged	None	None	III.A6.1-e	None	*I, 6
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Submerged	None	None	III.A6.1-f	None	*I, 7
Reinforced Concrete Beams, Columns, Walls, and Slabs	FLB, SP, SS	Reinforced Concrete	Submerged	None	None	III.A6.1-h	None	*I,
Structural Steel Beams, Columns, Plates, Trusses	SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	C
Structural Steel Beams, Columns, Plates, Trusses	SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	C

**Table 3.5.2.13: Gate Structure No. 3 - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piles	FD, SS	Carbon and Low Alloy Steel	Buried	None	None	III.A6.2-a	None	*I, 1
Piles	FD, SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	A
Piles	FD, SS	Carbon and Low Alloy Steel	Submerged	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-a	3.5.1.22	C
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-b	3.5.1.22	C
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-c	3.5.1.22	C
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-d	3.5.1.22	C
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.1-e	3.5.1.22	C
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Outside Air	None	None	III.A6.1-f	3.5.1.22	*I, 2
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A6.2-a	None	*I, 3
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.2-a	3.5.1.22	A

**Table 3.5.2.14: Intake Channel - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Intake Canals, Dikes, Embankments	SCW, SS	Earthfill (clay and in-situ soil)	Outside, Buried, Submerged	Loss of material, loss of form due to erosion, sedimentation, frost action, seepage.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.4-a	3.5.1.22	A

**Table 3.5.2.15: North Bank of Cool Water Channel East of Gate Structure No. 2 - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Intake Canals, Dikes, Embankments	SS	Earthfill (clay and in-situ soil)	Outside, Buried, Submerged	Loss of material, loss of form due to erosion, sedimentation, frost action, seepage.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.4-a	3.5.1.22	A

**Table 3.5.2.16: South Dike of Cool Water Channel Between Gate Structure Nos. 2 and 3 - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Intake Canals, Dikes, Embankments	SS	Earthfill (clay and in-situ soil)	Outside Air, Buried, Submerged	Loss of material, loss of form due to erosion, sedimentation, frost action, seepage.	Inspection of Water-Control Structures Program (B.2.1.37)	III.A6.4-a	3.5.1.22	A



**Table 3.5.2.17: Condensate Water Storage Tanks' Foundations and Trenches - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Equipment Supports & Foundations	SS	Earthfill (rock and sand)	Buried	None	None	None	None	*J,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A8.1-a	3.5.1.20	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	None	None	III.A8.1-b	None	*I,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	None	None	III.A8.1-c	None	*I,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	None	None	III.A8.1-d	None	*I,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	None	None	III.A8.1-e	None	*I,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A8.1-f	3.5.1.25	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A8.1-a	3.5.1.20	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A8.1-b	3.5.1.20	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A8.1-c	3.5.1.20	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A8.1-d	3.5.1.21	A

**Table 3.5.2.17: Condensate Water Storage Tanks' Foundations and Trenches - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A8.1-e	3.5.1.21	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A8.1-f	3.5.1.25	A
Penetrations, Electrical and I&C	SP, SS	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A8.2-a	None	*I,
Penetrations, Electrical and I&C	SP, SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A8.2-a	3.5.1.20	A
Penetrations, Mechanical	SS	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A8.2-a	None	*I, 6
Penetrations, Mechanical	SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A8.2-a	3.5.1.20	A
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A8.2-a	3.5.1.20	A
Trenches	SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A8.1-a	3.5.1.20	A
Trenches	SP, SS	Reinforced Concrete	Buried	None	None	III.A8.1-b	None	*I, 2
Trenches	SP, SS	Reinforced Concrete	Buried	None	None	III.A8.1-c	None	*I, 3
Trenches	SP, SS	Reinforced Concrete	Buried	None	None	III.A8.1-d	None	*I, 4
Trenches	SP, SS	Reinforced Concrete	Buried	None	None	III.A8.1-e	None	*I, 5

**Table 3.5.2.17: Condensate Water Storage Tanks' Foundations and Trenches - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Trenches	SP, SS	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A8.1-f	3.5.1.25	A
Trenches	SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A8.1-a	3.5.1.20	A
Trenches	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A8.1-b	3.5.1.20	A
Trenches	SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A8.1-c	3.5.1.20	A
Trenches	SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A8.1-d	3.5.1.21	A
Trenches	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A8.1-e	3.5.1.21	A
Trenches	SP, SS	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A8.1-f	3.5.1.25	A

