Pacific Gas and Electric Company®

James R. Becker
Site Vice President

Diablo Canyon Power Plant
Mail Code 104/5/601
P. O. Box 56
Avila Beach, CA 93424

805.545.3462
Internal: 691.3462
Fax: 805.545.6445

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PG&E Letter DCL-10-067

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Response to License Renewal Application (LRA) Request for Additional Information and LRA Errata

Reference 1: PG&E Letter DCL-09-079, "License Renewal Application," dated November 23, 2009

Dear Commissioners and Staff:

By letter dated November 23, 2009 (Reference 1), Pacific Gas and Electric Company (PG&E) submitted a License Renewal Application (LRA) for Diablo Canyon Units 1 and 2 (DCPP) requesting the DCPP Facility Operating Licenses be extended for 20 years beyond their current expiration dates.

In a letter to PG&E dated May 24, 2010, the NRC requested additional information (RAI) related to the LRA Scoping and Screening Methodology Audit conducted at DCPP March 15-18, 2010. PG&E's responses to these RAIs are provided in Enclosure 1. PG&E has identified additional changes that are required in the LRA submitted in Reference 1. Descriptions of these errata changes are included in Enclosure 2. LRA Amendment 1 resulting from the responses and errata are included in Enclosure 3 showing the changed pages with line-in/line-out annotations.

PG&E determined that high-energy piping in the turbine building should be included in the scope of license renewal in accordance with 10 CFR 54.4(a)(2) under the preventative option of NEI 95-10, Appendix F to protect safety-related cable in the turbine building from the effects of pipe whip and jet impingement. The high energy piping in the turbine building will be added in a future amendment to the LRA.

Should you have any questions or if additional information is needed regarding this letter, please contact Mr. Terence L. Grebel, License Renewal Project Manager, at (805) 545-4160.

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NRR

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 18, 2010.

Sincerely,

James R. Becker
Site Vice President

pns3/9782
Enclosures
cc: Diablo Distribution
cc/enc: Elmo E. Collins, NRC Region IV Regional Administrator
Kimberly J. Green, NRC Project Manager, License Renewal
Nathaniel Ferrer, NRC Project Manager, License Renewal
Michael S. Peck, NRC Senior Resident Inspector
Alan B. Wang, NRC Project Manager, Office of Nuclear Reactor Regulation

Diablo Canyon Nuclear Power Plant, Units 1 and 2 (DCPP)
License Renewal Application (LRA)
Request for Additional Information Set 2
Scoping and Screening Methodology

RAI 2.1-1

10 CFR 54.4, "Scope," states, in part,

> *(a) Plant systems, structures and components within the scope of this part are –*
>
> > *(1) Safety-related systems, structures, and components which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49(b)(1)) to ensure the following functions –*
> >
> > > *(i) The integrity of the reactor coolant pressure boundary;*
> > > *(ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or*
> > > *(iii) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.*

During the scoping and screening methodology audit, performed on site March 15-18, 2010, the staff determined that the applicant had scoped out of license renewal certain components, which it identified as safety-related in the component database, but when evaluated, were determined to not support a license renewal intended function corresponding to the requirements of 10 CFR 54.4(a)(1).

The staff requests that the applicant provide a description of the process used to evaluate components, identified as safety-related in the component database, which were determined not support a license renewal intended function corresponding to the requirements of 10 CFR 54.4(a)(1) and were subsequently not included within the scope of license renewal in accordance with 10 CFR 54.4(a)(1).

The staff requests that the applicant perform a review of this issue and indicate if the review concludes that use of the scoping methodology precluded the identification of systems, structures, and components (SSCs) which should have been included within the

scope of license renewal in accordance with 10 CFR 54.4(a). Describe any additional scoping evaluations performed to address the 10 CFR 54.4(a) criteria. List any additional SSCs included within the scope as a result of your efforts, and provide the aging management review results for those additional passive and long-lived structures and components.

PG&E Response to RAI 2.1-1:

As discussed in LRA Section 2.1.1.1, various documentation sources were used during the scoping and screening process for safety-related systems, structures, and components (SSCs). The sources included the plant equipment database, approved engineering documents and the Q-List to identify safety-related components.

While conducting the scoping and screening process, inconsistencies between component classifications in the plant equipment database and the expected classifications were found based on comparison to adjacent components and/or approved engineering documents. Corrective action documents were created for inconsistencies to track the determination of the appropriate component classification in the plant equipment database. Pending resolution of the corrective action evaluation of the component classification, components classified as safety related in either the plant component database or engineering documents were included in the scope of license renewal per 10 CFR 54.4(a)(1) unless the equipment was determined to be abandoned. If the component was evaluated through the corrective action process and it was established that the component was not safety related and did not provide any other license renewal intended function then the component was screened as not within the scope of license renewal.

Abandoned equipment identified as safety-related in the plant equipment database was treated as nonsafety related where it had no safety-related intended function and was evaluated under 10 CFR 54.4(a)(2). Where the abandoned equipment performs a pressure boundary function, it is included within the scope of license renewal per 10 CFR 54.4(a)(1).

Therefore, a review of this issue concluded that use of this methodology did not preclude the identification of SSCs that should have been included within the scope of license renewal in accordance with 10 CFR 54.4(a). The review concluded that no additional scoping evaluations were required to be performed to address the 10 CFR 54.4(a) criteria.

RAI 2.1-2

10 CFR 54.4, "Scope," states, in part,

> *(a) Plant systems, structures and components within the scope of this part are –*
>
> > *(1) Safety-related systems, structures, and components which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49(b)(1)) to ensure the following functions –*
> >
> > > *(i) The integrity of the reactor coolant pressure boundary;*
> > > *(ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or*
> > > *(iii) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.*
> >
> > *(2) All nonsafety-related systems, structures and components whose failure could prevent satisfactory accomplishment of any of the functions identified in (a)(1)(i), (ii), or (iii) of this section.*

1. *During the scoping and screening methodology audit, performed on-site March 15-18, 2010, the staff reviewed the LRA and 10 CFR 54.4(a)(2) implementing documents. The staff determined that the applicant had not documented a review of nonsafety-related SSCs, attached to, or which could spatially interact with, certain structures included within the scope of license renewal in accordance with 10 CFR 54.4(a)(1) (the turbine building, intake structure and raw water reservoirs), to determine whether the nonsafety-related SSCs should be included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).*

2. *During the scoping and screening methodology audit, performed on-site March 15-18, 2010, the staff reviewed the LRA and the 10 CFR 54.4(a)(2) implementing documents and performed a walkdown of the turbine building. The staff determined that the applicant had not documented a review of nonsafety-related SSCs, located within the turbine building which had the potential to spatially interact with SSCs included within the scope of license renewal in accordance with 10 CFR 54.4(a)(1), to determine whether the nonsafety-related SSCs should be included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).*

The staff requests that the applicant perform a review of these issues and indicate if the review concludes that use of the scoping methodology precluded the identification of SSCs which should have been included within the scope of license renewal in accordance with 10 CFR 54.4(a). Describe any additional scoping evaluations performed to address the 10 CFR 54.4(a) criteria. List any additional SSCs included within the scope as a result of your efforts, and provide the aging management review results for those additional passive and long-lived structures and components.

PG&E Response to RAI 2.1-2:

PG&E concludes that the scoping methodology and supplemental evaluations discussed in items 1 and 2 below provide assurance that SSCs are appropriately included in scope and evaluated in accordance with 10 CFR 54.4(a).

1. The turbine building, the intake structure, and the earthwork and yard structures, which include the raw water reservoir, are design class 2 structures that support, shelter, and protect design class 1 SSCs. The functions of these structures are consistent with 10 CFR 54.4 (a)(2) criteria. The descriptions of these structures have been revised to indicate that they are within the scope license renewal for 10 CFR 54.4(a)(2) but not within the scope of license renewal for 10 CFR 54.4(a)(1). Therefore no 10 CFR 54.4(a)(2) review to identify nonsafety-related SSC that have the potential to spatially interact with SSCs within the scope of license renewal under 10 CFR 54.4(a)(1) is required for these structures. See revised LRA Sections 2.4.4, 2.4.10, and 2.4.11 in Enclosure 3.

2. PG&E performed the 10 CFR 54.4(a)(2) evaluation based on plant drawings supplemented by walkdowns of specific areas. As a result of a lesson learned from another plant's recent audit in the industry, PG&E determined that more comprehensive walkdowns were prudent to confirm the plant document reviews. PG&E initiated additional walkdowns prior to the NRC Scoping and Screening Methodology audit conducted in March 2010. These walkdowns identified additional components that should have been included in the scope of license renewal. In the March 2010 audit entrance meeting, PG&E identified the need to include these additional components in the scope of license renewal and stated that PG&E was in the process of making the necessary revisions to the license renewal application. The NRC audit team identified other components that should be considered for inclusion. PG&E evaluated the other components identified by the NRC audit team, completed its followup to the earlier walkdowns performed by

PG&E, and performed additional walkdowns to evaluate the extent of condition raised from the NRC's observations. As a result, additional components have been included in the scope of license renewal in accordance with 10 CFR 54.4(a)(2). See revised LRA Sections 2.3.3, 2.3.3.12, 2.3.3.18, 2.4.4, 3.3.2.1.4, 3.3.2.1.10, 3.3.2.1.18, and Tables 2.2-1, 2.3.3-14, 3.3.2-4, 3.3.2-14 and 3.3.2-18 in Enclosure 3.

Note: Only changed lines in tables are shown in Enclosure 3. Therefore changes in the tables that list components subject to aging management in Section 2 or in the tables in Section 3 may not necessitate a corresponding change in the other section. For example, Table 3.3.2-14 includes a line for a carbon steel valve with intended functions of LBS (newly added) and PB (previously in LRA), but LBS does not have to be added to Table 2.3.3-14 because LBS is already in Table 2.3.3-14 in the LRA for valves. This note applies to RAIs involving revisions to Section 2 and 3 tables.

RAI 2.1-3

10 CFR 54.4, "Scope," states, in part,

> *(a) Plant systems, structures and components within the scope of this part are –*
>
> > *(1) Safety-related systems, structures, and components which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49 (b)(1)) to ensure the following functions –*
> >
> > > *(i) The integrity of the reactor coolant pressure boundary;*
> > > *(ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or*
> > > *(iii) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.*
> >
> > *(2) All nonsafety-related systems, structures and components whose failure could prevent satisfactory accomplishment of any of the functions identified in (a)(1)(i), (ii), or (iii) of this section.*

During the scoping and screening methodology audit, performed on-site March 15-18, 2010, the staff discussed consideration of the results of the seismic analysis which identifies both safety-related and nonsafety-related SSCs that perform a function to bring the units to safe shutdown during a seismic event. The specific seismic event is related to the Hosgri fault and is addressed as part of the Diablo Canyon Nuclear Power Plant (DCPP) current licensing basis. The staff determined that the applicant had identified but had not completed the review of SSCs required to support safe-shutdown, as identified in the seismic analysis, to be included within the scope of license renewal in accordance with 10 CFR 54.4(a).

The staff requests that the applicant perform a review of these issues and indicate if the review concludes that use of the scoping methodology precluded the identification of SSCs which should have been included within the scope of license renewal in accordance with 10 CFR 54.4(a). Describe any additional scoping evaluations performed to address the 10 CFR 54.4(a) criteria. List any additional SSCs included within the scope as a result of your efforts, and provide the aging management review results for those additional passive and long-lived structures and components.

PG&E Response to RAI 2.1-3:

PG&E reviewed the design class 2 SSCs that are part of the current Hosgri licensing basis and determined that additional SSCs should have been included within the scope of license renewal in accordance with 10 CFR 54.4(a). The review concluded that these items had been appropriately identified for inclusion within the scope of license renewal as part of the Hosgri licensing basis but due to an oversight some of these components were inadvertently omitted from the LRA. These SSCs have been added to the LRA. See revised portions of LRA Tables 2.3.3-4, 2.3.3-5, 2.3.3-6, 2.3.3-8, 2.3.3-10, 2.3.3-12, 2.3.3-16, 2.3.3-17, 2.3.4-1, 2.3.4-2, 2.3.4-3, 3.3.2-4, 3.3.2-5, 3.3.2-6, 3.3.2-8, 3.3.2-10, 3.3.2-12, 3.3.2-16, 3.3.2-17, 3.4.2-1, 3.4.2-2, and 3.4.2-3.

RAI 2.2-1

In LRA Table 2.2-1 the applicant states that the hydrogen and nitrogen system is not in the scope of license renewal. However, several license renewal boundary drawings show hydrogen-filled piping and valves highlighted in red, indicating they are within the scope of license renewal under 10 CFR 54.4(a)(2). On license renewal boundary drawing LR-DCPP-08-106708-05, the applicant shows hydrogen lines directly connected to the safety-related volume control tank highlighted red. On license renewal boundary drawing LR-DCPP-09-107709-02, the applicant shows piping and valves supplying nitrogen to the safety-related accumulators inside containment. These lines contain safety-related containment isolation valves. Since the license renewal boundary drawings show components included within the scope of license renewal that contain nitrogen and hydrogen and perform an intended function, then the staff would expect the hydrogen and nitrogen system to be included within the scope of license renewal. The staff requests that the applicant justify the exclusion of the hydrogen and nitrogen system from the scope of license renewal.

PG&E Response to RAI 2.2-1:

PG&E's review concludes that the Nitrogen and Hydrogen System is not required to be in the scope of license renewal. The Nitrogen and Hydrogen System supplies nitrogen and hydrogen to safety-related and non-safety-related system components, but the Nitrogen and Hydrogen System is a nonsafety-related system and performs no license renewal function. The specific items addressed in the RAI are discussed below.

The line containing hydrogen that is connected to the volume control tank is part of the Chemical and Volume Control System (CVCS) as shown on license renewal boundary drawing LR-DCPP-08-106708-5 and the DCPP plant equipment database. The line is in the scope of license renewal because it has a function of structural integrity attached. The structural integrity attached function of this line terminates before the interface between the CVCS and the Nitrogen and Hydrogen System. Therefore, none of the in-scope components containing hydrogen are in the Nitrogen and Hydrogen System.

The line containing nitrogen is part of the safety injection system as shown on license renewal boundary drawing LR-DCPP-08-107709-02 and the DCPP plant equipment database. The line is in the scope of license renewal because it has structural integrity attached and containment isolation pressure boundary functions. The interface between the safety injection system and the Nitrogen and Hydrogen System is outside containment and beyond the terminal point for structural integrity attached. Therefore, none of the in-scope components containing nitrogen are in the Nitrogen and Hydrogen System.

RAI 2.2-2

During a review of structures included within the scope of license renewal, the staff identified a personnel walkway from the turbine building to the administration building that is directly over the diesel exhaust piping. Based upon discussion during the on-site audit, the walkway was designed with features that would prevent the walkway from adversely affecting the exhaust system. However, the applicant did not include the walkway within the scope of license of renewal. The staff requests that the applicant justify the exclusion of the walkway structure from the scope of license renewal.

PG&E Response to RAI 2.2-2:

The administration building and the walkway between the administration building and the turbine building have been included in the scope of license renewal in accordance with 10 CFR 54.4(a)(2) as nonsafety-related structures whose failure could prevent satisfactory accomplishment of any of the diesel exhaust piping functions based on the criteria of 10 CFR 54.4(a)(1).

See revised LRA Sections 2.4.4, 3.5.2.1.4, B2.1.32, and LRA Tables 2.2-1, 2.4-4, 3.5.2-4, and A4-1 in Enclosure 3.

RAI 2.3-1

In LRA Section 2.1.2.2, the applicant states the guidance used for scoping of attached nonsafety-related piping:

> *Nonsafety-related systems, structures, and components (SSCs) that are directly connected to a safety-related SSC were included within the scope of license renewal to ensure structural integrity of the safety-related SSC up to the first seismic anchor or equivalent anchor past the safety/non-safety interface.*

The staff noted that on several system license renewal boundary drawings, mostly in the compressed air system, the applicant shows piping in black, i.e., not within the scope of license renewal, that is directly attached to components highlighted in green [within scope under 10 CFR 54.4 (a)(1) or (a)(3)]. For most transitions, the applicant stops scoping at the seismic restraint on the green highlighted component. If these components are within scope under 10 CFR 54.4(a)(1), then following the methodology described above in LRA Section 2.1.2.2, the applicant should have included within scope a segment of the attached nonsafety-related piping up to the first qualified support.

The applicant indicates a note on most of the system drawings that the components are not safety-related for pressure boundary. However, the staff noted several instances where the applicant does not consistently show a pressure boundary note at the transition, e.g., SV546B, SV536B on license renewal boundary drawing LR-DCPP-25-106725-38; FM1100A, FM1110A on license renewal boundary drawing LR-DCPP-25-106725-43, SV585 on license renewal boundary drawing LR-DCPP-25-106725-44, and containment isolation valve 2-8880 on license renewal boundary drawing LR-DCPP-09-107709-02. In instances where the transition was at a check valve, the applicant did not continue scoping on the nonsafety-related side up to the first qualified support. Therefore, these license renewal boundary drawings show where the applicant does not consistently follow its methodology as stated in LRA Section 2.1.2.2.

The staff requests that the applicant provide justification for excluding attached nonsafety-related piping in accordance with its scoping methodology as stated in LRA Section 2.1.2.2.

PG&E Response to RAI 2.3-1:

LRA Section 2.1.2.2 indicates that nonsafety-related systems, structures, and components (SSCs) that are directly connected to a safety-related SSC were included within the scope of license renewal to ensure structural integrity of the safety-related SSC up to the first seismic anchor or equivalent anchor past the safety/non-safety interface. This RAI response clarifies the methodology in LRA Section 2.1.2.2 to indicate that the boundary

between safety-related and nonsafety-related SSCs may be at the seismically supported safety-related component if the failure of the connected nonsafety-related SSC would not adversely affect the safety-related SSC function. The application of this methodology is discussed below for the valves identified in the RAI above.

The cases in the compressed air system license renewal boundary drawings where components with 10 CFR 54.4(a)(1) functions transition directly to nonsafety-related components not within the scope of license renewal fall into two categories.

The first category includes solenoid valves that supply air to safety-related air-operated components. On a loss of air, the air-operated valves fail to their safety position. The solenoid valves that supply air to the air-operated valves are also safety related. Their safety function is to vent air from the air-operated valve actuator to allow it to go to its safety position. Thus, the solenoid valves do not have a pressure boundary function, and the failure of piping or tubing connected to the solenoid valves will not prevent the solenoid valve or the component it supplies from performing its safety function. These solenoid valves transition from 10 CFR 54.4(a)(1) directly to out-of-scope piping. This position is supported by NEI 95-10, Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule. NEI 95-10 indicates in Section 5.2.3.1 of Appendix F that for nonsafety-related components attached to safety-related components that are designed to be fail-safe, as long as the nonsafety-related SSC failure causes the safety-related SSC to attain its fail-safe state, the nonsafety-realted SSCs would not be considered in scope for 10 CFR 54.4 (a)(2). The license renewal boundary drawings, which include solenoid valves in this category, include a note stating that they do not have a pressure boundary function. FM1100A and FM1110A are included in this category, but the note regarding pressure boundary function was inadvertently omitted from license renewal boundary drawing LR-DCPP-25-106725-43. The note regarding pressure boundary function has been added to license renewal boundary drawing LR-DCPP-25-106725-43.

For the second category, the components have a pressure boundary function. The seismic anchors or equivalent anchors for these components have been verified to be at the interface between the safety-related component and the nonsafety-related component attached to it. Therefore, the nonsafety-related component is not within the scope of license renewal. Solenoid valves SV546B and SV536B, shown on license renewal boundary drawing LR-DCPP-25-106725-38; solenoid valve SV585, shown on license renewal boundary drawing LR-DCPP-25-106725-44; and containment isolation valve 2-8880, shown on license renewal boundary drawing LR-DCPP-09-107709-02 are in this category.

RAI 2.3-2

In accordance with the methodology explained in LRA Section 2.2, the applicant should include within the scope of license renewal any nonsafety-related piping and components physically attached to safety-related components in accordance with 10 CFR 54.4 (a)(2). In the DCPP Final Safety Analysis Report (FSAR), the applicant states that the hydrogen piping in the auxiliary building is surrounded by guard piping in order to protect the safety-related components from fire in the event the hydrogen piping ruptures.

However, the guard pipe is not identified in the LRA as being within the scope of license renewal. The guard pipe is attached to the safety-related volume control tank, and is also credited as a mitigating feature credited for fire protection in the DCPP FSAR. Therefore, the staff finds that the guard pipe should be included within the scope of license renewal. The staff requests that the applicant justify the exclusion of the hydrogen line guard pipe in the auxiliary building from scope of license renewal in accordance to 10 CFR 54.4 (a)(2).

PG&E Response to RAI 2.3-2:

The guard pipe for the hydrogen supply piping to the Volume Control Tank in the auxiliary building has been added to the scope of license renewal with a fire barrier intended function based on the criteria of 10 CFR 54.4(a)(3). See revised LRA Tables 2.3.3-8 and 3.3.2-8 in Enclosure 3. License renewal boundary drawings LR-DCPP-08-106708-05 and LR-DCPP-08-107708-05 have also been revised.

RAI 2.3-3

In LRA Section 2.1.2.2, the applicant stated that nonsafety-related systems and components that contain fluid or steam and are located inside structures that contain safety-related SSCs are included within the scope of license renewal for potential spatial interaction under criterion 10 CFR 54.4(a)(2).

During the audit walkdown, the staff identified water-filled components inside structures containing safety-related components that were not included within the scope of license renewal at the following locations:

a) *In the safety-related diesel generator rooms, the staff identified traps filled with water on the nonsafety-related air dryers on both the air start systems and on the air start turbo charger system that were not included in the scope of license renewal.*

b) *System 27, Oily Water and Turbine Sump System, was identified by the applicant as not within the scope of license renewal. However, during the DCPP audit walkdown the staff identified floor drain lines that transit through areas that contain safety-related SSCs, specifically: emergency diesel generator rooms and the component cooling water cubicle.*

In accordance with the methodology stated in LRA Section 2.1.2.2, these fluid filled lines should be included within the scope of license renewal. The staff requests that the applicant review the methodology used in determining nonsafety-related liquid filled components located in structures containing safety-related SSCs, and verify that all required components were included within the scope of license renewal.

PG&E Response to RAI 2.3-3:

The methodology used by PG&E in identifying nonsafety-related liquid- filled components located in structures containing safety-related SSCs was based on review of plant drawings and supplemented by walkdowns in specific areas. As noted in PG&E response to RAI 2.1-2, additional walkdowns have been completed, and these walkdowns provide assurance that components within the scope of license renewal have been included in the LRA..

The specific components noted in RAI 2.3-3 are discussed below.

The traps filled with water on the nonsafety-related air dryers on both the air start systems and on the air start turbo charger system in the safety-related diesel generator rooms have been added to the scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

These traps are identified as filters in the plant equipment database are evaluated as such in LRA Tables 2.3.3-14 and 3.3.2-14. See revised LRA Tables 2.3.3-14 and 3.3.2-14 in Enclosure 3.

The Oily Water and Turbine Sump System floor drain lines that are routed through the emergency diesel generator rooms and the component cooling water heat exchanger room have been added to the scope of license renewal based on 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) criterion. See revised LRA Sections 2.3.3, 2.3.3.18, 2.3.3.19, 3.3.1, 3.3.2, 3.3.2.1.19, and LRA Tables 2.2-1, 2.3.3-19, 3.3-1, 3.3.2-18, and 3.3.2-19 in Enclosure 3.

RAI 2.3-4

In LRA Section 2.1.2.2, the applicant stated that there are safety-related cables in the turbine building. The applicant stated that they used the mitigative approach, as defined in NEI 95-10, to protect the safety-related cables from possible inaction of nonsafety-related SSCs in the turbine building. The staff requests that the applicant provide a summary discussion of the basis for the conclusion that the conduit is adequate to protect the safety-related cables in the turbine building.

PG&E Response to RAI 2.3-4:

LRA Section 2.1.2.2 indicates that the mitigative option was applied to exclude certain SSCs from the 10 CFR 54.4(a)(2) scope where the only potential interaction with a safety-related SSC was fluid spray onto conduit containing safety-related electrical cables. These cables are protected by solid pipe conduit that is within the scope of license renewal as a structural component.

Based on further evaluation it was determined that high energy piping in the turbine building (FSAR Section 3.6.2.1.2) should be included in the scope of license renewal in accordance with 10 CFR 54.4(a)(2) under the preventative option of NEI 95-10, Appendix F to protect safety-related cable in the turbine building from the effects of pipe whip and jet impingement. The high energy piping in the turbine building will be added in a future amendment to the LRA.

The mitigative design feature is conduit that protects safety-related cable within the scope of license renewal in accordance with 10 CFR 54.4(a)(1). The conduit is credited with protecting the cable from the effects of spray from moderate energy piping (FSAR Section 3.6.2.1.3): The basis for crediting the conduit as a mitigative design feature are:

- The conduit is seismically supported, design class 1 and in the scope of license renewal in accordance with 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). The conduit is managed by the Structures Monitoring Program. The conduit is robust with sections screwed tightly together. Pull points use similarly robust condulet.
- Safety-related conduit is designed to withstand the effects of moderate energy piping spray with no effect on the function of the safety-related cable.
- Safety-related conduit is routed above the maximum flood level in the turbine building.

The preventive option is used to address SSCs with respect to seismic events and from high-energy piping pipe whip and jet impingement effects:

- Safety-related conduit in the turbine building is identified as a Seismically Induced System Interaction Program (SISIP) target in the Hosgri analysis. Nonsafety-related SSCs in the turbine building whose failure in a seismic event could impact these cables are managed by the SISIP program to preclude interaction. Structural supports for SISIP sources are within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).

- High energy piping in the turbine building will be included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) to protect safety-related cables and conduit in the turbine building.

Based on the use of these mitigative and preventive options and including the high energy piping in scope of license renewal, the safety-related cables routed in the turbine building are adequately protected.

RAI 2.3-5

In Diablo Canyon FSAR, Section 6.5.2.1.1, Water Sources, the applicant credits several water supplies to maintain shutdown of the reactor in the event the condensate storage tank (CST) is depleted. In several LRA system descriptions, the applicant credits the following components for performing a long term cooling function: residual heat removal (RHR) pumps, condensate hotwell, and raw water reservoir.

The condensate system does not list an intended function for providing long term cooling. Long-term cooling is listed as a function for the raw water reservoir in LRA Section 2.4.11 under the structure description section. In the same section under "Structure Intended Functions," the applicant states, "The earthwork and yard structures provide structural support, shelter, and protection for components relied upon to provide the capability to shutdown the reactor and maintain it in a safe shutdown condition. Therefore, the earthwork and yard structures are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1)." However, on license renewal boundary drawing LR-DCPP-16-106716-11, the applicant did not highlight in green a flow path from the raw water reservoir to the auxiliary feedwater pumps (i.e., the highlighted path goes from green to red to green).

The staff requests the applicant to identify the structures and components (SCs) required to perform the long-term cooling function in the event the CST is depleted, and indicate if they are within the scope of license renewal. If the function is credited as a 10 CFR 54.4(a)(1) function, the staff also requests that the applicant provide an evaluation of the surrounding nonsafety-related components for potential impact in accordance with 10 CFR 54.4(a)(2).

PG&E Response to RAI 2.3-5:

In accordance with 10 CFR 54 and NEI-95-10, PG&E identified those nonsafety-related SSCs whose failures are considered in the current licensing basis and which could prevent the satisfactory accomplishment of a safety-related function identified under 10 CFR 54.4(a)(1). The current DCPP licensing basis (FSAR 6.5.2.1.1) describes alternate (secondary) water sources for the auxiliary feedwater system to ensure a long term cooling capability.

Nonsafety-related systems that support the long term cooling function are already evaluated and are in the scope of license renewal in accordance with 10 CFR 54.4(a)(2) or 10CFR54.4(a)(3).

As discussed in the response to RAI 2.1-2, the earthwork and yard structures are design class 2 structures that support, shelter, and protect design class 1 SSCs. As part of PG&E's response to RAI 2.1-2, LRA Sections 2.4.4, 2.4.10, and 2.4.11 have been revised to indicate that these structures are in scope of license renewal per 10 CFR 54.4(a)(2). The license renewal boundary drawings have been reviewed and confirmed to include the flow path from the raw water storage reservoir to the auxiliary feedwater pumps. The red portion of this flow path is nonsafety-related and is in scope for 10 CFR 54.4(a)(2). Notes have been added to the applicable license renewal boundary drawings to identify the flow paths and SSCs required for the long term cooling water capability.

As discussed in FSAR 6.5.2.1.1, in the event the condensate storage tank becomes exhausted, additional cooling water supplies are available to maintain hot standby conditions or to bring the plant to cold shutdown. The additional sources are as follows:

- Unit 1 and 2 CST (supply from nonaffected unit if water inventory is not required for that unit)
- Main condenser hotwells (using condensate pumps)
- Fire water transfer tank
- Fire water tank
- Main condenser hotwells (using portable fire pumps)
- Raw water storage reservoirs
- Diablo Canyon Creek
- Pacific Ocean (via auxiliary saltwater system)

These additional long-term cooling water sources use both existing piping systems and pumps, along with temporary portable pump driver units and hoses. The various long-term cooling water sources and their connections to the auxiliary feedwater system are shown schematically in FSAR Figure 6.5-2.

Connections and valving arrangements are provided to interconnect permanent plant systems as follows:

- Auxiliary Saltwater System at the inlet water box of the CCW heat exchanger to the turbine building fire system
- Raw water storage reservoir to the plant raw water supply line

- Condenser hotwells to the turbine building fire systems
- Diablo Creek water to raw water reservoirs (bypassing the raw water tank)
- Fire water system crosstie (through piping) to the auxiliary feedwater system. This piping was originally Design Class II but was seismically upgraded to Design Class I criteria.

PG&E reviewed the systems containing piping and components associated with the above long-term cooling flow paths to ensure that these flow paths were included within the scope of license renewal and that the long-term cooling capability was identified in the system description and system intended function. Revisions to the LRA have been made to ensure the long-term cooling function is identified and the SSCs for each of the identified flowpaths from the additional water sources to the auxiliary feedwater pumps have been included within the scope of license renewal in accordance with applicable 10 CFR 54.4(a)(2) or (a)(3) criteria. See revised LRA Sections 2.3.3.5, 2.3.3.12, 2.3.4.4, 2.4.11, 3.4.2.1.4, and LRA Tables 2.3.4-4 and 3.4.2-4 in Enclosure 3. License renewal boundary drawings LR-DCPP-02-106702-02, LR-DCPP-02-106702-03, LR-DCPP-02-106702-04, LR-DCPP-02-107702-02, LR-DCPP-02-107702-04, LR-DCPP-04-106704-15, LR-DCPP-04-107704-15, and LR-DCPP-16-106716-11 have been revised and/or added.

RAI 2.3-6

NEI 95-10 guidance provides guidance to applicants regarding inclusion of a variety of component types in a commodity group called piping and piping components, where components are similar materials and environments. On license renewal boundary drawings associated with some systems, e.g., spent fuel cooling (TI 653), service cooling water (TI 5005), feedwater (TE 118), auxiliary feedwater (TE 119), the staff noted that there are temperature indicators/elements, but the applicant did not identify the component type "thermowell" in the associated systems' component tables as subject to an aging management review (AMR). However, in several systems, e.g., safety injection, component cooling, etc., the applicant did identify the component type "thermowell" in the associated systems' component tables as subject to an AMR. Thermowells are typically comprised of different material than piping, such as stainless steel. Since the applicant included thermowells in some systems and not in other systems, and thermowells are typically not the same material as the piping, the staff could not determine the methodology that the applicant used for identifying component types, such as thermowells, in the systems' component tables.

The staff requests that the applicant clarify its methodology for determining which component types were identified in the component type tables, specifically thermowells, and which component types were included as "piping" for the corresponding systems.

PG&E Response to RAI 2.3-6:

Consistent with NEI 95-10, PG&E's approach evaluated the following component types as piping components: piping, tubing, expansion joints, sprinkler heads, fittings, couplings, reducers, elbows, thermowells, flanges and welded attachments. Examples of systems including thermowells as piping components include Feedwater System 03, Reactor Coolant System 07 and Residual Heat Removal System 10. In certain cases the plant equipment database identifies specific thermowells as unique plant components. Whenever the thermowells have a unique component identification number, they were evaluated individually. Thermowells, whether uniquely identified or integral to the pipe, are subject to aging management review as piping, piping components and piping elements, consistent with NEI 95-10 and NUREG-1801.

In the specific examples cited in the RAI (i.e., spent fuel cooling (TI 653), service cooling water (TI 5005), feedwater (TE 118), and auxiliary feedwater (TE 119)), PG&E reviewed each configuration and determined that none of the locations had a unique plant component of thermowell and all locations were treated as piping components.

RAI 2.3.3.14-1

In accordance with 10 CFR 54.4(a)(2), the applicant must include within the scope of license renewal any nonsafety-related components whose failure could prevent satisfactory accomplishment of a safety-related function. On license renewal boundary drawing LR-DCPP-21-106721-03, the applicant included the air start line from the diesel generator air start receiver back to the air compressor for pressure boundary in scope of license renewal under 10 CFR 54.4(a)(1). The applicant stopped scoping the air lines at the air compressor, where the applicant included only the air compressor within scope under 10 CFR 54.4(a)(2), with an intended function of structural integrity (attached).

There does not appear to be a positive isolation, i.e., valve, between the safety and nonsafety-related components. If the pressure boundary of the air compressor fails, and possibly the compressor discharge line to include the air dryer, then the safety-related pressure boundary would be compromised through the feedback line. Therefore, the air compressor and its discharge path should be included within the scope of license renewal because it appears to have a pressure boundary intended function.

The staff requests that the applicant explain the methodology used to determine an endpoint of safety-related piping where positive isolation does not exist, such as a closed isolation valve, to preserve the integrity of the pressure boundary. The staff also requests that the applicant identify if that methodology was used for other systems within the scope of license renewal to determine endpoints, and provide justification that those endpoints are adequate.

PG&E Response for RAI 2.3.3.14-1:

The methodology used to determine the endpoints for the pressure boundary intended function for all systems is to locate the design classification break in the line and continue the line beyond that point as nonsafety-related pipe with a function of leakage boundary (spatial) to a closed isolation valve, tank, or until it reaches another safety-related SSC. The compressor unloader line does not have a positive isolation at the design classification break, and the unloader line from the design classification break to the compressor is nonsafety related. Therefore intended functions of the unloader line have been revised to be structural integrity (attached) and structural support (pressure boundary was removed) for the nonsafety-related tubing. The compressor provides the base mounted component and connection to the compressor head ensures the integrity of the pressure boundary. See revised LRA Tables 2.3.3-14 and 3.3.2-14 in Enclosure 3.

A review determined that the only system within the scope of license renewal where this methodology was used is the diesel generator starting air and turbocharger air assist system.