**Table 3.5.2.18: Containment Atmosphere Dilution Storage Tanks' Foundations - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A8.1-a	3.5.1.20	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	None	None	III.A8.1-b	None	*I,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	None	None	III.A8.1-c	None	*I,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	None	None	III.A8.1-d	None	*I,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	None	None	III.A8.1-e	None	*I,
Equipment Supports & Foundations	SS	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A8.1-f	3.5.1.25	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A8.1-a	3.5.1.20	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A8.1-b	3.5.1.20	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A8.1-c	3.5.1.20	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A8.1-d	3.5.1.21	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A8.1-e	3.5.1.21	A
Equipment Supports & Foundations	SS	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A8.1-f	3.5.1.25	A

**Table 3.5.2.19: Reinforced Concrete Chimney - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Hatches/Plugs	SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	None	None	*J,
Hatches/Plugs	SP	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A9.1-c	3.5.1.20	A
Hatches/Plugs	SP	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A9.1-d	3.5.1.20	A
Hatches/Plugs	SP	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A9.1-f	3.5.1.20	A
Hatches/Plugs	SP	Reinforced Concrete	Inside Air	None	None	III.A9.1-h	None	*I,
Metal Roofing	SP, SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Penetrations, Electrical and I&C	SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	None	None	*J,
Penetrations, Electrical and I&C	SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Buried	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	None	None	*J, 3
Penetrations, Mechanical	SS, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A9.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A9.1-b	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A9.1-c	None	*I,

**Table 3.5.2.19: Reinforced Concrete Chimney - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A9.1-e	None	*1,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A9.1-g	None	*1,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Buried	None	None	III.A9.1-h	None	*1, 2
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A9.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A9.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A9.1-f	3.5.1.20	A,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Inside Air	None	None	III.A9.1-h	None	*1, 2
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A9.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A9.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A9.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A9.1-d	3.5.1.20	A

**Table 3.5.2.19: Reinforced Concrete Chimney - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program ( <b>B.2.1.36</b> )	III.A9.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS	Reinforced Concrete	Outside Air	None	None	III.A9.1-h	3.5.1.25	*I, 2
Roof Membrane	SP	Roof Membrane	Inside Air, Outside Air	Loss of weatherproofing integrity due to cracking, drying, organic decomposition, separation, shrinkage, wear, weathering.	Structures Monitoring Program ( <b>B.2.1.36</b> )	None	None	*J, 1
Structural Steel Beams, Columns, Plates, Trusses	SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program ( <b>B.2.1.36</b> )	None	None	*J, 1

**Table 3.5.2.20: Turbine Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Hatches/Plugs (F.1)	SS(NSR)	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Hatches/Plugs (F.1)	SS(NSR)	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Hatches/Plugs (F.1)	SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-h	None	*1,
Hatches/Plugs (F.1)	SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*1,
Hatches/Plugs (F.1)	SS(NSR)	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	IIIA3.1-c	3.5.1.20	A
Masonry Block	SS(NSR)	Masonry	Inside Air	Cracking due to restraint, shrinkage, creep, aggressive environment.	Masonry Wall Program (B.2.1.35)	III.A3.3-a	3.5.1.24	A
Metal Roofing	SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SP, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	3.5.1.20	*1,
Penetrations, Electrical and I&C	SP, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Mechanical	SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*1, 3
Penetrations, Mechanical	SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Piles	SS(NSR)	Carbon and Low Alloy Steel	Buried	None	None	III.A3.2-a	None	*1,



**Table 3.5.2.20: Turbine Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Piles	SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*1, 3
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*1,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*1,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*1,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*1,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-h	None	*1, 1
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-h	None	*1, 1

**Table 3.5.2.20: Turbine Buildings - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*I, 2
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SP, SS(NSR)	Reinforced Concrete	Outside Air	None	None	III.A3.1-h	None	*I, 1
Roof Membrane	SP	Roof Membrane	Outside Air	Loss of weatherproofing integrity due to cracking, drying, organic decomposition, separation, shrinkage, wear, weathering.	Structures Monitoring Program (B.2.1.36)	None	None	*J,
Structural Steel Beams, Columns, Plates, Trusses	SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A