RAI 2.3.3.14-2

In LRA Section 2.1.2.2, the applicant referenced NEI 95-10, Appendix F to describe its methods to define license renewal boundaries for safety and nonsafety-related systems that do not have seismic anchors. One of the methods used to define end points for the portion of nonsafety-related piping attached to safety-related piping to be included in the scope of license renewal utilizes a base-mounted component (e.g. pump, heat exchanger, or tank, etc.) that is a rugged component designed not to impose loads on connected piping.

On license renewal boundary drawing LR-DCPP-21-106721-03, depicting the diesel generator air start system, the applicant shows the nonsafety-related piping highlighted upstream of the check valve to the air receiver from the air dryer back to the after filter (labeled on the drawing as 1-1127), where the applicant shows a terminal endpoint, with Note "f.4.a." The legend on license renewal boundary drawing LR-DCPP-21-106701-00 defines Note f.4.a as "a base mounted component that is a rugged component and is designed not to impose loads on connecting piping." However, during the staff's walkdown of air start system during the DCPP audit, the staff determined that the after filter does not qualify as rigid base-mounted equipment. The same condition exists on each of the six starting air systems and the three turbo charger air assist systems.

The staff requests that the applicant clarify the methodology used to determine the after filter as an endpoint, identify if that methodology was used for other systems within the scope of license renewal to determine endpoints, and provide justification that those endpoints are adequate.

PG&E Response to RAI 2.3.3.14-2:

The methodology used for determination of an end point was to extend the boundary for structural integrity to the first rugged (base-mounted) component, consistent with NEI 95-10 Appendix F. An oversight occurred when the after filter was used as a base mounted component without verifying it was rigidly anchored. Seismic anchors or equivalent anchors have been identified through use of stress calculations and walkdowns in lieu of using the after filter as a base mounted component. Boundary drawings LR-DCPP-21-106721-03, -04, -08, -09, -13, -14, and LR-DCPP-21-107721-03, -04, -08, -09, -13, and -14 have been revised. See revised LRA Tables 2.3.3-14, 2.3.4-4, 3.3.2-14, and 3.4.2-4 in Enclosure 3.

Other base mounted components have been reviewed, and no other changes to the license renewal application are required.

RAI 2.3.4.1-1

In LRA Section 2.1.2.2, the applicant states that nonsafety-related SCs that contain fluid or steam, and are located inside structures that contain safety-related SSCs are included in scope for potential spatial interaction. This methodology would apply to the auxiliary building which contains safety-related components and nonsafety-related fluid filled components.

On license renewal boundary drawing LR-DCPP-04-106704-02, the applicant shows a spatial interaction (SI) flag on the main steam piping in the auxiliary building and subsequent main steam lines not in scope of license renewal inside the auxiliary building boundary. During the DCPP audit walkdown, the staff followed the main steam lines to a point where the lines passed through a wall in the auxiliary building into an ancillary structure between the turbine building and the auxiliary building. Inside this space, there are main steam piping lines that are shown on license renewal boundary drawing LR-DCPP-04-106704-02 as excluded from the scope of license renewal (shown in black). Since it appears that the piping in that area is part of the auxiliary building, and all nonsafety-related fluid filled piping in the auxiliary building was included in the scope of license renewal for spatial interaction, then these main steam lines should also be included within scope.

The staff requests the applicant to evaluate whether these nonsafety-related main steam lines downstream of the SI flag should be included within the scope of license renewal under 10 CFR 54.4 (a)(2).

PG&E Response to RAI 2.3.4.1-1:

License renewal boundary drawing LR-DCPP-04-106704-02 shows a spatial interaction (SI) flag on the main steam piping between the containment and the turbine building. This drawing does not clearly depict the auxiliary building boundaries or show the ancillary structure boundaries.

The ancillary structure described in the RAI is separated from the auxiliary building by a wall and does not directly communicate with the environment of the auxiliary building. However, it does communicate directly with the environment of the turbine building. Therefore the SSCs inside the ancillary structure were evaluated as part of the turbine building.

The spatial interaction (SI) flags shown on the main steam lines on the license renewal boundary drawing LR-DCPP-04-106704-02 are the points where the main steam piping exits the auxiliary building and enters the ancillary structure between the turbine building and the auxiliary building. The portion of the main steam piping that is in the ancillary structure continues to be in scope for structural integrity attached until the piping reaches the seismic anchor at the turbine building wall as shown on the license renewal boundary drawing LR-DCPP-04-106704-02. Based on the evaluation above, PG&E determined that no revisions are necessary.

RAI 2.3.4.3-1

In LRA Section 2.3.4.3, Feedwater System, the applicant stated that one of the system intended functions is, "the flow venturis and associated flow transmitters in each loop are also safety-related because they are used in the calculation of reactor power." On license renewal boundary drawing LR-DCPP-03-106703-02, the applicant showed the flow elements highlighted in green, indicating that they are within scope under 10 CFR 54.4(a)(1).

However, the applicant shows the tubing connecting the safety-related flow elements to the safety-related flow transmitters highlighted in red, indicating they are within scope under 10 CFR 54.4(a)(2). The tubing and associated valves are required to perform the identified safety-related function. Therefore, the tubing and valves should be included within the scope of license renewal under 10 CFR 54.4(a)(1), thus requiring an evaluation of any nonsafety-related components with the potential for adverse impact to be include in scope of license renewal under 10 CFR 54.4(a)(2). In other systems, e.g., auxiliary feedwater (FT-78), the applicant highlighted such tubing in green, indicating it is within scope under 10 CFR 54.4(a)(1).

The staff requests that the applicant explain whether the associated tubing between the two safety-related components is also safety-related, identify the path of the tubing, and if necessary, perform an evaluation along the tubing path in accordance with 10 CFR 54.4(a)(2), to include the flow transmitters.

PG&E Response to RAI 2.3.4.3-1:

The license renewal intended function for the tubing between the feedwater flow venturis and the flow transmitters has been changed from 10 CFR 54.4 (a)(2) to 10 CFR 54.4 (a)(1). The tubing is in the same rooms as the feedwater flow venturis, and an 10 CFR 54.4(a)(2) evaluation was previously performed for these rooms. License renewal boundary drawing LR-DCPP-03-106703-02 for the feedwater system has been revised to reflect this change. Note that a revision to the LRA is not required because components in the feedwater system with the same environment, material and function were already included.

RAI 2.3.4.3-2

During review of the auxiliary feedwater system and subsequent plant walkdown, the staff identified cooling water being supplied to a mechanical governor on the turbine-driven auxiliary feedwater pump. The cooling line is shown highlighted in green on license renewal boundary drawing LR-DCPP-03-107703-03, indicating it is included within the scope of license renewal under 10 CFR 54.4(a)(1). The staff noted in LRA Table 2.3.4-5 that the heat exchanger for the mechanical governor was not listed as a component type subject to an AMR. The staff requests the applicant to justify the exclusion of the governor oil heat exchanger as a component type that should be subject to an AMR.

PG&E Response to RAI 2.3.4.3-2:

The governor oil heat exchanger should be subject to aging management review for the auxiliary feedwater system. This heat exchanger has been added to the scope of license renewal. See revised LRA Tables 2.3.3-8, 2.3.4-5, 3.3.2-8, and 3.4.2-5 in Enclosure 3.

PG&E Errata

Below is a table of errata identified in the license renewal application. The associated changed pages are included in Enclosure 3.

Errata No	LRA revision
1	LRA Table 3.1.2-2 is revised to add "SIA" (structural integrity attached) as an intended function on the line containing Valve/LBS/Carbon Steel/Demineralized Water
2	LRA Table 3.3.2-16 is revised on the NUREG-1801 line and the associated table 1 Item references for the following two lines: - Heat Exchanger (WGC Seal Cooler)/LBS,SIA/Carbon Steel/ Raw Water(Int)/ - Heat Exchanger (WGC Seal Cooler)/LBS,SIA/Copper Alloy (>15% Zinc)/Raw Water(Ext)/
3	Section 2.3.3.2 is revised to indicate the cask pit storage cask restraint fixtures are in scope for 10 CFR 54.4(a)(1).
4	Section 2.3.3.7 is revised to indicate that portions of the compressed air system support fire protection requirements.
5	LAR Tables 2.3.4-4 and 3.4.2-4 are revised to add the license renewal intended function of structural integrity attached to the Main Condenser as it serves as a base-mounted equivalent anchor.
6	Section 3.3.2.2.7.1 and Table 3.3.2-17 are revised to change the Aging Management Program for components in the Reactor Coolant Pump Oil Leakage Collection System. See note 7 in Table 3.3.2-17 of the Enclosure for explanation.
7	Section 3.3.2.1.18 and Table 2.3.3-18 are revised to indicate the removal of isothermal baths in the secondary sample system.
8	Sections 2.3.3.3 and 3.3.2.1.3 and Tables 2.3.3-3 and 3.3.2-3 have been revised to bring into scope fluid filled lines in the Intake Structure that could interact with the safety-related SSCs.
9	Tables 2.3.2-4 and 3.2.2-4 are revised to indicate the removal of the internals of moisture separators 1 thru 5 for both units with the external housings remaining.
10	Section 2.3.3.12 and Table 3.3.2-12 are revised to indicate the portion of the fire protection system that has been brought into scope to include fire protection for the hydrogen seal oil system and the startup transformers.

LRA Amendment 1

LRA Section	RAI
Section 2.3.3	2.1-2 2.3-3
Section 2.3.3.2	Errata 3
Section 2.3.3.3	Errata 8
Section 2.3.3.5	2.3-5
Section 2.3.3.7	Errata 4
Section 2.3.3.12	2.1-2 2.3-5 Errata 10
Section 2.3.3.18	2.1-2 2.3-3
Section 2.3.3.19	2.3-3
Section 2.3.4.4	2.3-5
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Section 2.4.10	2.1-2
Section 2.4.11	2.1-2 2.3-5
Section 3.3.1	2.3-3
Section 3.3.2	2.3-3
Section 3.3.2.1.3	Errata 8
Section 3.3.2.1.4	2.1-2
Section 3.3.2.1.10	2.1-2
Section 3.3.2.1.18	2.1-2 Errata 7
Section 3.3.2.1.19	2.3-3
Section 3.3.2.2.7.1	Errata 6
Section 3.4.2.1.4	2.3-5
Section 3.5.2.1.4	2.2-2
Section B2.1.32	2.2-2
Table 2.2-1	2.1-2 2.2-2 2.3-3
Table 2.3.2-4	Errata 9
Table 2.3.3-3	Errata 8
Table 2.3.3-4	2.1-3
Table 2.3.3-5	2.1-3
Table 2.3.3-6	2.1-3
Table 2.3.3-8	2.1-3 2.3-2 2.3.4.3-2

LRA Section (continued)	RAI
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Table 2.3.3-12	2.1-3
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Table 2.3.3-16	2.1-3
Table 2.3.3-17	2.1-3
Table 2.3.3-18	Errata 7
Table 2.3.3-19	2.3.3
Table 2.3.4-1	2.1-3
Table 2.3.4-2	2.1-3
Table 2.3.4-3	2.1-3
Table 2.3.4-4	2.3.3.14-2 2.3-5 Errata 5
Table 2.3.4-5	2.3.4.3-2
Table 2.4-4	2.2-2
Table 3.1.2-2	Errata 1
Table 3.2.2-4	Errata 9
Table 3.3.1	2.3-3
Table 3.3.2-3	Errata 8
Table 3.3.2-4	2.1-2 2.1-3
Table 3.3.2-5	2.1-3
Table 3.3.2-6	2.1-3
Table 3.3.2-8	2.1-3 2.3-2 2.3.4.3-2
Table 3.3.2-10	2.1-3
Table 3.3.2-12	2.1-3 Errata 10
Table 3.3.2-14	2.1-2 2.3-3 2.3.3.14-1 2.3.3.14-2
Table 3.3.2-16	2.1-3 Errata 2
Table 3.3.2-17	2.1-3 Errata 6

LRA Section (continued)	RAI
Table 3.3.2-18	2.1-2 2.3-3
Table 3.3.2-19	2.3-3
Table 3.4.2-1	2.1-3
Table 3.4.2-2	2.1-3
Table 3.4.2-3	2.1-3
Table 3.4.2-4	2.3.3.14-2 2.3-5 Errata 5
Table 3.4.2-5	2.3.4.3-2
Table 3.5.2-4	2.2-2
Table A4-1	2.2-2

2.3.3 Auxiliary Systems

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

- Cranes and fuel handling (Section 2.3.3.1)
- Spent fuel pool cooling (Section 2.3.3.2)
- Saltwater and chlorination (Section 2.3.3.3)
- Component cooling water (Section 2.3.3.4)
- Makeup water (Section 2.3.3.5)
- Nuclear steam supply sampling (Section 2.3.3.6)
- Compressed air (Section 2.3.3.7)
- Chemical and volume control (Section 2.3.3.8)
- Miscellaneous HVAC (Section 2.3.3.9)
- Control Room HVAC (Section 2.3.3.10)
- Auxiliary building HVAC (Section 2.3.3.11)
- Fire Protection (Section 2.3.3.12)
- Diesel generator fuel oil (Section 2.3.3.13)
- Diesel generator (Section 2.3.3.14)
- Lube Oil (Section 2.3.3.15)
- Gaseous radwaste (Section 2.3.3.16)
- Liquid radwaste (Section 2.3.3.17)
- Miscellaneous systems in scope ONLY for criterion 10 CFR 54.4(a)(2) (Section 2.3.3.18), includes:
  - Extraction steam and heater drip
  - Radiation monitoring system (mechanical)
  - Sanitary sewage
  - Secondary sampling
  - Service cooling water
  - Solid radwaste
- Oily water and turbine sump (Section 2.3.3.19)

2.3.3.2 Spent Fuel Pool Cooling System

System Description

The spent fuel pool (SFP) cooling and cleanup system removes decay heat from fuel stored in the SFP. Heat is transferred through the SFP heat exchanger to the component cooling water system. The refueling water purification (RWP) subsystem is included as part of this system to maintain water clarity and purity. The system also includes the new fuel racks, the spent fuel racks and cask pit storage cask restraint fixtures. The permanent spent fuel racks do not credit boron-absorbing panels but instead credit soluble boron in the SFP. A temporary cask pit spent fuel rack is installed in Unit 2 and is authorized for use until the end of cycle 16. The new fuel racks are not located in the SFP but are evaluated as part of this system for license renewal.

When the SFP cooling and cleanup system is in operation, water flows from the SFP to the SFP pump suction, is pumped through the tube side of the heat exchanger, and is returned to the pool. The suction line is located below the normal SFP water level, while the return line contains an anti-siphon hole near the surface of the water to prevent gravity drainage of the pool. While the heat removal operation is in process, a portion of the SFP water may be diverted away from the heat exchanger through the RWP subsystem to maintain water clarity and purity.

During refueling outages, connections are provided such that the refueling water may be pumped from either the RWST or the refueling cavity, through the RWP subsystem and discharged to either the refueling cavity or the RWST. In addition to this flowpath, it is possible to manually align the SFP cleanup system with the RWP system to clean the refueling canal water during fuel movement. The RWP pump may also be utilized to pump down the refueling canal by pumping water to the liquid hold-up tanks, located in the chemical and volume control system, through the RWP filter. To further assist in maintaining SFP water clarity, the water surface is cleaned by a skimmer loop.

Demineralized makeup water can be added directly to the SFP. Water from the condensate storage tank is pumped to the SFP using the makeup water transfer pumps and appropriate interconnecting piping and valves.

System Intended Functions

The safety-related portions of the SFP cooling system maintain a water inventory in the SFP sufficient to keep fuel immersed at all times, maintain SFP water temperature below prescribed limits by transferring decay heat to the component cooling water system, and supply make-up water to the refueling water storage tank. The new fuel racks and spent fuel racks provide structural support and geometry for storage of fuel. The cask pit storage cask restraint fixtures provide

support during spent fuel cask handling. Therefore, portions of the SFP cooling system are within scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

The nonsafety-related portions of the piping, piping components, and piping elements of the SFP cooling system have the potential for spatial interaction through leakage. Also, some of these components attach to safety-related piping such that their failure could prevent satisfactory accomplishment of safety-related system function(s). ~~The cask pit storage cask restraint fixtures provide support during spent fuel cask handling.~~ Therefore, portions of the SFP cooling system are within scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

FSAR References

Additional details of the spent fuel pool cooling system are included in FSAR Section 9.1.1, 9.1.2, and 9.1.3.

License Renewal Boundary Drawings

The license renewal boundary drawings for the spent fuel pool cooling system are listed below:
LR-DCPP-13-106713-02
LR-DCPP-13-107713-02

2.3.3.3 Saltwater and Chlorination System

System Description

The saltwater and chlorination system has two subsystems, the auxiliary saltwater (ASW) system and the circulating saltwater system. A chlorination/dechlorination system is associated with each of these subsystems. The ASW system is a safety-related system that supplies cooling water from the ultimate heat sink, the Pacific Ocean, to the component cooling water (CCW) heat exchangers. The ASW system is designed to remove the heat from the CCW system during all modes of operation including design basis accident conditions. The CCW system is evaluated in Section 2.3.3.4.

Each unit is provided with two Class I ASW trains with crosstie capability. Each train consists of a full-capacity ASW pump, the tube side of a CCW heat exchanger, and the associated supply and discharge piping for the CCW heat exchanger.

The circulating saltwater system is a nonsafety-related system that consists of two circulating water pumps per unit and the associated piping from the intake structure to the main condenser and then to the discharge structure.