**Table 3.5.2.21: Diesel High Pressure Fire Pump House - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Metal Roofing	SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Metal Siding	SP	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Metal Siding	SP	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SP, SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I,
Penetrations, Electrical and I&C	SP, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Electrical and I&C	SP, SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Mechanical	SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	III.A3.2-a	None	*I, 1
Penetrations, Mechanical	SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Penetrations, Mechanical	SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Piles	SS(NSR)	Carbon and Low Alloy Steel	Buried	None	None	III.A3.2-a	None	*I,
Piles	SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Piles	SS(NSR)	Carbon and Low Alloy Steel	Submerged	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A

**Table 3.5.2.21: Diesel High Pressure Fire Pump House - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-h	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A

**Table 3.5.2.21: Diesel High Pressure Fire Pump House - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	None	None	III.A3.1-h	None	*I, 3
Roof Membrane	SP	Roof Membrane	Outside Air	Loss of weatherproofing integrity due to cracking, drying, organic decomposition, separation, shrinkage, wear, weathering.	Structures Monitoring Program (B.2.1.36)	None	None	*J,
Structural Steel Beams, Columns, Plates, Trusses	DP, SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Structural Steel Beams, Columns, Plates, Trusses	DP, SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Structural Steel Beams, Columns, Plates, Trusses	DP, SS(NSR)	Stainless Steel	Outside Air	None	None	None	None	*J, 1
Structural Steel Beams, Columns, Plates, Trusses	DP, SS(NSR)	Stainless Steel	Submerged	Loss of material due to crevice corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 5

**Table 3.5.2.22: Vent Vaults - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Buried	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*I,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A

**Table 3.5.2.22: Vent Vaults - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*1,
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Loss of material (spalling, scaling) and cracking due to freeze-thaw.	Structures Monitoring Program (B.2.1.36)	III.A3.1-a	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Increase in porosity and permeability, loss of strength due to leaching of calcium hydroxide.	Structures Monitoring Program (B.2.1.36)	III.A3.1-b	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A

**Table 3.5.2.22: Vent Vaults - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS(NSR)	Reinforced Concrete	Outside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A

**Table 3.5.2.23: Transformer Yard - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Piles	SS(NSR)	Carbon and Low Alloy Steel	Buried	None	None	III.A3.2-a	None	*I,
Piles	SS(NSR)	Carbon and Low Alloy Steel	Embedded/Encased	None	None	III.A3.2-a	None	*I,
Structural Steel Beams, Columns, Plates, Trusses	SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A



**Table 3.5.2.24: 161 kV 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 1 Item	Notes
Structural Steel Beams, Columns, Plates, Trusses	SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-a	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A

**Table 3.5.2.24: 161 kV 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 1 Item	Notes
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*I,

**Table 3.5.2.25: 500 kV 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 1 Item	Notes
Structural Steel Beams, Columns, Plates, Trusses	SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.A3.2-a	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-a	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-b	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-c	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-e	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	None	None	III.A3.1-g	None	*I,
Tunnels	SP, SS(NSR)	Reinforced Concrete	Buried	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	Expansion and cracking due to reaction with aggregates.	Structures Monitoring Program (B.2.1.36)	III.A3.1-c	3.5.1.20	A

**Table 3.5.2.25: 500 kV 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 1 Item	Notes
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	Cracking, loss of bond, loss of material (spalling, scaling) due to corrosion of embedded steel.	Structures Monitoring Program (B.2.1.36)	III.A3.1-d	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	Increase in porosity and permeability, cracking, loss of material (spalling, scaling) due to aggressive chemical attack.	Structures Monitoring Program (B.2.1.36)	III.A3.1-f	3.5.1.20	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	Cracks, distortion, increase in component stress level due to settlement.	Structures Monitoring Program (B.2.1.36)	III.A3.1-h	3.5.1.25	A
Tunnels	SP, SS(NSR)	Reinforced Concrete	Inside Air	None	None	III.A3.1-j	None	*1,