Also included are the Class II chlorination/dechlorination systems which are located externally from the ASW system and the circulating saltwater system. They provide chlorinated water at the ASW pump suction and at the circulating water pump suction. The dechlorination portion of the system has provisions to allow connections to provide an aqueous stream of sodium bisulfite to the ASW system and circulating saltwater system discharge streams. The chlorination/dechlorination systems are designed to control biofouling and corrosion in the tubes of the CCW heat exchanger and the main condenser.

The saltwater and chlorination system components (pumps, piping, valves, etc.) are located either in the intake structure which includes the ASW pump vaults and vacuum breaker vaults, or in the turbine building. The CCW heat exchanger is located in the turbine building. The saltwater and chlorination system piping runs underground from the intake structure to the turbine building. System piping is mostly buried or embedded in concrete except for the sections of piping in the intake structure and turbine building exposed to plant indoor air. ASW subsystem piping downstream of the CCW heat exchanger discharges into the circulating water outlet at the discharge structure.

System Intended Functions

The ASW system portion of the saltwater and chlorination system is a safety-related system that is designed to remove heat from the CCW system which in turn cools vital and non-vital components during normal operation and accident conditions.

Therefore, the ASW system is within scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the saltwater and chlorination system are in scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) due to spatial interaction and structural integrity.

Portions of the saltwater and chlorination system support fire protection and SBO requirements and are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).).

FSAR References

Additional details of the saltwater and chlorination system are included in FSAR Sections 9.2.7, 10.4.5 and Table 9.2-1.

License Renewal Boundary Drawings

The license renewal boundary drawings for the saltwater and chlorination system are listed below:

LR-DCPP-17-106717-02
LR-DCPP-17-106717-03
LR-DCPP-17-106717-03A
LR-DCPP-17-106717-03B
LR-DCPP-17-106717-04
LR-DCPP-17-106717-04A
LR-DCPP-17-106717-05
LR-DCPP-17-106717-06
LR-DCPP-17-106717-07
LR-DCPP-17-106717-7A
LR-DCPP-17-106717-08
LR-DCPP-17-106717-09
LR-DCPP-17-106717-10

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.3.3-3 – Saltwater and Chlorination System.

2.3.3.5 Makeup Water System

System Description

The makeup water system (MWS) supplies demineralized makeup water necessary for normal reactor coolant services, secondary system makeup, firewater, and miscellaneous plant uses including domestic and drinking water. The system has the capacity necessary to meet the water requirements of a cold plant shutdown and subsequent startup from cold conditions at a time later in core life.

The system includes the safety-related condensate storage tanks (CSTs) and firewater/transfer tank. The system provides safety-related makeup water to the auxiliary feedwater system, component cooling water surge tanks, the spent fuel pools, and the firewater pumps header. Portions of the makeup water system may be used to provide water for long term cooling. The remainder of the system is nonsafety-related.

The CSTs and firewater/transfer tank are located outdoors next to the fuel handling buildings. The raw water reservoirs are evaluated with the Earthwork and Yard Structures in Section 2.4.11 and are located outdoors east of the plant buildings outside the protected area. MWS piping runs throughout the plant yard and through the fuel handing, auxiliary and turbine buildings.

System Intended Functions

The makeup water system supplies demineralized water to various primary and secondary plant systems. The safety-related portions of the system include the makeup water piping to the auxiliary feedwater system, component cooling water system, spent fuel pool cooling system and fire protection system. Therefore, the makeup water system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the makeup water system located in the fuel handling and auxiliary buildings have the potential for spatial interaction and as nonsafety affecting safety-related components. Portions of the makeup water system may be used to provide water for long term cooling. Therefore, portions of the system are within scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

Portions of the makeup water system support fire protection and SBO requirements and are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the makeup water system are included in FSAR Sections 9.1.3.2, 9.2.2.3.3, 9.2.3, and 9.2.6.

License Renewal Boundary Drawings

The license renewal boundary drawings for the makeup water system are listed below:
LR-DCPP-16-106716-03
LR-DCPP-16-106716-11
LR-DCPP-16-106716-14
LR-DCPP-16-106716-16
LR-DCPP-16-106716-17
LR-DCPP-16-106716-18
LR-DCPP-16-106716-19
LR-DCPP-16-106716-20
LR-DCPP-16-106716-21

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.3.3-5 – Makeup Water System.

2.3.3.7 Compressed Air System

System Description

The compressed air system provides compressed air for process control systems and for station service throughout Units 1 and 2 under normal operating conditions. It includes the backup air/nitrogen supply system, which supplies the motive force to operate certain air-operated components in the event of a loss of the compressed air system. The compressed air system is required for startup and normal operation of the plant but is not required for safe shutdown, reactor protection, containment isolation, or engineered safety features. Consequently, except for the backup air/nitrogen supply system, only the containment penetrations for instrument air and service air are safety-related.

Instrument air to Units 1 and 2 is provided by four reciprocating air compressors and two rotary screw compressors located in the turbine area of Unit 1 and one rotary compressor located at the Unit 1 west buttress. Plant service air is provided by two rotary screw compressors located outdoors east of the Unit 2 transformer yard.

The backup air/nitrogen supply system provides compressed gas to safety-related air operated components that are required to perform an active safety-related function after the loss of the compressed air system, as well to a number of nonsafety-related components. The safety-related components which are served by the backup air/nitrogen system include valves for charging/spray capability, steam dump capability, RCS boration sample capability, the RCS power-operated relief valves for overpressure protection, the letdown isolation valves, and fire water containment isolation valves. The backup air/nitrogen supply system also supplies air to the component cooling water valves on the outlet of the residual heat removal heat exchanger and the auxiliary saltwater valves on the inlet of the component cooling water heat exchanger.

System Intended Functions

Portions of the compressed air system provide containment building isolation for instrument air and service air piping penetrations. The backup air/nitrogen supply system provides compressed gas to safety-related air operated components that are required to perform an active safety-related function after the loss of the compressed air system. Therefore, the compressed air system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Some of the compressed air system in the auxiliary building contains nonsafety-related components that are spatially oriented such that their failure could prevent the satisfactory accomplishment of a safety-related function associated with a safety-related component. Therefore, these portions of the compressed air system are in scope as nonsafety-related components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

Portions of the compressed air system support fire protection and EQ requirements and are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the compressed air system are included in FSAR Section 9.3.1.

License Renewal Boundary Drawings

The license renewal boundary drawings for the compressed air system are listed below:
LR-DCPP-25-106725-03
LR-DCPP-25-106725-19
LR-DCPP-25-106725-25
LR-DCPP-25-106725-26
LR-DCPP-25-106725-28
LR-DCPP-25-106725-29
LR-DCPP-25-106725-30
LR-DCPP-25-106725-31
LR-DCPP-25-106725-33
LR-DCPP-25-106725-34
LR-DCPP-25-106725-37
LR-DCPP-25-106725-38
LR-DCPP-25-106725-40
LR-DCPP-25-106725-43
LR-DCPP-25-106725-44
LR-DCPP-25-106725-47
LR-DCPP-25-106725-49
LR-DCPP-25-106725-50
LR-DCPP-25-106725-51
LR-DCPP-25-106725-52
LR-DCPP-25-106725-58
LR-DCPP-25-107725-16
LR-DCPP-25-107725-19
LR-DCPP-25-107725-20
LR-DCPP-25-107725-21

LR-DCPP-25-107725-22
LR-DCPP-25-107725-23
LR-DCPP-25-107725-24
LR-DCPP-25-107725-26
LR-DCPP-25-107725-27
LR-DCPP-25-107725-30
LR-DCPP-25-107725-31
LR-DCPP-25-107725-33
LR-DCPP-25-107725-36
LR-DCPP-25-107725-37
LR-DCPP-25-107725-39
LR-DCPP-25-107725-41
LR-DCPP-25-107725-42
LR-DCPP-25-107725-43
LR-DCPP-25-107725-44
LR-DCPP-25-107725-50

2.3.3.12 Fire Protection System

System Description

The purpose of the fire protection system is to minimize the effects of fire on plant SSCs important to safety to the extent that a fire will not compromise the ability to achieve safe shutdown of the plant.

The fire protection system consists of a 300,000 gallon storage tank, two motor-driven fire water pumps, hydrants, hose stations, underground power block loop, an interconnected fire water distribution system within the intake structure, turbine, auxiliary, and containment buildings, wet-pipe sprinklers, deluge valves, carbon dioxide systems, post indicating valves, and piping. The safety-related components at the containment penetration are included in this system. The 5,000,000 gallon raw water storage reservoir pressurizes the outdoor fire water loop via gravity fed piping to plant grade. Portions of the fire water system may be used to provide water for long term cooling.

The fire detection and actuation portion of the system is evaluated as part of the Electrical and I&C evaluations. Fire dampers are evaluated as part of the assigned HVAC systems. The raw water storage reservoir is evaluated as part of the Earthwork and Yard Structures in Section 2.4.11. Other passive fire barriers are evaluated as part of the Structures evaluations in Section 2.4.

System Intended Functions

The fire protection system provides containment isolation for a containment penetration and is therefore within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the fire protection system may be used to provide water for long term cooling. Portions of the fire protection system are in scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

Portions of the fire protection system support fire protection requirements and are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the fire protection system are included in FSAR Section 9.5.1.

License Renewal Boundary Drawings

The license renewal boundary drawings for the fire protection system are listed below:

LR-DCPP-18-106718-02
LR-DCPP-18-106718-03
LR-DCPP-18-106718-04
LR-DCPP-18-106718-05
LR-DCPP-18-106718-06
LR-DCPP-18-106718-07
LR-DCPP-18-106718-08
LR-DCPP-18-106718-09
LR-DCPP-18-106718-10
LR-DCPP-18-106718-11
LR-DCPP-18-106718-12
LR-DCPP-18-106718-13
LR-DCPP-18-106718-14
LR-DCPP-18-106718-15
LR-DCPP-18-106718-16
LR-DCPP-18-106718-17
LR-DCPP-18-106718-18

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.3.3-12 - Fire Protection System.

2.3.3.18 Miscellaneous Systems In Scope ONLY for Criterion 10 CFR 54.4(a)(2)

Systems within the scope of license renewal based upon the criterion of 10 CFR 54.4(a)(2) were identified using the methods described in Section 2.1.2.2. A review of each mechanical system was performed to identify nonsafety-related systems or nonsafety-related portions of safety-related systems with the potential for adverse spatial interaction with safety-related systems or components. Components subject to AMR due only to scoping criterion 10 CFR 54.4(a)(2) are evaluated in this section.

The following systems are within the scope of license renewal only based on the criterion of 10 CFR 54.4(a)(2):

- Extraction steam and heater drip
- Radiation monitoring (mechanical)
- Sanitary sewage
- Secondary sampling
- Service cooling water
- Solid radwaste

System Descriptions/System Intended Functions

Extraction steam and heater drip system

The purpose of the extraction steam and heater drip system is to provide preheated feedwater to the steam generators to improve cycle efficiency.

Extraction steam from the high pressure turbine and drains from the moisture separator reheaters are used to heat the feewater in the last two stages of the feedwater heaters. Extraction steam from the low pressure turbines is used to heat the feedwater in the first four stages of the feedwater heaters. The extraction steam and heater drip system is nonsafety and performs no safety-related functions.

The extraction steam and heater drip system contains nonsafety piping that is located within safety-related areas.

Portions of the extraction steam and heater drip system are within the scope of license renewal as nonsafety-related affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) for spatial interaction.

Radiation Monitoring System (Mechanical)

The radiation monitoring system (mechanical) includes piping and other mechanical components that convey sampled media to radiation monitors that are within the scope of license renewal. The portion of the radiation monitoring system (electrical) within the scope of license renewal consists of the control room air supply intake monitors (R25, R26), high range containment monitors (R30, R31), control room pressurization system monitors (R51 to R54), spent fuel area monitor (R58), new fuel storage area monitor (R59) and the containment purge exhaust train A and B monitors (R44A, R44B). Only monitors R44A/B are evaluated in the radiation monitoring system boundary, all other in-scope radiation monitors are in the miscellaneous HVAC system boundary.

Nonsafety-related portions of the radiation monitoring system (mechanical) are indirectly attached to safety-related piping, such that the structural failure of the nonsafety-related piping could prevent satisfactory accomplishment of safety-related system functions. These portions of the radiation monitoring system are in scope as nonsafety-related affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

Sanitary sewage

The sanitary sewage system transfers sewage from site facilities to the sewage treatment plants.

The sanitary sewage system consists of pumps, piping, and relays, valves. Most of these components are located in the yard and in various yard pumping stations. Piping in the power block transfers sewage from that area to the yard.

Portions of the sanitary sewage system are in the scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) due to spatial interaction.

Secondary Sampling System

The secondary sampling system is a nonsafety-related system that provides sampling and analysis of secondary plant systems.

The central sample panel for each unit is located in the auxiliary building. Each unit has another sample panel located in the buttress area west of the turbine building. Most of the sample points and lines are in the turbine building but the lines leading to the central sample panels are in the auxiliary building.

Portions of the secondary sampling system are in scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) due to spatial interaction and structural integrity.

Service Cooling Water System

The service cooling water (SCW) system is a closed system used to cool equipment in the secondary portion of the plant. The SCW system is used in the secondary for steam and power conversion portion of the plant only.

SCW system components (pumps, heat exchangers, cooling loads, etc.) are located primarily in the turbine building, but the system also services cooling loads located in the auxiliary building.

Portions of the SCW system are spatially oriented such that their failure could prevent the satisfactory accomplishment of a safety-related function. These portions of the SCW system are within the scope of license renewal as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

Solid Radwaste System

The solid radwaste system (SRS) collects, processes, packages and stores the wet and solid radioactive wastes generated by plant operations until shipment offsite for permanent disposal. Functionally, it is segregated into four subsystems - spent filter cartridges, wet solid radwaste, mixed waste, and dry active waste. The SRS is located in three buildings: the auxiliary building components including the solidification pad east of the auxiliary building; the solid radwaste storage facility, the north radwaste building; and the radwaste storage building, the south radwaste building.

The SRS is primarily a non-fluid system (except for the wet solid radwaste subsystem) consisting of components and subsystems used to collect, package and store wet and solid radwaste. The wet solid radwaste subsystem processes waste via the spent resin transfer subsystem which is common to both DCPP Units, except for the components and piping upstream of the spent resin storage tanks.

The SRS contains nonsafety-related components that are spatially oriented such that their failure could prevent the satisfactory accomplishment of a safety-related function. Also, portions of the nonsafety-related SRS attach to safety-related

components such that the structural failure of the nonsafety-related piping could prevent satisfactory accomplishment of safety-related system functions. These portions of the SRS are in scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

FSAR References

Details of the radiation monitoring system (mechanical) system are discussed in FSAR Sections 11.4.1, 11.4.2.2, and Table 11.4-1.

Details of the extraction steam and heater drip system are discussed in FSAR Section 10.2.2.1 and 10.4.7.2.

Details of the sanitary sewage system are discussed in FSAR Section 9.2.8.

Details of the secondary sampling system are discussed in FSAR Section 9.3.2.3.

Details of the service cooling water system are discussed in FSAR Section 9.2.1.

Details of the solid radwaste system are discussed in FSAR Sections 11.2 and 11.5.

License Renewal Boundary Drawings

The license renewal boundary drawings for the extraction steam and heater drip system are listed below:
LR-DCPP-05-107705-04

The license renewal boundary drawings for the radiation monitoring system (mechanical) are listed below:
LR-DCPP-23A-106723-03
LR-DCPP-23A-107723-03

The license renewal boundary drawings for the secondary sampling system are listed below:
LR-DCPP-28-106728-02
LR-DCPP-28-106728-03
LR-DCPP-28-107728-02
LR-DCPP-28-107728-03

The license renewal boundary drawings for the service cooling water system are listed below:
LR-DCPP-15-106715-02
LR-DCPP-15-106715-03
LR-DCPP-15-107715-02
LR-DCPP-15-107715-05

The license renewal boundary drawings for the solid radwaste system are listed below:
LR-DCPP-04-106704-16
LR-DCPP-04-107704-16
LR-DCPP-16-106716-18
LR-DCPP-19-106719-07
LR-DCPP-19-106719-09
LR-DCPP-19-106719-10
LR-DCPP-19-106719-13
LR-DCPP-23B-106723-09
LR-DCPP-78-106719-15
LR-DCPP-78-106719-16

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.3.3-18 - Miscellaneous Systems In Scope ONLY Based on Criterion 10 CFR 54.4(a)(2).

2.3.3.19 Oily Water and Turbine Sump System

System Description

The turbine building sumps collect and store waste water from the power block and yard drains. Storage can take place in one of three turbine building sump chambers: overboard sump, dirty water, or clean waste water. There is also a 12kV cable spreading room sump (located in the turbine building) from which the collected liquid is pumped to the turbine building sump.

The oily water separator, common to both units and located in the Unit 1 side of the turbine building, is designed to separate oil and floating material from drains originating from the turbine building sumps in Units 1 and 2. The clear water effluent normally is discharged to the condenser circulating water discharge tunnel. If required, the effluent water can be routed to the auxiliary building floor drain receivers.

The waste handling and treatment system, which is an oily water and turbine sump system subsystem, receives water from the turbine building sumps and can store, treat, recirculate, filter, sample, and discharge the water. The radioactive content of the liquids discharged from the turbine building is monitored by a radiation monitor and flow element in the process lines to the oily water separator.

System Intended Functions

Portions of the oily water and turbine sump system are in scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2) due to spatial interaction.

Portions of the oily water and turbine sump system support fire protection requirements and are within the scope of license renewal based on criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the oily water and turbine sump system are included in FSAR Section 9.3.7.2.

License Renewal Boundary Drawings

The license renewal boundary drawings for the oily water and turbine sump system are listed below:
LR-DCPP-27-106727-03
LR-DCPP-27-106727-08

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.3.3-19 – Oily Water and Turbine Sump System.

2.3.4.4 Condensate System

System Description

The purposes of the condensate system are to collect the condensate from the exhaust steam of main turbines and feedwater pump turbines and the steam cycle drains in the main condenser hotwell and to deliver deaerated water from the main condenser hotwells to the suction of the main feedwater pumps. Together with the feedwater system, the feedwater is delivered to the steam generators at the required pressure and temperature. The hotwell may also provide water to the firewater system or the auxiliary feedwater system for long-term cooling.

Major components in the condensate system include the main condenser, condensate demineralizers three half capacity centrifugal condensate pumps and three condensate booster pumps.

The condensate system interfaces with the feedwater system, which is evaluated in Section 2.3.4.3. The condensate system interfaces with the secondary sampling system, which is evaluated in the secondary sampling system in Section 2.3.3.18. The condensate storage tank, which provides makeup and surge capacity to compensate for changes in condensate system inventory, is evaluated in the makeup water system in Section 2.3.3.5.

System Intended Functions

Portions of the condensate system are located in the auxiliary building and contain nonsafety-related components that are spatially oriented such that their failure could prevent the satisfactory accomplishment of a safety-related function associated with a safety-related component. Portions of the condensate system may be used to provide water for long term cooling. These portions of the condensate system are in scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

Portions of the condensate system provide connections on the condenser hotwell that can be utilized to supply water to the firewater system to support fire protection requirements and are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the condensate system are included in FSAR Sections 3.6.1.2, 6.5.2.1.1, 9.5.1.2.3, 10.4.1, 10.4.6, 10.4.7, and 10.4.9.

License Renewal Boundary Drawings

The license renewal boundary drawings for the condensate system are listed below:

LR-DCPP-02-106702-02
LR-DCPP-02-106702-03
LR-DCPP-02-106702-04
LR-DCPP-02-106702-10
LR-DCPP-02-106702-11
LR-DCPP-02-107702-02
LR-DCPP-02-107702-03
LR-DCPP-02-107702-04
LR-DCPP-02-107702-10
LR-DCPP-02-107702-11
LR-DCPP-16-106716-16

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.3.4-4 - Condensate System.

2.4.4 Turbine Building

Structure Description

This section describes the turbine building, the administration building, and the elevated walkway between these structures which are evaluated jointly.[1]

The turbine building is a reinforced concrete shear wall structure with a structural steel moment resisting and braced frame superstructure enclosed with metal siding on roof and sides and fiberglass at building corners. The turbines are supported by reinforced concrete pedestals that are structurally isolated from the building floors. With the exception of the east and west buttress areas, all building loads are transmitted to bed rock through a reinforced concrete basemat and a series of rock anchors. The foundation mat either rests on base rock or on lean concrete fill which is placed between the base rock and the bottom of the mat. The building loads in the buttress areas are transmitted down to base rock by a series of reinforced concrete grade beams and drilled concrete piles. The bottom floors in the buttress areas are slabs on grade underlain with compacted fill.

The turbine building was originally designed as a Design Class II structure using static equivalent seismic loads. During the Hosgri evaluation, the building was reevaluated and upgraded to withstand the Hosgri seismic loads. Buttresses and concrete walls were added, and internal modifications, such as reinforcing main columns, strengthening floor diaphragms, and roof and wall bracing, were made. To preclude turbine building-to-turbine pedestal seismic interaction, six piers of the turbine pedestal were post-tensioned to bedrock and the pedestal-to-building separations were increased along the east and west sides.

The turbine building contains Design Class I SSCs, including the component cooling water heat exchangers, emergency diesel generators, 4.16 kV vital switchgear, and control room pressurization system. The emergency diesel generators, located in the west side of the turbine building, are separated from each other by concrete walls and protected on all sides by tornado missile barriers. The building also houses major nonsafety-related SSCs, such as turbines, main generators, feedwater pumps, and condensate pumps.

A steel framed elevated walkway connects the south end of the turbine building to the administration building. The walkway is founded on reinforced concrete piers and a series of rock anchors. This walkway and its supporting structural

[1] The description of the three structures is provided separately in this section; however, in Tables 2.4-4 and 3.5.2-4, and Section 3.5.2.1.4, the administration building and the elevated walkway evaluation is included with the turbine building.

members are seismically designed to preclude collapse onto the diesel generator exhaust.

The administration building is a multistory steel framed structure enclosed with metal siding, glass windows, and built-up roofing. The building is supported on compacted backfill and rock.

Structure Intended Functions

The turbine building provides structural support, shelter, and protection for components relied upon to provide the capability to shutdown the reactor and maintain it in a safe shutdown condition. ~~Therefore, the turbine building is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).~~

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

The turbine building provides structural support, shelter, and protection for components required to demonstrate compliance with fire protection, ATWS, and SBO requirements. ~~and are~~ Therefore the turbine building is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the turbine building are included in FSAR Section 3.8.5.

Component-Function Relationship Table

The component types for the turbine building, administration building, and elevated walkway that are subject to AMR are indicated in Table 2.4-4 - Turbine Building.

2.4.10 Intake Structure and Intake Control Building

Structure Description

The intake structure and intake control building are reinforced concrete structures. The top level of the intake structure is a reinforced concrete slab. The roof of the intake control building is a roofing membrane over concrete on steel decking. The intake structure is backfilled by rock on three sides and has water on the fourth (western) side. These structures are supported by concrete mat foundations, which are founded on rock.

The intake structure houses and supports components of the circulating water system, auxiliary saltwater (ASW) system, bio-lab/sea water reverse osmosis pumps, including the screening system components. It also houses other related electrical, instrumentation and control and HVAC systems. It provides and directs the flow of ocean water. The bar racks and traveling screens minimize entry of debris and marine life into these systems so the systems can continue to perform their intended functions. ASW pump vents are extended with steel snorkels that face eastward to prevent seawater ingestion due to splash-up during the design flood event.

Structure Intended Functions

The intake structure provides structural support, shelter, and protection for SSCs required to achieve safe shutdown of the reactor and to maintain a safe shutdown. The seismic Design Class II structure was evaluated for the Hosgri earthquake to ensure that it can safely support and shelter the Design Class I ASW pumps and equipment. ~~Therefore, this structure is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).~~

The intake structure also shelters and protects nonsafety-related SSCs whose failure could prevent performance of a safety-related function. Therefore, the intake structure is within the scope of license renewal based on the criterion of 10 CFR 54.4(a)(2).

The intake structure and intake control building ~~are required to~~ provide structural support, shelter, and protection for SSCs required to demonstrate compliance with fire protection and SBO requirements and are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the intake structure and intake control building are included in FSAR Sections 3.8.5.2 and 9.2.5.3.

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.4-10 - Intake Structure and Intake Control Building.

2.4.11 Earthwork and Yard Structures

Structure Description

The earthwork and yard structures include the circulating water conduits, auxiliary saltwater (ASW) vacuum breaker vaults, ASW thrust blocks and anchors, raw water storage reservoirs 1A and 1B, east and west breakwaters, and the earth slopes east of the auxiliary building and over the ASW line east of the intake structure.

The seismically qualified portions of the circulating water conduits and ASW vacuum breaker vaults are reinforced concrete structures founded on compacted fill. The Design Class I ASW supply piping is supported by reinforced concrete thrust blocks, compacted backfill, and concrete anchors attached to the circulating water conduits.

The raw water reservoir, located east of the power block, has reinforced concrete- walls. The reservoir is primarily intended to serve as fresh water storage for fire protection and long term cooling.

The breakwater structures, which are constructed of precast reinforced concrete blocks and rip-rap, protect the intake structure from tsunami loads. The earth slopes east of auxiliary building and over the ASW line east of the intake structure were analyzed for design basis seismic loads to ensure that such loading will not produce any significant slope failure that can impact Design Class I SSCs. The ASW system buried piping and electrical conduits are protected from tsunami/storm conditions by wave protection measures, which include concrete covers, revetments, roadway slabs, and pavement. Gabion mattresses embedded within the slopes are covered with grass for additional erosion control.

For the purposes of license renewal and aging management, the breakwaters and earth slope protection structures are evaluated as barriers.

Structure Intended Functions

The earthwork and yard structures provide structural support, shelter, and protection for components relied upon to provide the capability to shutdown the reactor and maintain it in a safe shutdown condition. ~~Therefore, the earthwork and yard structures are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).~~ The raw water reservoir provides fresh water storage for long term cooling.

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

The earthwork and yard structures provide structural support, shelter, and protection for components required to support fire protection and SBO requirements. Therefore, the earthwork and yard structures are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the earthwork and yard structures are included in FSAR Sections 2.2.3, 2.4.6.6, 2.5.5, 9.2.3.2.1, 9.2.7, and 9.5.1.

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.4-11 - Earthwork and Yard Structures.

3.3.1 Introduction

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

- Cranes and Fuel Handling System (Section 2.3.3.1)
- Spent Fuel Pool Cooling System (Section 2.3.3.2)
- Saltwater and Chlorination System (Section 2.3.3.3)
- Component Cooling Water System (Section 2.3.3.4)
- Makeup Water System (Section 2.3.3.5)
- Nuclear Steam Supply Sampling System (Section 2.3.3.6)
- Compressed Air System (Section 2.3.3.7)
- Chemical and Volume Control System (Section 2.3.3.8)
- Miscellaneous HVAC Systems (Section 2.3.3.9)
- Control Room HVAC System (Section 2.3.3.10)
- Auxiliary Building HVAC System (Section 2.3.3.11)
- Fire Protection System (Section 2.3.3.12)
- Diesel Generator Fuel Oil System (Section 2.3.3.13)
- Diesel Generator System (Section 2.3.3.14)
- Lube Oil System (Section 2.3.3.15)
- Gaseous Radwaste System (Section 2.3.3.16)
- Liquid Radwaste System (Section 2.3.3.17)
- Miscellaneous Systems in scope ONLY for Criterion 10 CFR 54.4(a)(2) (Section 2.3.3.18)
- Oily Water and Turbine Sump System (Section 2.3.3.19)

Table 3.3.1, Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 for Auxiliary Systems, provides the summary of the programs evaluated in NUREG-1801 that are applicable to the component types in this section. Table 3.3.1 uses the format of Table 1 described in Section 3.0.

3.3.2 Results

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

- Table 3.3.2-1 Auxiliary Systems – Summary of Aging Management Evaluation – Cranes and Fuel Handling System
- Table 3.3.2-2 Auxiliary Systems – Summary of Aging Management Evaluation – Spent Fuel Pool Cooling System
- Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System
- Table 3.3.2-4 Auxiliary Systems – Summary of Aging Management Evaluation – Component Cooling Water System
- Table 3.3.2-5 Auxiliary Systems – Summary of Aging Management Evaluation – Makeup Water System
- Table 3.3.2-6 Auxiliary Systems – Summary of Aging Management Evaluation – Nuclear Steam Supply Sampling System
- Table 3.3.2-7 Auxiliary Systems – Summary of Aging Management Evaluation – Compressed Air System
- Table 3.3.2-8 Auxiliary Systems – Summary of Aging Management Evaluation – Chemical and Volume Control System
- Table 3.3.2-9 Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous HVAC Systems
- Table 3.3.2-10 Auxiliary Systems – Summary of Aging Management Evaluation – Control Room HVAC System
- Table 3.3.2-11 Auxiliary Systems – Summary of Aging Management Evaluation – Auxiliary Building HVAC System
- Table 3.3.2-12 Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection System
- Table 3.3.2-13 Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator Fuel Oil System
- Table 3.3.2-14 Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator System
- Table 3.3.2-15 Auxiliary Systems – Summary of Aging Management Evaluation – Lube Oil System
- Table 3.3.2-16 Auxiliary Systems – Summary of Aging Management Evaluation – Gaseous Radwaste System

- Table 3.3.2-17 Auxiliary Systems – Summary of Aging Management Evaluation – Liquid Radwaste System
- Table 3.3.2-18 Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous Systems in scope ONLY for Criterion 10 CFR 54.4(a)(2)
- Table 3.3.2-19 Auxiliary Systems – Summary of Aging Management Evaluation – Oily Water and Turbine Sump System
-

These tables use the format of Table 2 discussed in Section 3.0.

3.3.2.1.3 Saltwater and Chlorination System

Materials

The materials of construction for the saltwater and chlorination system component types are:

- Carbon Steel
- Cast Iron
- Copper Alloy
- Copper Alloy (Aluminum > 8 percent)
- Elastomer
- Fiberglass
- Fiberglass Reinforced Plastic
- Glass
- Nickel-Alloys
- Polyvinyl Chloride (PVC)
- Stainless Steel
- Stainless Steel Cast Austenitic
- Titanium (Grade 9)

Environment

The saltwater and chlorination system component types are exposed to the following environments:

- Atmosphere/ Weather
- Buried
- Demineralized Water
- Encased in Concrete
- Lubricating Oil
- Plant Indoor Air
- Raw Water

Aging Effects Requiring Management

The following saltwater and chlorination system aging effects require management:

- Cracking
- Hardening and loss of strength
- Loss of material
- Loss of preload

Aging Management Programs

The following aging management programs manage the aging effects for the saltwater and chlorination system component types:

- Bolting Integrity (B2.1.7)
- Buried Piping and Tanks Inspection (B2.1.18)
- External Surfaces Monitoring Program (B2.1.20)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)
- Lubricating Oil Analysis (B2.1.23)
- One Time Inspection (B2.1.16)
- Open-Cycle Cooling Water System (B2.1.9)
- Selective Leaching of Materials (B2.1.17)
- Water Chemistry (B2.1.2)

3.3.2.1.4 Component Cooling Water System

Materials

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

- Aluminum
- Carbon Steel
- Cast Iron
- Copper Alloy
- Glass
- Nickel-Alloys
- Stainless Steel
- Stainless Steel Cast Austenitic

Environment

The component cooling water system components are exposed to the following environments:

- Atmosphere/Weather
- Closed-Cycle Cooling Water
- Demineralized Water
- Dry Gas
- Lubricating Oil
- Plant Indoor Air
- Raw Water
- Treated Borated Water

Aging Effects Requiring Management

The following component cooling water system aging effects require management:

- Cracking
- Loss of material
- Loss of preload
- Reduction of heat transfer

Aging Management Programs

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

- Bolting Integrity (B2.1.7)
- Closed-Cycle Cooling Water System (B2.1.10)
- External Surfaces Monitoring Program (B2.1.20)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)
- Lubricating Oil Analysis (B2.1.23)
- One-Time Inspection (B2.1.16)
- Open-Cycle Cooling Water System (B2.1.9)
- Water Chemistry (B2.1.2)

3.3.2.1.10 Control Room HVAC System

Materials

The materials of construction for the control room HVAC system component types are:

- Carbon Steel
- Carbon Steel (Galvanized)
- Copper Alloy
- Copper Alloy (> 15 percent Zinc)
- Elastomer
- Glass
- Stainless Steel

Environment

The control room HVAC system component types are exposed to the following environments:

- Atmosphere/weather
- Dry Gas
- Encased in Concrete
- Lubricating Oil
- Plant Indoor Air
- Ventilation Atmosphere

Aging Effects Requiring Management

The following control room HVAC system aging effects require management:

- Hardening and loss of strength
- Loss of material
- Loss of preload

Aging Management Programs

The following aging management programs manage the aging effects for the control room HVAC system component types:

- Bolting Integrity (B2.1.7)
- External Surfaces Monitoring Program (B2.1.20)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)
- Lubricating Oil Analysis (B2.1.23)
- One-Time Inspection (B2.1.16)

3.3.2.1.18 Miscellaneous Systems In-Scope ONLY based on Criterion 10 CFR 54.4(a)(2)

Materials

The materials of construction for the miscellaneous systems in scope ONLY based on Criterion 10 CFR 54.4(a)(2) component types are:

- Carbon Steel
- Carbon Steel (Galvanized)
- Cast Iron
- Cast Iron (Gray Cast Iron)
- Copper Alloy
- Elastomer
- Glass
- Plexiglass
- Stainless Steel
- Stainless Steel Cast Austenitic

Environment

The miscellaneous systems in scope ONLY based on Criterion 10 CFR 54.4(a)(2) component types are exposed to the following environments:

- Atmosphere/ Weather
- Borated Water Leakage
- Closed-Cycle Cooling Water
- Demineralized Water
- ~~Dry Gas~~
- Plant Indoor Air
- Raw Water
- Secondary Water
- Steam
- Treated Borated Water
- Ventilation Atmosphere

Aging Effects Requiring Management

The following miscellaneous systems in-scope ONLY based on Criterion 10 CFR 54.4(a)(2) aging effects require management:

- Cracking
- Hardening and loss of strength
- Loss of material
- Loss of preload

Aging Management Programs

The following aging management programs manage the aging effects for the miscellaneous systems in scope ONLY based on Criterion 10 CFR 54.4(a)(2) component types:

- Bolting Integrity (B2.1.7)
- Closed-Cycle Cooling Water System (B2.1.10)
- External Surfaces Monitoring Program (B2.1.20)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)
- One-Time Inspection (B2.1.16)
- Selective Leaching of Materials (B2.1.17)
- Water Chemistry (B2.1.2)

3.3.2.1.19 Oily Water and Turbine Sump System

Materials

The materials of construction for the oily water and turbine sump system component types are:

- Carbon Steel
- Carbon Steel (Galvanized)
- Cast Iron
- Copper Alloy

Environment

The oily water and turbine sump system component types are exposed to the following environments:

- Encased in Concrete
- Plant Indoor Air
- Raw Water

Aging Effects Requiring Management

The following oily water and turbine sump system aging effects require management:

- Loss of material
- Loss of preload

Aging Management Programs

The following aging management programs manage the aging effects for the oily water and turbine sump system component types:

- Bolting Integrity (B2.1.7)
- External Surfaces Monitoring Program (B2.1.20)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)

3.3.2.2.7.1 Steel Stainless piping and components in the reactor coolant pump oil collection system exposed to lubricating oil

The Lubricating Oil Analysis program (B2.1.23) and the One-Time Inspection program (B2.1.16) manages loss of material due to general, pitting, and crevice corrosion for steel (including galvanized) exposed to lubricating oil. The one-time inspection includes selected components at susceptible locations where contaminants such as water could accumulate.