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.1.1-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion. Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads. None	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.1.1-a	None	*G, 1
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	None	None	III.B1.1.2-a	None	*I, 2
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads. None	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.1.3-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS	Stainless Steel	Containment Atmosphere	None	None	III.B1.1.3-a	None	*I, 3
ASME Equivalent Supports and Components	SS	Stainless Steel	Inside Air	None	None	III.B1.1.3-a	None	*G, 3
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.1-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.1-a	3.5.1.32	B

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.1-a	None	*G, 1
ASME Equivalent Supports and Components	SS	Stainless Steel	Inside Air	None	None	III.B1.2.1-a	None	*F, 3
ASME Equivalent Supports and Components	SS	Stainless Steel	Submerged	Loss of material due to crevice corrosion, pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection (B.2.1.29)	III.B1.2.1-a	None	*F, 1
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.2-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.2-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS	Non-ferrous - aluminum	Inside Air	None	None	III.B1.2.2-a	None	*I, 3
ASME Equivalent Supports and Components	SS	Stainless Steel	Containment Atmosphere	None	None	III.B1.2.2-a	None	*I, 3
ASME Equivalent Supports and Components	SS	Stainless Steel	Inside Air	None	None	III.B1.2.2-a	None	*I, 3
ASME Equivalent Supports and Components	SS	Cast Iron and Cast Iron Alloys	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	None	None	*J, 1

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
ASME Equivalent Supports and Components	SS	Stainless Steel	Outside Air	None	None	None	None	*J, 3
Cable Trays & Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	C
Cable Trays & Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	C
Conduit & Supports	SP, SS, and/or SS(NSR)	Carbon and Low Alloy Steel	Embedded/encased	None	None	None	None	*J, 3
Conduit & Supports	SP, SS, and/or SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	None	None	*J, 1
Conduit & Supports	SP, SS, and/or SS(NSR)	Non-ferrous - aluminum	Containment Atmosphere	None	None	None	None	*J, 3
Conduit & Supports	SP, SS, and/or SS(NSR)	Non-ferrous - aluminum	Inside Air	None	None	None	None	*J, 3
Conduit & Supports	SP, SS, and/or SS(NSR)	Non-ferrous - aluminum	Outside Air	None	None	None	None	*J, 3
Conduit & Supports	SP, SS, and/or SS(NSR)	Stainless Steel	Containment Atmosphere	None	None	None	None	*J, 3

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Duct Banks, Manholes	SS	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B2.2-a	3.5.1.29	A
Duct Banks, Manholes	SS	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B3.2-a	3.5.1.29	A
Electrical Panels, Racks, Cabinets, & Other Enclosures(SI Only)	SP, SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B3.1-a	3.5.1.29	A
Electrical Panels, Racks, Cabinets, & Other Enclosures(SI Only)	SP, SS, and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B3.1-a	3.5.1.29	A
Electrical Panels, Racks, Cabinets, & Other Enclosures(SI Only)	SP, SS, and/or SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.B3.1-a	None	*G, 1
Electrical Panels, Racks, Cabinets, & Other Enclosures(SI Only)	SP, SS, and/or SS(NSR)	Non-ferrous - aluminum	Inside Air	None	None	III.B3.1-a	None	*F, 3

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Electrical Panels, Racks, Cabinets, & Other Enclosures(SI Only)	SP, SS	Stainless Steel	Containment Atmosphere	None	None	III.B3.1-a	None	*F, 3
Electrical Panels, Racks, Cabinets, & Other Enclosures(SI Only)	SP, SS, and/or SS(NSR)	Stainless Steel	Inside Air	None	None	III.B3.1-a	None	*F, 3
Equipment Supports & Foundations	SS and/or SS(NSR)	Non-ferrous - Lubrite	Inside Air	None	None	III.B1.2.2-a	None	*I, 3
Equipment Supports & Foundations	SS and/or SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B2.2-a	None	G, 1
Equipment Supports & Foundations	SS and/or SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B3.2-a	None	G, 1
Equipment Supports & Foundations	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B4.1-a	3.5.1.29	A
Equipment Supports & Foundations	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B4.1-a	3.5.1.29	A