The RCP LO Collection Tank has a removable cover and is readily accessible for internal inspection (B2.1.22) and identification of internal corrosion if present. Therefore the One Time Inspection program (B2.1.16) will not be used to confirm the thickness of the tank bottom. The Lubrication Oil Analysis program (B2.1.23) will not be used because the tank has been found to contain oily wastes of composition and quantity not suitable for management by the Lubrication Oil Analysis program (B2.1.23). ~~For the RCP lube oil collection system tank (within the liquid radioactive waste system), the Lubricating Oil Analysis program (B2.1.23) and the One-Time Inspection Program (B2.1.16) manages loss of material due to general, pitting, and crevice corrosion for steel (including galvanized steel) exposed to lubricating oil and the One-Time Inspection program (B2.1.16) evaluates the thickness of the lower portion of the tank.~~

3.4.2.1.4 Condensate System

Materials

The materials of construction for the condensate system component types are:

- Carbon Steel
- Cast Iron
- Copper Alloy
- Elastomer
- Glass
- Stainless Steel

Environment

The condensate system components are exposed to the following environments:

- Atmosphere/Weather
- Plant Indoor Air
- Raw Water
- Secondary Water
- Steam

Aging Effects Requiring Management

The following condensate system aging effects require management:

- Hardening and loss of strength
- Loss of material
- Loss of preload
- Wall thinning

Aging Management Programs

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

- Bolting Integrity (B2.1.7)
- External Surfaces Monitoring Program (B2.1.20)
- Flow-Accelerated Corrosion (B2.1.6)

- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)
- One-Time Inspection (B2.1.16)
- Water Chemistry (B2.1.2)

3.5.2.1.4 Turbine Building

Materials

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

- Carbon Steel
- Concrete
- Concrete Block (Masonry Walls)
- Elastomer
- Fiberglass
- Fire Barrier (Cementitious Coating)
- Glass
- Gypsum/Plaster

Environment

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

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

Aging Effects Requiring Management

The following turbine building aging effects require management:

- Concrete cracking and spalling
- Cracking
- Cracking due to expansion
- Cracking, loss of bond, and loss of material (spalling, scaling)
- Cracks and distortion
- Increase in porosity and permeability, cracking, loss of material (spalling, scaling)
- Increased hardness, shrinkage and loss of strength
- Loss of material

- Loss of material (spalling, scaling) and cracking
- Loss of material, cracking
- Loss of sealing
- Reduction of strength and cracking/ultraviolet exposure

Aging Management Programs

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

- Fire Protection (B2.1.12)
- Masonry Wall Program (B2.1.31)
- Structures Monitoring Program (B2.1.32)

B2.1.32 Structures Monitoring Program

Program Description

The Structures Monitoring Program (SMP) manages cracking, loss of material, and change in material properties by monitoring the condition of structures and structural supports that are in the scope of license renewal. The SMP implements the requirements of 10 CFR 50.65, the Maintenance Rule, which is consistent with the guidance of NUMARC 93-01, *Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,* Revision 2 and Regulatory Guide 1.160, *Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,* Revision 2. Inspection methods, inspection frequency and inspector qualifications are in accordance with DCPP procedures which reference ACI 349.3R-96 and ASCE 11-90. The SMP provides inspection guidelines and walkdown checklists for concrete elements, structural steel, masonry walls, structural features (e.g. caulking, sealants, roofs, etc.), structural supports, and miscellaneous components such as doors. The SMP includes all masonry walls and water-control structures within the scope of license renewal. The SMP also inspects supports for equipment, piping, conduit, cable tray, HVAC, and instrument components. The scope of the SMP does not include the inspection of the supports specifically inspected per the requirements of the ASME Section XI ISI Program. Though coatings may have been applied to the external surfaces of structural members, no credit was taken for these coatings in the determination of aging effects for the underlying materials. The SMP evaluates the condition of the coatings as an indication of the condition of the underlying materials.

The following structures are within the scope of License Renewal and are in the scope of the SMP inspections:

Auxiliary Building (includes the control room)
Containment Structure
Turbine Building, Administration Building, and Elevated Walkway
Radwaste Storage Facilities
Pipeway Structure
Fuel Handling Building Steel Superstructure
Commodity Supports and Anchorages
Outdoor Tanks and Foundations
Buried Structural Commodities
Electrical Structures and Foundations

The following water control structures are also within scope of license renewal and in scope for SMP:

Intake Structure
Discharge Structure
Circulating Water Conduits
Earth Slopes over the ASW pipes
East and West Breakwaters
Raw Water Reservoirs

The DCPP SMP manages aging by providing measures for monitoring that detect the effects of aging prior to loss of intended function.

The aging effects monitored by the DCPP SMP, are consistent with ACI 349.3R-96 and ASCE 11-90.

The inspection methods, inspection schedule, and inspector qualifications are specified in the DCPP SMP, which is consistent with ACI 349.3R-96 and ASCE 11-90. Visual inspections are used to determine the condition of SSCs within the scope of the SMP, unless more rigorous inspections are deemed necessary by the design system engineer or civil coordinator.

Inspections are scheduled such that the accessible areas of both units are inspected over a maximum 10-year interval (measured from the date of the baseline or prior routine observation), except water control structures, for which all accessible areas of both units are inspected at a frequency of no more than five years. Inaccessible Area Inspections, for areas that are inaccessible during normal plant operation, will be scheduled for the next available time when the area becomes accessible (e.g., outages, curtailments, maintenance activities). In accordance with a plant procedure, the ASW pump bay and traveling screens are currently inspected by divers on a refueling cycle interval. This procedure will be enhanced to also specifically include inspection of the bar racks, and associated structural components.

The DCPP SMP is consistent with 10 CFR 50.65. Any Civil SSC classified as "acceptable with deficiencies" or "unacceptable" requires consideration for transfer to (a)(1) status. All other civil SSCs are assigned to (a)(2) status. The SMP provides guidance for the determination of performance criteria for SSCs included within the scope of the Maintenance Rule. These guidelines were used to establish the inspection attributes for SSCs monitored by the DCPP SMP. The DCPP SMP uses "Acceptable", "Acceptable with Deficiencies", and "Unacceptable" to classify levels of aging effect for each inspection attribute. The classifications and acceptance criteria are based on DCPP design bases documents, current licensing bases, and industry standards, such as ACI 349.3R-96 and ASCE 11-90.

NUREG-1801 Consistency

The Structures Monitoring Program is an existing program that, following enhancement, will be consistent with NUREG-1801, Section XI.S6, Structures Monitoring Program.

Exceptions to NUREG-1801

None

Enhancements

Prior to the period of extended operation, the following enhancements will be implemented in the following program elements:

Scope of Program – Element 1

Plant procedures will be enhanced to revise the scope of the structures Monitoring Program to include the administration building, the elevated walkway connecting the turbine building to the administration building, and the structural members that support the walkway.

Parameters Monitored or Inspected – Element 3

Plant procedures will be enhanced to monitor groundwater samples every five years for pH, sulfates and chloride concentrations, including consideration for potential seasonal variations.

Plant procedures will be enhanced to specify inspections of bar racks and associated structural components in the intake structure.

Operating Experience

DCPP's SMP is performed in accordance with 10 CFR 50.65(a), Maintenance Rule (10-year intervals). The inspections assess the overall condition of DCPP structures, passive components and Civil Engineering features. The inspection results are used to demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation.

Baseline inspections of structures in scope of Maintenance Rule were completed between 1997 and 2003. The first periodic follow up inspection was completed in 2009.

Overall, the baseline inspection report concluded that the plant's structures were in good condition and performing well. Conditions that were noted as having

deficiencies were documented and addressed under the Corrective Action Program. Many of the observed conditions were noted for further review during the follow-up periodic inspections. Though the concrete Intake Structure refurbishment program was in progress to repair self-identified structural degradation prior to the Intake being scoped into the Maintenance Rule Program (October 1996), the Intake Structure was conservatively placed into Maintenance Rule (10 CFR 50.65) goal setting status (a)(1). This action was due to the chloride environment that the intake was exposed to and the extent of repairs being required to restore the structure. As a result of an aggressive refurbishment program, the necessary repairs and remediation were performed and the Intake Structure was removed from (a)(1) status in October 1998.

The first periodic follow-up inspection and report was completed in early 2009. The overall condition found the plant structures in good condition. The inspection found no conditions requiring immediate maintenance or repairs. Conditions noted were minor in nature and did not affect the structural integrity of any of the structures inspected. In some cases, corroded steel that was painted as a result of the baseline inspections had corrosion reappear. In such cases, the subject steel was located in damp or wet environments, primarily due to its exposure to the harsh coastal environment. These areas were re-identified in the Corrective Action Program to perform recoating. Some minor concrete cracking and spalling was also identified in the Turbine Building at areas near ventilation louvers. Rainwater leaking through exterior wall louvers has caused embedded reinforcing steel to corrosion and subsequently concrete cracking and spalling. The areas identified are relatively small and do not currently adversely impact the structural integrity of the structural element. However, concrete repairs and/or further examinations will be performed to prevent further degradation to the concrete elements.

The Intake Structure continues to require attention and remediation due to its location in a harsh coastal environment. As a result of a negative trend in concrete degradation, the Intake was placed back into Maintenance Rule goal setting (a)(1) status in December 2005. A repair plan is in place in order to return the Intake Structure to (a)(2) status by 2010.

The ASW pump bay, traveling screens and bar racks are currently inspected by divers on a refueling cycle interval. Any degradation noted during these inspections are entered into the corrective action program, evaluated for impact on the ASW system operability and identified for long term corrective actions as required. Inspections performed todate have not identified any degradation that would impact the ability of the ASW system to perform its intended function.

PH, sulfates, and chlorides were monitored monthly at DCPP powerblock locations from August 2008 through July 2009 to obtain data sufficient for making a groundwater aggressiveness determination. The groundwater sample results

show that DCPP powerblock groundwater is non-aggressive (pH>6.9, chlorides<215ppm, and sulfates<567ppm).

The SMP has identified and corrected age-related issues for in-scope structures and structural components. On-going identification of degradation and corrective action prior to loss of intended function provides reasonable assurance that the program is effective for managing the aging effects of structural components.

The DCPP operating experience findings for this program identified no unique plant specific operating experience; therefore DCPP operating experience is consistent with NUREG-1801.

Conclusion

The continued implementation of the Structures Monitoring Program will provide reasonable assurance that aging effects will be managed such that the structures within the scope of this program will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.

Table 2.2-1 DCPP Scoping Results

System/Structure	In Scope	Section 2 Scoping Results
Reactor Vessel, Internals, and Reactor Coolant System		
Pressurizer	Yes	2.3.1.3
Reactor coolant, includes: RVLIS and RVRLIS	Yes	2.3.1.2
Reactor core, includes: Nuclear Fuel Control Rod Mechanical SSCs	Yes	2.3.1.5
Reactor vessel and internals	Yes	2.3.1.1
Steam generators	Yes	2.3.1.4
Engineered Safety Features		
Containment HVAC, including: Containment H_2 control	Yes	2.3.2.4
Containment spray	Yes	2.3.2.2
Residual heat removal	Yes	2.3.2.3
Safety injection	Yes	2.3.2.1
Auxiliary Systems		
Auxiliary building HVAC, includes: Main auxiliary building HVAC Miscellaneous auxiliary building HVAC Fuel handling building HVAC	Yes	2.3.3.11
Chemical and volume control	Yes	2.3.3.8
Component cooling water	Yes	2.3.3.4
Compressed air, includes: Backup air and N_2 Compressed breathing air	Yes	2.3.3.7
Control Room HVAC, includes: Plant process computer HVAC	Yes	2.3.3.10
Cranes and fuel handling, includes: Fuel handling cranes, hoists, and monorails Nuclear fuel storage	Yes	2.3.3.1
Diesel generator fuel oil	Yes	2.3.3.13
Diesel generator	Yes	2.3.3.14

System/Structure	In Scope	Section 2 Scoping Results
Fire Protection, includes: Fire Detection Firewater system CO_2 system Halon (Sim/Comp Rooms) system Portable fire extinguishers	Yes	2.3.3.12
Gaseous radwaste	Yes	2.3.3.16
Liquid radwaste	Yes	2.3.3.17
Lube Oil	Yes	2.3.3.15
Makeup water, includes Domestic and drinking water	Yes	2.3.3.5
Miscellaneous HVAC, includes: Turbine Building ASW Pump Room Ventilation Radwaste Storage Building	Yes	2.3.3.9
Miscellaneous systems in scope ONLY for criterion 10 CFR 54.4(a)(2), includes:	Yes	2.3.3.18
Extraction steam and heater drip	-	-
Radiation monitoring (mechanical)	-	-
Sanitary sewage	-	-
Secondary sampling	-	-
Service cooling water	-	-
Solid radwaste	-	-
Nuclear steam supply sampling	Yes	2.3.3.6
Oily water and turbine sump	Yes	2.3.3.19
Saltwater and chlorination, includes: Saltwater system Auxiliary saltwater Chlorination	Yes	2.3.3.3
Spent fuel pool cooling, includes: Spent fuel pool cooling Spent fuel pool purification	Yes	2.3.3.2
Hazardous waste	No	N/A
Laundry facility and decontamination equipment	No	N/A
Nitrogen and hydrogen	No	N/A
~~Oily water and turbine sump~~	~~No~~	~~N/A~~
~~Sanitary sewage~~	~~No~~	~~N/A~~

System/Structure	In Scope	Section 2 Scoping Results
Steam and Power Conversion System		
Auxiliary feedwater, includes: Long-term cooling water - auxiliary feedwater alternate suction sources	Yes	2.3.4.5
Auxiliary steam	Yes	2.3.4.2
Condensate, includes: Condensate polishing	Yes	2.3.4.4
Feedwater	Yes	2.3.4.3
Turbine steam supply (TSS), includes: TSS –downstream of MSIV TSS –upstream of MSIV TSS –steam generator blowdown	Yes	2.3.4.1
~~Extraction steam and heater drip~~	~~No~~	~~N/A~~
Turbine generator associated systems	No	N/A
Containments, Structures, and Component Supports		
Auxiliary building	Yes	2.4.3
Containment building	Yes	2.4.1
Control room (located in auxiliary building)	Yes	2.4.2
Discharge structure	Yes	2.4.12
Diesel fuel oil pump vaults and structures	Yes	2.4.7
Earthwork and yard structures	Yes	2.4.11
Fuel handling building	Yes	2.4.9
Intake structure and intake control building	Yes	2.4.10
Outdoor water storage tank foundations and encasements	Yes	2.4.13
Pipeway structure	Yes	2.4.6
Radwaste storage facilities	Yes	2.4.5
Supports	Yes	2.4.14
Turbine building, includes: <u>Administration building</u> <u>CCW heat exchanger room</u> <u>Elevated walkway</u> ~~(~~Emergency diesel generator rooms~~)~~	Yes	2.4.4
230 kV Switchyard, 500 kV Switchyard, and electrical foundations and structures	Yes	2.4.8
Independent spent fuel storage installation and cask transfer facility	No	N/A

System/Structure	In Scope	Section 2 Scoping Results
~~Administration building~~	~~No~~	~~N/A~~
Auxiliary boiler enclosure	No	N/A
Avila gate guardhouse	No	N/A
Avila gate storage building	No	N/A
Bechtel administration trailers	No	N/A
Bio-lab shower / Laboratory facility	No	N/A
Biological laboratory and offices	No	N/A
Blast and paint facility	No	N/A
Boat dock	No	N/A
Boat repair shop	No	N/A
Building, auto, and land services trailer	No	N/A
Building mechanic shop	No	N/A
Chemical storage building	No	N/A
Chlorination and domestic water building (not in use)	No	N/A
Clarifier and make-up pretreatment building	No	N/A
Document Control RMS Building	No	N/A
Document storage facilities	No	N/A
Emergency Operations Facility	No	N/A
Employee assistance program office trailer	No	N/A
Energy Information Center	No	N/A
Engineering services trailer	No	N/A
Environmental monitoring program facilities	No	N/A
Firing range	No	N/A
Fitness for duty buildings	No	N/A
Fitness trailer	No	N/A
Fleet mechanic office	No	N/A
Gas cylinder storage	No	N/A
General construction paint compressor building (not in use)	No	N/A
General construction paint shack / sand blast facility	No	N/A
Hazardous waste facility	No	N/A
Hazardous material office and warehouse	No	N/A
Housekeeping field office	No	N/A

System/Structure	In Scope	Section 2 Scoping Results
Intake maintenance shop	No	N/A
Intake office/security access building	No	N/A
Ionics reverse osmosis facility	No	N/A
Laundry facility	No	N/A
Learning center and maintenance shop	No	N/A
Learning center and simulator	No	N/A
Main warehouse	No	N/A
MATCON express trailer	No	N/A
Meteorological Tower No. 1 and building	No	N/A
Meteorological Tower No. 2 and building	No	N/A
NOS project files	No	N/A
Nuclear Quality Services trailer	No	N/A
Oceanography laboratory	No	N/A
Offsite emergency laboratory	No	N/A
Old Steam Generator Storage Facility	No	N/A
Outage services facilities	No	N/A
Plant compressed air facility	No	N/A
Plant security building and structures	No	N/A
Portable fire pump building	No	N/A
Raw water collection facility and wells at Diablo Creek	No	N/A
Radiation protection trailer	No	N/A
Restroom trailers	No	N/A
Scaffold storage building	No	N/A
Security guard station	No	N/A
Service air pad building	No	N/A
Sewage treatment plant	No	N/A
Site overlook	No	N/A
Storage building - 500 kV switchyard	No	N/A
Technical maintenance/Telecom/Medical facility	No	N/A
Telecommunications trailer	No	N/A
Telephone terminal building	No	N/A
Turbine generator equipment warehouse	No	N/A

System/Structure	In Scope	Section 2 Scoping Results
Unit 2 cold machine shop	No	N/A
Utility Crew / Firewatch / Radwaste field office	No	N/A
Vehicle maintenance shop	No	N/A
Vehicle maintenance shop parts office	No	N/A
Vending machine facility	No	N/A
Warehouse A	No	N/A
Warehouse B	No	N/A
Wastewater holding and treatment equipment enclosure	No	N/A
Westinghouse office trailer	No	N/A
Yard Containment Access Facility	No	N/A
Electrical and Instrumentation and Controls		
AMSAC	Yes	N/A
Control rod electrical SSCs	Yes	N/A
Communications	Yes	N/A
Eagle 21	Yes	N/A
Emergency lighting, includes: Emergency AC lighting Emergency DC lighting Battery operated lighting Control room lighting Pipe rack lighting	Yes	N/A
Incore flux mapping	Yes	N/A
Main generator electrical equipment (25 kV)	Yes	N/A
Nuclear instrumentation	Yes	N/A
Radiation monitoring	Yes	N/A
Safety parameter display	Yes	N/A
Seismic monitoring, includes: Reactor seismic trip	Yes	N/A
Site emergency and containment evacuation	Yes	N/A
Solid state protection	Yes	N/A
120 VAC	Yes	N/A
125 VDC	Yes	N/A
480 V	Yes	N/A
4.16 kV	Yes	N/A

System/Structure	In Scope	Section 2 Scoping Results
12 kV	Yes	N/A
230 kV	Yes	N/A
500 kV	Yes	N/A
Auxiliary building control board digital	No	N/A
Boric acid heat trace	No	N/A
Cathodic protection	No	N/A
Digital rod position indication	No	N/A
Loose parts monitoring	No	N/A
Meteorological monitoring	No	N/A
Plant data network	No	N/A
Plant process computer and annunciator	No	N/A
Security	No	N/A
Security UPS	No	N/A
120 V general use and normal lighting	No	N/A

Table 2.3.2-4 Containment HVAC System

Component Type	Intended Function
Separator (Housing)	Pressure Boundary

Table 2.3.3-3 Saltwater and Chlorination System

Component Type	Intended Function
Bellows	Leakage Boundary (spatial) Pressure Boundary
Demineralizer	Leakage Boundary (spatial)
Eductor	Leakage Boundary (spatial)
Filter	Leakage Boundary (spatial)
Heat Exchanger (Circ Water PP Motor Air Cooler)	Leakage Boundary (spatial)
Heat Exchanger (Intake Cooling Water)	Leakage Boundary (spatial)
Indicator	Leakage Boundary (spatial)
Orifice	Leakage Boundary (spatial)
Pulsation Dampener	Leakage Boundary (spatial)
Pump	Leakage Boundary (spatial) Pressure Boundary
Separator	Leakage Boundary (spatial)
Strainer	Leakage Boundary (spatial)
Tank	Leakage Boundary (spatial)

Table 2.3.3-4 Component Cooling Water System

Component Type	Intended Function
Panel Board	Structural Support

Table 2.3.3-5 Makeup Water System

Component Type	Intended Function
Piping	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached) Structural Support

Table 2.3.3-6 Nuclear Steam Supply Sampling System

Component Type	Intended Function
Heat Exchanger (Hot Leg Sample)	Leakage Boundary (spatial) Structural Integrity (attached) Structural Support
Heat Exchanger (Liquid Sample)	Leakage Boundary (spatial) Structural Integrity (attached) Structural Support
Heat Exchanger (Steam Sample)	Leakage Boundary (spatial) Structural Integrity (attached) Structural Support
Piping	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached) Structural Support
Sample Sink	Leakage Boundary (spatial) Structural Support

Table 2.3.3-8 Chemical and Volume Control System

Component Type	Intended Function
Heat Exchanger (Boric Acid Evaporator)	Leakage Boundary (spatial) Structural Integrity (attached) Structural Support
Piping	Fire Barrier Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)

Table 2.3.3-10 Control Room HVAC System

Component Type	Intended Function
Fan	Pressure Boundary Structural Integrity (attached) Structural Support

Table 2.3.3-12 Fire Protection System

Component Type	Intended Function
Piping	Leakage Boundary (spatial) Pressure Boundary Structural Support
Pump	Pressure Boundary Structural Support

Table 2.3.3-14 Diesel Generator System

Component Type	Intended Function
Fan	Direct Flow Pressure Boundary
Filter	Leakage Boundary (spatial) Pressure Boundary ~~Structural Integrity (attached)~~
Heat Exchanger (DG Starting Air)	Leakage Boundary (spatial)
Heat Exchanger (DG Turbo Air Assist)	Leakage Boundary (spatial)
Piping	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached)
Tubing	Pressure Boundary Structural Integrity (attached) Structural Support

Table 2.3.3-16 Gaseous Radwaste System

Component Type	Intended Function
Heat Exchanger (Waste Gas Compressor Seal Cooler)	Leakage Boundary (spatial) Structural Integrity (attached) Structural Support

Table 2.3.3-17 Liquid Radwaste System

Component Type	Intended Function
Piping	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached) Structural Support

Table 2.3.3-18 Miscellaneous Systems In Scope ONLY Based on Criterion 10 CFR 54.4(a)(2)

Component Type	Intended Function
~~Chiller~~	~~Leakage Boundary (spatial)~~
~~Heat Exchanger (Isothermal Chiller)~~	~~Leakage Boundary (spatial)~~

Table 2.3.3-19 Oily Water and Turbine Sump System

Component Type	Intended Function
Closure Bolting	Leakage Boundary (Spatial)
Piping	Leakage Boundary (Spatial) Pressure Boundary
Pump	Leakage Boundary (Spatial)
Valve	Leakage Boundary (Spatial)

The AMR results for these component types are provided in Table 3.3.2-19, Auxiliary Systems – Summary of Aging Management Evaluation – Oily Water and Turbine Sump System.

Table 2.3.4-1 Turbine Steam Supply System

Component Type	Intended Function
Heat Exchanger (Sample Cooler)	Leakage Boundary (spatial) Structural Integrity (attached) Structural Support
Piping	Leakage Boundary (spatial) Pressure Boundary Structural Integrity (attached) Structural Support

Table 2.3.4-2 Auxiliary Steam System

Component Type	Intended Function
Heat Exchanger (Aux Steam Drain Rec Vent Cond)	Leakage Boundary (spatial) Structural Integrity (attached) Structural Support

Table 2.3.4-3 Feedwater System

Component Type	Intended Function
Heat Exchanger (Sample Cooler)	Leakage Boundary (spatial) Structural Integrity (attached) Structural Support

Table 2.3.4-4 Condensate System

Component Type	Intended Function
Expansion Joint	Pressure Boundary
Heat Exchanger (Main Condenser)	Pressure Boundary Structural Integrity (attached)
Piping	Leakage Boundary (spatial) Pressure Boundary ~~Structural Integrity (attached)~~
Pump	Leakage Boundary (spatial) Pressure Boundary

Table 2.3.4-5 Auxiliary Feedwater System

Component Type	Intended Function
Heat Exchanger (Aux Feedwater Turbine Governor Oil Cooler)	Heat Transfer Pressure Boundary

Table 2.4-4 Turbine Building

Component Type	Intended Function
Barrier	Shelter, Protection
Compressible Joints & Seals	Expansion/Separation Shelter, Protection
~~Metal Siding~~Metal Roofing and Siding	Shelter, Protection
Roofing Membrane	Shelter, Protection
Roofing Panel	Shelter, Protection

Note: Roofing membrane and roofing panel are only applicable to the administration building and elevated walkway between the turbine building and the administration building.

Table 3.1.2-2 Reactor Vessel, Internals, and Reactor Coolant System – Summary of Aging Management Evaluation – Reactor Coolant System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valve	LBS, SIA	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	V.C-6	3.2.1.15	C

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

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Separator (Housing)	PB	~~Stainless Steel~~Carbon Steel	Plant Indoor Air (Ext)	~~None~~Loss of material	External Surfaces Monitoring Program (B2.1.20)~~None~~	~~VII.J-15~~VII.F3-2	~~3.3.1.94~~3.3.1.56	~~C~~B
Separator (Housing)	PB	~~Stainless Steel~~Carbon Steel	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.F3-3~~-1~~	3.3.1.72~~27~~	~~E~~B

Table 3.3.1 Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 for Auxiliary Systems

Item Number	Component Type	Aging Effect / Mechanism	Aging Management Program	Further Evaluation Recommended	Discussion
3.3.1.15	Steel reactor coolant pump oil collection system piping, tubing, and valve bodies exposed to lubricating oil	Loss of material due to general, pitting, and crevice corrosion	Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)	Yes	Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22) is credited ~~with aging management program exceptions.~~ ~~The aging management program(s) with exceptions to NUREG-1801 include: Lubricating Oil Analysis (B2.1.23).~~ See further evaluation in Section 3.3.2.2.7.1.

Table 3.3.1 Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 for Auxiliary Systems (continued)

3.3.1.16	Steel reactor coolant pump oil collection system tank exposed to lubricating oil	Loss of material due to general, pitting, and crevice corrosion	Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16) to evaluate the thickness of the lower portion of the tank	Yes	Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22) is credited. See further evaluation in Section 3.3.2.2.7.1.

Table 3.3.1 Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 for Auxiliary Systems (continued)

3.3.1.76	Steel piping, piping components, and piping elements (without lining/coating or with degraded lining/coating) exposed to raw water	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, fouling, and lining/coating degradation	Open-Cycle Cooling Water System (B2.1.9)	No	Consistent with NUREG-1801 for all components except that a different aging management program is credited for abandoned-in-place components in the auxiliary steam system and for components exposed to the raw water environment in the gaseous, liquid and solid radioactive waste systems, the oily water and turbine sump system, and the sanitary ~~sewer~~sewage system. The aging of internal component surfaces exposed to the raw water environment of the abandoned-in-place portions of the auxiliary steam system and the raw water environment of the gaseous, liquid and solid radioactive waste systems, the oily water and turbine sump system, and the sanitary ~~sewer~~sewage system are managed by Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22).

Table 3.3.1 Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 for Auxiliary Systems (continued)

3.3.1.81	Copper alloy piping, piping components, and piping elements, exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling	Open-Cycle Cooling Water System (B2.1.9)	No	Consistent with NUREG-1801 for all components except that a different aging management program is credited for piping and components exposed to the raw water environment in the gaseous and liquid radioactive waste systems, and the oily water and turbine sump system, and to the raw water (condensation) environment in the auxiliary building HVAC system. The aging of internal component surfaces exposed to the raw water environment of the gaseous and liquid radioactive waste systems, and the oily water and turbine sump system, and the auxiliary building HVAC system are managed by Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22).

Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Bellows	LBS, PB	Elastomer	Plant Indoor Air (Ext)	Hardening and loss of strength	External Surfaces Monitoring Program (B2.1.20)	VII.F1-7	3.3.1.11	E
Bellows	LBS, PB	Elastomer	Raw Water (Int)	Hardening and loss of strength	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-1	3.3.1.75	A
Bellows	LBS, PB	Elastomer	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-2	3.3.1.75	A
Bellows	LBS, PB	Nickel-Alloys	Plant Indoor Air (Ext)	None	None	VII.J-14	3.3.1.94	A
Bellows	LBSPB	Nickel-Alloys	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-13	3.3.1.78	A
Bellows	LBSPB	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Bellows	LBS, PB	Stainless Steel	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-15	3.3.1.79	A
Filter	LBS	Polyvinyl Chloride (PVC)	Plant Indoor Air (Ext)	None	None	None	None	F
Filter	LBS	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.D1-4	3.4.1.16	C
Filter	LBS	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Flexible Hoses	LBS	Elastomer	Demineralized Water (Int)	Hardening and loss of strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	None	None	G
Flexible Hoses	LBS	Elastomer	Plant Indoor Air (Ext)	Hardening and loss of strength	External Surfaces Monitoring Program (B2.1.20)	VII.F1-7	3.3.1.11	E

Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Circ Water PP Motor Air Cooler)	LBS	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	C
Heat Exchanger (Circ Water PP Motor Air Cooler)	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Heat Exchanger (Circ Water PP Motor Air Cooler)	LBS	Copper Alloy	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.A-5	3.4.1.15	C
Heat Exchanger (Circ Water PP Motor Air Cooler)	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Heat Exchanger (Intake Cooling Water)	LBS	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	C
Heat Exchanger (Intake Cooling Water)	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Heat Exchanger (Intake Cooling Water)	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A

Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Intake Cooling Water)	LBS	Copper Alloy	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-9	3.3.1.81	A
Indicator	LBS	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	A
Indicator	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Indicator	LBS	Carbon Steel	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-19	3.3.1.76	A
Indicator	LBS	Copper Alloy	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.A-5	3.4.1.15	A
Indicator	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Indicator	LBS	Glass	Demineralized Water (Int)	None	None	VII.J-13	3.3.1.93	A
Indicator	LBS	Glass	Plant Indoor Air (Ext)	None	None	VII.J-8	3.3.1.93	A
Indicator	LBS	Glass	Raw Water (Int)	None	None	VII.J-11	3.3.1.93	A
Orifice	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Orifice	LBS	Carbon Steel	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-19	3.3.1.76	A
Orifice	LBS	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Orifice	LBS	Stainless Steel	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-15	3.3.1.79	A

Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	LBS	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	A
Piping	LBS, PB	Carbon Steel	Encased in Concrete (Ext)	None	None	VII.J-21	3.3.1.96	A
Piping	LBS	Cast Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	LBS	Cast Iron	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-19	3.3.1.76	A
Piping	LBS, PB	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Piping	LBS, PB	Copper Alloy	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-9	3.3.1.81	A
Piping	LBS	Nickel Alloys	Plant Indoor Air (Ext)	None	None	VII.J-14	3.3.1.94	A
Piping	LBS	Nickel Alloys	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-13	3.3.1.78	A
Piping	LBS	Polyvinyl Chloride (PVC)	Demineralized Water (Int)	None	None	None	None	F
Piping	LBS	Polyvinyl Chloride (PVC)	Raw Water (Int)	None	None	None	None	F
Piping	LBS	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.D1-4	3.4.1.16	A
Pulsation Dampener	LBS	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	C

Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Pulsation Dampener	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Pump	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Pump	LBS	Carbon Steel	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-19	3.3.1.76	A
Pump	LBS	Cast Iron	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	A
Pump	LBS	Cast Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Pump	LBS	Fiberglass Reinforced Plastic	Plant Indoor Air (Ext)	None	None	None	None	F
Pump	LBS	Fiberglass Reinforced Plastic	Raw Water (Int)	None	None	None	None	F
Pump	LBS	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.D1-4	3.4.1.16	A
Separator	LBS	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Separator	LBS	Stainless Steel	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-15	3.3.1.79	A
Strainer	LBS	Cast Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Strainer	LBS	Cast Iron	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-19	3.3.1.76	A

Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Strainer	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Strainer	LBS	Copper Alloy	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-9	3.3.1.81	A
Strainer	LBS	Polyvinyl Chloride (PVC)	Plant Indoor Air (Ext)	None	None	None	None	F
Strainer	LBS	Polyvinyl Chloride (PVC)	Raw Water (Int)	None	None	None	None	F
Strainer	LBS	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.D1-4	3.4.1.16	A
Strainer	LBS	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Tank	LBS	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	C
Tank	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Tank	LBS	Carbon Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-23	3.3.1.71	B
Tank	LBS	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.D1-4	3.4.1.16	C
Tank	LBS	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A

Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Tank	LBS	Stainless Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	V.A-26	3.2.1.08	E
Thermowell	PB	Nickel-Alloys	Plant Indoor Air (Ext)	None	None	VII.J-14	3.3.1.94	A
Thermowell	PB	Nickel-Alloys	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-13	3.3.1.78	A
Valve	LBS	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	A
Valve	LBS	Carbon Steel	Lubricating Oil (Int)	Loss of material	Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)	VII.C1-17	3.3.1.14	B
Valve	LBS, PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Valve	LBS, PB	Carbon Steel	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-19	3.3.1.76	A
Valve	LBS	Cast Iron	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-11	3.4.1.04	A
Valve	LBS	Cast Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Valve	LBS	Copper Alloy	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.A-5	3.4.1.15	A

Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Saltwater and Chlorination System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valve	LBS	Copper Alloy	Lubricating Oil (Int)	Loss of material	Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)	VII.C1-8	3.3.1.26	B
Valve	LBS, PB	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Valve	LBS, PB	Copper Alloy	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-9	3.3.1.81	A
Valve	LBS, PB	Nickel-Alloys	Plant Indoor Air (Ext)	None	None	VII.J-14	3.3.1.94	A
Valve	LBS, PB	Nickel-Alloys	Raw Water (Int)	Loss of material	Open-Cycle Cooling Water System (B2.1.9)	VII.C1-13	3.3.1.78	A
Valve	LBS	Polyvinyl Chloride (PVC)	Demineralized Water (Int)	None	None	None	None	F
Valve	LBS	Polyvinyl Chloride (PVC)	Plant Indoor Air (Ext)	None	None	None	None	F
Valve	LBS	Polyvinyl Chloride (PVC)	Raw Water (Int)	None	None	None	None	F
Valve	LBS	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.D1-4	3.4.1.16	A
Valve	LBS	Stainless Steel	Lubricating Oil (Int)	Loss of material	Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)	VII.C1-14	3.3.1.33	B

G Environment not in NUREG-1801 for this component and material.