**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Equipment Supports & Foundations	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.B4.1-a	None	*G, 1
Equipment Supports & Foundations	SS(NSR)	Reinforced Concrete	Buried	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B4.3-a	None	*G, 4
Equipment Supports & Foundations	SS and/or SS(NSR)	Reinforced Concrete	Containment Atmosphere	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B4.3-a	3.5.1.29	A
Equipment Supports & Foundations	SS and/or SS(NSR)	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B4.3-a	3.5.1.29	A
Equipment Supports & Foundations	SS and/or SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B4.3-a	None	G, 1
HVAC Duct Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	A

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
HVAC Duct Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	A
HVAC Duct Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	None	*G, 1
Instrument Line Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	A
Instrument Line Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	A
Instrument Line Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	None	*G, 1
Instrument Line Supports	SS and/or SS(NSR)	Stainless Steel	Containment Atmosphere	None	None	III.B2.1-a	None	*F, 3
Instrument Line Supports	SS and/or SS(NSR)	Stainless Steel	Inside Air	None	None	III.B2.1-a	None	*F, 3
Instrument Racks, Frames, Panels, & Enclosures(SI Only)	SP, SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B3.1-a	3.5.1.29	A
Non-ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	A
Non-ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	A

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Non-ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	None	*G, 1
Non-ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Submerged	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Chemistry Control Program (B.2.1.5)	III.B2.1-a	None	*G, 1
Non-ASME Equivalent Supports and Components	SS and/or SS(NSR)	Non-ferrous - aluminum	Inside Air	None	None	III.B2.1-a	None	*F, 3
Non-ASME Equivalent Supports and Components	SS	Non-ferrous - aluminum	Outside Air	None	None	III.B2.1-a	None	*F, 3
Non-ASME Equivalent Supports and Components	SS and/or SS(NSR)	Stainless Steel	Containment Atmosphere	None	None	III.B2.1-a	None	*F, 3
Non-ASME Equivalent Supports and Components	SS and/or SS(NSR)	Stainless Steel	Inside Air	None	None	III.B2.1-a	None	*F, 3
Non-ASME Equivalent Supports and Components	SS	Stainless Steel	Outside Air	None	None	III.B2.1-a	None	*F, 3
Pipe Whip Restraints & Jet Impingement Shields	HE/ME Shielding, PW	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B5.1-a	3.5.1.29	A
Pipe Whip Restraints & Jet Impingement Shields	PW	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B5.1-a	3.5.1.29	A

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Pipe Whip Restraints & Jet Impingement Shields	PW	Stainless Steel	Inside Air	None	None	III.B1.1.4-a	None	*F, 3
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B1.1.4-a	3.5.1.29	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B1.1.4-a	None	G, 1
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B1.2.3-a	3.5.1.29	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS and/or SS(NSR)	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B1.2.3-a	3.5.1.29	A

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS and/or SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B1.2.3-a	None	G, 1
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B1.3.3-a	3.5.1.29	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B2.2-a	3.5.1.29	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS and/or SS(NSR)	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B2.2-a	3.5.1.29	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS and/or SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B2.2-a	None	G, 1

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B3.2-a	3.5.1.29	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS and/or SS(NSR)	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B3.2-a	3.5.1.29	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B3.2-a	None	G, 1
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS	Reinforced Concrete	Containment Atmosphere	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B5.2-a	3.5.1.29	A
Reinforced Concrete Beams, Columns, Walls, and Slabs	SS and/or SS(NSR)	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B5.2-a	3.5.1.29	A

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Stairs, Platforms, Grating Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B5.1-a	3.5.1.29	A
Stairs, Platforms, Grating Supports	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B5.1-a	3.5.1.29	A
Stairs, Platforms, Grating Supports	SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.B5.1-a	None	*G, 1
Stairs, Platforms, Grating Supports	SS and/or SS(NSR)	Non-ferrous - aluminum	Inside Air	None	None	III.B5.1-a	None	*F, 3
Stairs, Platforms, Grating Supports	SS and/or SS(NSR)	Stainless Steel	Containment Atmosphere	None	None	III.B5.1-a	None	*F, 3
Supports for Drywell, Torus, and Vent System	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B1.3.1-a	3.5.1.32	E
Supports for Drywell, Torus, and Vent System	SS	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B1.3.1-a	3.5.1.32	E
Supports for Drywell, Torus, and Vent System	SS	Carbon and Low Alloy Steel	Submerged	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection (B.2.1.29)	III.B1.3.1-a	3.5.1.32	E
Trenches	SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B3.2-a	None	G, 1

**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Tube Track	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	A
Tube Track	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	3.5.1.29	A
Tube Track	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	Structures Monitoring Program (B.2.1.36)	III.B2.1-a	None	*G, 1
Tunnels	SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B1.2.3-a	None	G, 1
Tunnels	SS and/or SS(NSR)	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B2.2-a	3.5.1.29	A
Tunnels	SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B2.2-a	None	G, 1



**Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging effect requiring management	Aging Management Program	NUREG - 1801 Vol. 2 Item	Table 1 Item	Notes
Tunnels	SS	Reinforced Concrete	Inside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B3.2-a	3.5.1.29	A
Tunnels	SS(NSR)	Reinforced Concrete	Outside Air	Reduction in concrete anchor capacity due to local concrete degradation, service induced cracking or other concrete aging mechanisms.	Structures Monitoring Program (B.2.1.36)	III.B3.2-a	None	G, 1

**Table 3.6.2.1: Electrical and Instrumentation and Control Commodities - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Bus and High-Voltage Insulators	INS	Non-metallic portions of phase bus and high-voltage insulators	Inside Air Outside Air	Embrittlement, cracking, melting, discoloration, or loss of dielectric strength leading to reduced insulation resistance, electrical failure of phase bus due to (Thermal/thermooxidative ) degradation of organics caused by heat in the presence of oxygen (includes ohmic heating of bus)	Bus Inspection Program (B.2.1.40)	None	None	J, 1
Bus, Transmission Conductors, and High-Voltage Insulators (includes fastening hardware for electrical continuity and non-electrical applications such as bus enclosures)	CE, SS	Metallic portions of bus (phase and switchyard), transmission conductors, and high-voltage insulators	Inside Air Outside Air	Loosening of fastening hardware due to cyclic loading of phase bus resulting in thermal expansion and contraction of the bus	Bus Inspection Program (B.2.1.40)	None	None	J, 2

**Table 3.6.2.1: Electrical and Instrumentation and Control Commodities - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Electrical cables and connections not subject to 10 CFR 50.49 EQ requirements	CE	Various Organic Polymers	Adverse Localized Environment caused by heat, radiation, or moisture in the presence of oxygen	Embrittlement, cracking, melting, discoloration, swelling, or loss of dielectric strength leading to reduced insulation resistance, electrical failure caused by (Thermal/thermooxidative ) degradation of organics caused by heat in the presence of oxygen or Radiation-induced oxidation, radiolysis and photolysis (UV sensitive materials only) of organics, caused by radiation in the presence of oxygen	Accessible Non-EQ Cables and Connections Inspection Program (B.2.1.1)	VI.A.1-a	3.6.1.2	A, 3, 4

**Table 3.6.2.1: Electrical and Instrumentation and Control Commodities - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG -1801 Vol. 2 Item	Table 1 Item	Notes
Electrical cables used in instrumentation circuits not subject to 10 CFR 50.49 EQ Requirements	CE	Various Organic Polymers	Adverse Localized Environment caused by heat, radiation, or moisture in the presence of oxygen	Embrittlement, cracking, melting, discoloration, swelling, or loss of dielectric strength leading to reduced insulation resistance, electrical failure caused by (Thermal/thermooxidative ) degradation of organics caused by heat in the presence of oxygen or Radiation-induced oxidation, radiolysis and photolysis (UV sensitive materials only) of organics, caused by radiation in the presence of oxygen	Electrical Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program (B.2.1.2)	VI.A.1-b	3.6.1.3	B, 4
Inaccessible medium-voltage (2kV to 15kV) cables not subject to 10 CFR 50.49 EQ requirements	CE	Various Organic Polymers	Adverse Localized Environment caused by exposure to moisture and voltage	Formation of water trees, localized damage, leading to electrical failure (breakdown of insulation) caused by moisture intrusion, water trees	Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program (B.2.1.3)	VI.A.1-c	3.6.1.4	A
Various Electrical equipment subject to 10 CFR 50.49 EQ requirements (F.4)	CE	Various polymeric and metallic materials	Adverse Localized Environment caused by heat, radiation, oxygen, moisture, or voltage	Various degradation/Various mechanisms	None	VI.B.1-a	3.6.1.1	A

## **Appendix E**

### **Consistent with GALL Report AMP Audit/Review Worksheet**

The worksheet provided in this appendix provides, as an aid for the reviewer, a process for documenting the basis for the assessment of the elements and subelements contained in the GALL Report AMPs (Chapter XI of NUREG-1801, Volume 2). The worksheet provides a systematic method for recording the basis for assessments or to identify when the applicant needs to provide clarification or additional information. Information recorded in the worksheets will also be used to prepare the audit and review report and the safety evaluation report input.

## Consistent with GALL Report AMP Audit/Review Worksheet

LRA Appendix Subsection:	LRA AMP Title:
GALL Report Subsection:	GALL Report Title:

### A. Element Review and Audit

#### Program Description:

Consistent with GALL Report    Difference Identified

Discussion:

#	GALL Report AMP	LRA AMP	Comment

#### 1. Scope of Program:

Consistent with GALL Report    Exception    Enhancement    Difference Identified

Discussion:

#	GALL Report AMP	LRA AMP	Comment

#### 2. Preventive Action:

Consistent with GALL Report    Exception    Enhancement    Difference Identified

Discussion:

#	GALL Report AMP	LRA AMP	Comment

#### 3. Parameters Monitored/Inspected:

Consistent with GALL Report    Exception    Enhancement    Difference Identified

Discussion:

#	GALL Report AMP	LRA AMP	Comment

#### 4. Detection of Aging Effects:

Consistent with GALL Report    Exception    Enhancement    Difference Identified

Discussion:

#	GALL Report AMP	LRA AMP	Comment

#### 5. Monitoring and Trending:

Consistent with GALL Report    Exception    Enhancement    Difference Identified

Discussion:

#	GALL Report AMP	LRA AMP	Comment

**6. Acceptance Criteria:**

Consistent with GALL Report    Exception    Enhancement    Difference Identified

Discussion:

#	GALL Report AMP	LRA AMP	Comment

**7. Corrective Action:** *To be performed by DIPM*

**8. Confirmation Process:** *To be performed by DIPM*

**9. Administrative Controls:** *To be performed by DIPM*

**10. Operating Experience:**

#	GALL Report AMP	LRA AMP	Comment

**B. FSAR supplement review:** *(Include any commitments.)*

**C. Remarks and questions:**

**D. References/documents used:** *(Include number designation, full title, revision number, date, and page numbers, and ADAMS accession number.)*

**E. Applicant contact:**

Project team member: \_\_\_\_\_ Date: \_\_\_\_\_

## **Appendix F**

### **Plant-Specific AMP Audit/Review Worksheet**

The worksheet provided in this appendix provides, as an aid for the reviewer, a process for documenting the basis for the assessments concerning individual program elements and subelements contained in Branch Technical Position RLSB-1 "Aging Management Review - Generic," in Appendix A to the SRP-LR. The worksheet provides a systematic method to record the basis for assessments or identifying when the applicant needs to provide additional information. Information recorded in these worksheets will be used when preparing the audit and review report and the safety evaluation report input.



## Plant-Specific AMP Audit/Review Worksheet

AMP Title: \_\_\_\_\_

Appendix Subsection: \_\_\_\_\_

### A. Element Review and Audit

#### 1. Scope of Program:

Consistent with SRP-LR  Exception  Difference Identified

Discussion:

SRP-LR Criteria	LRA AMP	Comment*

#### 2. Preventive Action:

Consistent with SRP-LR  Exception  Difference Identified

Discussion:

SRP-LR Criteria	LRA AMP	Comment*

#### 3. Parameters Monitored/Inspected:

Consistent with SRP-LR  Exception  Difference Identified

Discussion:

SRP-LR Criteria	LRA AMP	Comment*

#### 4. Detection of Aging Effects:

Consistent with SRP-LR  Exception  Difference Identified

Discussion:

SRP-LR Criteria	LRA AMP	Comment*

#### 5. Monitoring and Trending:

Consistent with SRP-LR  Exception  Difference Identified

Discussion:

SRP-LR Criteria	LRA AMP	Comment*

#### 6. Acceptance Criteria:

Consistent with SRP-LR  Exception  Difference Identified

Discussion:

SRP-LR Criteria	LRA AMP	Comment*

**7. Corrective Action: To be performed by DIPM**

**8. Confirmation Process: To be performed by DIPM**

**9. Administrative Controls: To be performed by DIPM**

**10. Operating Experience:**

Consistent with SRP-LR  Exception  Difference Identified

Discussion:

SRP-LR Criteria	LRA AMP	Comment*

\* Consistent or technical basis for accepting exception or difference

**B. FSAR supplement review:** (Include any commitments.)

**C. Remarks and questions:**

**D. References/documents used:** (Include number designation, full title, revision number, date, page numbers, and ADAMS accession number.)

**E. Applicant contact:**

**Project team member:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## **Appendix G**

### **AMR Comparison Worksheets**

**Appendix G**

**AMR Worksheet**

**Table 3.X.1 AMR Comparison Worksheet  
“Further Evaluation Recommended”**

**AMR System:** \_\_\_\_\_

**Project Team Member:** \_\_\_\_\_

**Date:** \_\_\_\_\_

The project team verified that items in Table 3.X.1 (Table 1) correlate to items in the GALL Report Volume 1, Table X. All items in Table 1 were reviewed. Those items that have a “yes” for “further evaluation recommended” are addressed in the following table. All other items in Table 1 are determined to be consistent with the GALL Report, except those items listed below. The entireties below are questions that when responded to by the applicant may result in the reviewer concluding that the AMR is consistent with the GALL Report.

<b>Item No.</b>	<b>Further Evaluation Recommended</b>	<b>Basis for Concluding That “Further Evaluation Required” is Consistent with the GALL Report or Question for Applicant</b>

**Table 3.X.2-Y AMR Worksheet**

**AMR System:**

**AMR Section:**

**Project Team Member:** \_\_\_\_\_

**Date:** \_\_\_\_\_

AMR line items assigned to the Project Team were reviewed for consistency with GALL Report, Volume 2, tables and adequacy of the aging managing programs. All items in the Table 2 of the \_\_\_\_\_ system are acceptable with the exception of the following items. (Note: to facilitate the review, Table 2 items were “rolled-up” to their Table 1 corresponding AMP or sorted based on aging effect and material. An example of a page from a roll-up table is provided below.)

<b>Note Type</b>	<b>Component Type</b>	<b>Question for Applicant and Response</b>
		9 Confirm acceptable additional evaluation or 9 N/A
		9 Confirm acceptable additional evaluation or 9 N/A
		9 Confirm acceptable additional evaluation or 9 N/A

Applicant Contact:

References/Documents Used:

LRA Table	Row No.	Component Type	Intended Function	Material	Environment	Aging Effect Requiring Mgmt	Aging Mgmt Prgm	NUREG -1801 Vol. 2	LRA Table 1 Item	Notes	Disposition
3.2.2.3	45	Fittings - RCPB	FR, PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-e	3.1.1.1	A, 8	
3.2.2.3	84	Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-e	3.1.1.1	A	
3.2.2.3	140	Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A	
3.2.2.4	28	Fittings - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A	
3.2.2.4	65	Piping - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.1-h	3.1.1.1	A	
3.2.2.4	108	Valves - RCPB	PB	Carbon and Low Alloy Steel	Treated Water (internal)	Crack initiation/growth due to fatigue.	None	IV.C1.3-d	3.1.1.1	A	

**Appendix H**  
**List of Abbreviations**

## Appendix H

### List of Abbreviations

ADAMS	Agencywide Documents Access and Management System
AMP	aging management program
AMR	aging management review
ASME	American Society of Mechanical Engineers
BNL	Brookhaven National Laboratory
BFN	Browns Ferry Nuclear Plant
CLB	current licensing basis
DE	Division of Engineering
DIPM	Division of Inspection Program Management
FSAR	Final Safety Analysis Report
GALL	Generic Aging Lessons Learned
ISG	Interim staff guidance
LRA	license renewal application
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
RAI	request for additional information
RLEP-B	License Renewal and Environmental Impacts Program, Section B
RLSB	License Renewal and Standardization Branch
SC	structures and components
SER	safety evaluation report
SRP-LR	Standard Review Plan-License Renewal
SSC	structure, system, and component
TVA	Tennessee Valley Authority
UFSAR	Updated Final Safety Analysis Report