Table 3.3.2-4 Auxiliary Systems – Summary of Aging Management Evaluation – Component Cooling Water System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Closure Bolting	LBS, PB, SIA	Carbon Steel	Atmosphere/ Weather (Ext)	Loss of material	Bolting Integrity (B2.1.7)	VII.I-1	3.3.1.43	B
Closure Bolting	LBS, PB, SIA	Carbon Steel	Atmosphere/ Weather (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	None	None	H, 1
Closure Bolting	LBS, PB, SIA	Stainless Steel	Atmosphere/ Weather (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	None	None	H, 1
Panel Board	SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-9	3.3.1.58	B
Piping	PB	Carbon Steel	Atmosphere/ Weather (Ext)	Loss of Material	External Surfaces Monitoring Program (B2.1.20)	VII.I-9	3.3.1.58	B
Piping	PB	Stainless Steel	Atmosphere/ Weather (Ext)	Loss of Material	External Surfaces Monitoring Program (B2.1.20)	None	None	G
Regulators	PB	Cast Iron	Atmosphere/ Weather (Ext)	Loss of Material	External Surfaces Monitoring Program (B2.1.20)	VII.I-9	3.3.1.58	B
Sight Gauge	PB	Glass	Atmosphere/ Weather (Ext)~~(Plant Indoor Air (Ext)~~	None	None	~~VIII.I-5~~ None	~~3.4.1.40~~None	A
Tank	~~LBS~~PB	Carbon Steel	Dry Gas (Int)	None	None	VII.8	3.3.1.58	B
Tank	PB	Carbon Steel	Atmosphere/ Weather (Ext)	Loss of Material	External Surfaces Monitoring Program (B2.1.20)	VII.I-9	3.3.1.58	B
Tubing	PB	Stainless Steel	Atmosphere/ Weather (Ext)	Loss of Material	External Surfaces Monitoring Program (B2.1.20)	None	None	G

Table 3.3.2-4 Auxiliary Systems – Summary of Aging Management Evaluation – Component Cooling Water System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Valve	PB	Carbon Steel	Atmosphere/ Weather (Ext)	Loss of Material	External Surfaces Monitoring Program (B2.1.20)	VII.I-9	3.3.1.58	B
Valve	PB	Stainless Steel Cast Austenitic	Atmosphere/ Weather (Ext)	Loss of Material	External Surfaces Monitoring Program (B2.1.20)	None	None	G

Table 3.3.2-5 Auxiliary Systems – Summary of Aging Management Evaluation – Makeup Water System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	LBS, PB, SIA, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	LBS, PB, SIA, SS	Carbon Steel	Raw Water (Int)	Loss of material	Fire Water System (B2.1.13)	VII.G-24	3.3.1.68	B
Valve	~~LBS,~~ PB, ~~SIA~~	Carbon Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-34	3.4.1.04	A
Valve	~~LBS,~~ PB, ~~SIA~~	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Valve	~~LBS~~PB	Cast Iron (Gray Cast Iron)	Demineralized Water (Int)	Loss of material	Selective Leaching of Materials (B2.1.17)	VII.C2-9	3.3.1.85	A
Valve	~~LBS,~~ PB	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Valve	~~LBS,~~ PB, ~~SIA~~	Stainless Steel	Plant Indoor air (Ext)	None	None	VII.J-15	3.3.1.94	A

Table 3.3.2-6 Auxiliary Systems – Summary of Aging Management Evaluation – Nuclear Steam Supply Sampling System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Hot Leg Sample)	LBS, SIA, SS	Carbon Steel	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VII.C2-1	3.3.1.48	B
Heat Exchanger (Hot Leg Sample)	LBS, SIA, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Heat Exchanger (Liquid Sample)	LBS, SIA, SS	Carbon Steel	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VII.C2-1	3.3.1.48	B
Heat Exchanger (Liquid Sample)	LBS, SIA, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Heat Exchanger (Steam Sample)	LBS, SIA, SS	Carbon Steel	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VII.C2-1	3.3.1.48	B
Heat Exchanger (Steam Sample)	LBS, SIA, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B

Table 3.3.2-6 Auxiliary Systems – Summary of Aging Management Evaluation – Nuclear Steam Supply Sampling System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	LBS, PB, SIA, SS	Stainless Steel	Borated Water Leakage (Ext)	None	None	VII.J-16	3.3.1.99	A
Piping	LBS, PB, SIA, SS	Stainless Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	V.A-26	3.2.1.08	E
Piping	LBS, PB, SIA, SS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VII.E1-17	3.3.1.91	E, 3
Piping	LBS, PB, SIA, SS	Stainless Steel	Treated Borated Water (Int)	Cracking	Water Chemistry (B2.1.2 and One-Time Inspection (B2.1.16)	VII.E1-20	3.3.1.90	E, 3
Sample Sink	LBS, PB, SIA, SS	Stainless Steel	Borated Water Leakage (Ext)	None	None	VII.J-16	3.3.1.99	A
Sample Sink	LBS, SS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VII.E1-17	3.3.1.91	E, 3
Sample Sink	LBS, SS	Stainless Steel	Treated Borated Water (Int)	Cracking	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VII.E1-20	3.3.1.90	E, 3

Table 3.3.2-8 Auxiliary Systems – Summary of Aging Management Evaluation – Chemical and Volume Control System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Boric Acid Evaporator)	LBS, SIA, SS	Stainless Steel	Borated Water Leakage (Ext)	None	None	VII.J-16	3.3.1.99	C
Heat Exchanger (Boric Acid Evaporator)	LBS, SIA, SS	Stainless Steel	Treated Borated Water (Int)	Cracking	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VII.E1-5	3.3.1.08	E
Heat Exchanger (Boric Acid Evaporator)	LBS, SIA, SS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VII.E1-17	3.3.1.91	E, 5
Piping	FB, LBS, PB, SIA	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	FB, LBS, SIA	Carbon Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	V.A-19	3.2.1.32	B

Table 3.3.2-10 Auxiliary Systems – Summary of Aging Management Evaluation – Control Room HVAC System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Ductwork	PB	Carbon Steel (Galvanized)	Atmosphere/ Weather (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-9	3.3.1.58	B
Fan	PB, SIA, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F1-2	3.3.1.56	B
Fan	PB, SIA, SS	Carbon Steel	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.F1-3	3.3.1.72	B

Table 3.3.2-12 Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	LBS, PB, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	LBS, PB, SS	Carbon Steel	Raw Water (Int)	Loss of material	Fire Water System (B2.1.13)	VII.G-24	3.3.1.68	B
Pump	PB, SS	Aluminum	Plant Indoor Air (Ext)	None	None	V.F-2	3.2.1.50	A
Pump	PB, SS	Aluminum	Plant Indoor Air (Int)	None	None	V.F-2	3.2.1.50	A, 2
Pump	PB, SS	Cast Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Pump	PB, SS	Cast Iron	Raw Water (Int)	Loss of material	Fire Water System (B2.1.13)	VII.G-24	3.3.1.68	B
Strainer	PB	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Strainer	PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material	Selective Leaching of Materials (B2.1.17)	VII.G-14	3.3.1.85	A
Strainer	PB	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material	Fire Water System (B2.1.13)	VII.G-24	3.3.1.68	B
Strainer	PB	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Strainer	PB	Copper Alloy	Raw Water (Int)	Loss of material	Fire Water System (B2.1.13)	VII.G-12	3.3.1.70	B
Tank	PB, SS	Carbon Steel	Raw Water (Ext)	Loss of material	Fire Water System (B2.1.13)	VII.G-24	3.3.1.68	D
Tank	PB, SS	Carbon Steel	Raw Water (Int)	Loss of material	Fire Water System (B2.1.13)	VII.G-24	3.3.1.68	D
Valve	PB	Ductile Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B

Table 3.3.2-14 Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Fan	DF, PB	Ductile Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Fan	DF, PB	Ductile Iron	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.H2-21	3.3.1.71	B
~~Filter~~	~~SIA~~	~~Carbon Steel~~	~~Dry Gas (Int)~~	~~None~~	~~None~~	~~VII.J-22~~	~~3.3.1.98~~	~~A~~
Filter	LBS, PB, ~~SIA~~	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Filter	LBS, PB	Carbon Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.H2-21	3.3.1.71	B
Heat Exchanger (DG Starting Air)	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	V.F-3	3.2.1.53	C
Heat Exchanger (DG Starting Air)	LBS	Copper Alloy	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-9	3.3.1.28	E
Heat Exchanger (Turbo Air Assist)	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	V.F-3	3.2.1.53	C

Table 3.3.2-14 Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Turbo Air Assist)	LBS	Copper Alloy	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-9	3.3.1.28	E
Piping	PB, SIA	Stainless Steel	Dry Gas (Int)	None	None	VII.J-18	3.3.1.98	A
Piping	LBS, PB, SIA	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Piping	LBS, PB	Stainless Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.F2-1	3.3.1.27	E
Silencer	LBS, PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Silencer	LBS, PB	Carbon Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.H2-21	3.3.1.71	B
Tubing	PB, SIA, SS	Stainless Steel	Dry Gas (Int)	None	None	VII.J-18	3.3.1.98	A
Tubing	PB, SIA, SS	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Turbine	PB	Carbon Steel	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VII.H2-23	3.3.1.47	B

Table 3.3.2-14 Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Turbine	PB	Carbon Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.H2-21	3.3.1.71	B
Valve	LBS, PB	Carbon Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.H2-21	3.3.1.71	B
Valve	PB	Stainless Steel	Diesel Exhaust (Int)	Cracking	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.H2-1	3.3.1.06	E
Valve	PB	Stainless Steel	Diesel Exhaust (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.H2-2	3.3.1.18	E

Table 3.3.2-16 Auxiliary Systems – Summary of Aging Management Evaluation – Gaseous Radwaste System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Waste Gas Compressor Seal Cooler)	LBS, SIA, SS	Carbon Steel	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VII.C2-1	3.3.1.48	B
Heat Exchanger (Waste Gas Compressor Seal Cooler)	LBS, SIA, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Heat Exchanger (Waste Gas Compressor Seal Cooler)	LBS, SIA, SS	Carbon Steel	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-19	3.3.1.~~84~~76	E, 3
Heat Exchanger (Waste Gas Compressor Seal Cooler)	LBS, SIA	Copper Alloy (> 15% Zinc)	Raw Water (Ext)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-~~19~~	3.3.1.~~76~~81	E, 3

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

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Flame Arrestor	PB	Carbon Steel	~~Lubricating Oil~~Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)~~Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)~~	VII.G-~~26~~23	3.3.1.~~15~~71	~~D~~E, 7
Piping	PB	Carbon Steel	Lubricating Oil (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)~~Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)~~	VII.G-26	3.3.1.15	~~B~~E, 7
Piping	PB	Carbon Steel (Galvanized)	Lubricating Oil (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)~~Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)~~	VII.G-22	3.3.1.14	~~B~~E, 7
Piping	LBS, PB, SIA, SS	Stainless Steel	Borated Water Leakage (Ext)	None	None	VII.J-16	3.3.1.99	A
Piping	LBS, PB, SIA, SS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VII.E1-17	3.3.1.91	E, 6

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

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	LBS, PB, SIA, SS	Stainless Steel	Treated Borated Water (Int)	Cracking	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VII.E1-20	3.3.1.90	E, 6
Tank (RCP Lube Oil Collection)	PB	Carbon Steel	Lubricating Oil (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)~~Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)~~	VII.G-27	3.3.1.16	~~B~~E, 7
Valve	PB	Carbon Steel	Lubricating Oil (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)~~Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)~~	VII.G-26	3.3.1.15	~~B~~E, 7

7 Components associated with the RCP oil collection system do not normally contain lubricating oil. Any oil or water that is found during operator visual inspections is documented and reviewed. If there is an accumulation of liquid, it is removed and discarded during the outage inspection. Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22) will inspect the piping, valves and tank for loss of material to maintain these components' intended function.

Table 3.3.2-18 Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous Systems in scope ONLY for Criterion 10 CFR 54.4(a)(2)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
~~Chiller~~	~~LBS~~	~~Copper Alloy~~	~~Plant Indoor Air (Ext)~~	~~None~~	~~None~~	~~VIII.I-2~~	~~3.4.1.41~~	~~C~~
~~Chiller~~	~~LBS~~	~~Copper Alloy~~	~~Secondary Water (Int)~~	~~Loss of material~~	~~Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)~~	~~VIII.A-5~~	~~3.4.1.15~~	~~C~~
~~Heat Exchanger (Isothermal Bath Chiller)~~	~~LBS~~	~~Copper Alloy~~	~~Dry Gas (Int)~~	~~None~~	~~None~~	~~VII.J-4~~	~~3.3.1.97~~	~~A~~
~~Heat Exchanger (Isothermal Chiller)~~	~~LBS~~	~~Copper Alloy~~	~~Secondary Water (Ext)~~	~~Loss of material~~	~~Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)~~	~~VIII.A-5~~	~~3.4.1.15~~	~~C~~
Piping	LBS	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.C-7	3.4.1.40	A
Piping	LBS	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	LBS	Carbon Steel (Galvanized)	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-23	3.3.1.71	B
Piping	LBS	Carbon Steel (Galvanized)	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 5

Table 3.3.2-18 Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous Systems in scope ONLY for Criterion 10 CFR 54.4(a)(2) (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	LBS	Cast Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	LBS	Cast Iron	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-23	3.3.1.71	B
Piping	LBS	Cast Iron	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 5
Piping	LBS	Copper Alloy	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VII.C2-4	3.3.1.51	B

Plant Specific Notes:

5 The component environment is nonradioactive waste drains associated with the sanitary sewage system that have been evaluated as a raw water environment. Loss of material as a result of internal component surface exposed to floor and equipment drain environment will be managed by Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22) instead of Open-Cycle Cooling Water System program (B2.1.9).

Table 3.3.2-19 Auxiliary Systems – Summary of Aging Management Evaluation – Oily Water and Turbine Sump System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Closure Bolting	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	Bolting Integrity (B2.1.7)	VII.I-4	3.3.1.43	B
Closure Bolting	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	VII.I-5	3.3.1.45	B
Closure Bolting	LBS	Copper Alloy	Plant Indoor Air (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	None	None	H, 1
Piping	PB	Carbon Steel	Encased in Concrete (Ext)	None	None	VII.J-21	3.3.1.96	A
Piping	LBS, PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	LBS, PB	Carbon Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-23	3.3.1.71	B
Piping	LBS, PB	Carbon Steel	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 2

Table 3.3.2-19 Auxiliary Systems – Summary of Aging Management Evaluation – Oily Water and Turbine Sump System (Continued)

Piping	LBS	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	LBS	Carbon Steel (Galvanized)	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-23	3.3.1.71	B
Piping	LBS	Carbon Steel (Galvanized)	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 2
Piping	PB	Cast Iron	Encased in Concrete (Ext)	None	None	VII.J-21	3.3.1.96	A
Piping	LBS	Cast Iron	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Piping	LBS, PB	Cast Iron	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-23	3.3.1.71	B
Piping	LBS, PB	Cast Iron	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 2
Pump	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B

Table 3.3.2-19 Auxiliary Systems – Summary of Aging Management Evaluation – Oily Water and Turbine Sump System (Continued)

Pump	LBS	Carbon Steel	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 2
Valve	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	B
Valve	LBS	Carbon Steel	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-23	3.3.1.71	B
Valve	LBS	Carbon Steel	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 2
Valve	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Valve	LBS	Copper Alloy	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.C1-9	3.3.1.81	E, 2

Notes for Table 3.3.2-19:

Standard Notes:

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

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

E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.
H Aging effect not in NUREG-1801 for this component, material and environment combination.

Plant Specific Notes:
1 The Loss of Preload aging effect is not identified in NUREG-1801 for this component, material, and environment combination. Loss of preload is managed by the Bolting Integrity (B2.1.7) AMP.
2 The component environment is nonradioactive waste drains associated with the oily water and turbine sump system that have been evaluated as a raw water environment. Loss of material as a result of internal component surface exposed to floor and equipment drain environment will be managed by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22) instead of the Open-Cycle Cooling Water System program (B2.1.9).

Table 3.4.2-1 Steam and Power Conversion System – Summary of Aging Management Evaluation – Turbine Steam Supply System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Sample Cooler)	LBS, SIA, SS	Copper Alloy	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VIII.E-16	3.4.1.26	D
Heat Exchanger (Sample Cooler)	LBS, SIA, SS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Piping	LBS, PB, SIA, SS	Carbon Steel	Atmosphere/ Weather (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-8	3.4.1.28	B
Piping	SIA, SS	Carbon Steel	Atmosphere/ Weather (Int)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-8	3.4.1.28	B
Piping	LBS, PB, SIA, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Piping	LBS, PB, SIA, SS	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.D1-8	3.4.1.04	A
Piping	LBS, PB, SIA, SS	Carbon Steel	Secondary Water (Int)	Wall thinning	Flow-Accelerated Corrosion (B2.1.6)	VIII.D1-9	3.4.1.29	B

Table 3.4.2-2 Steam and Power Conversion System – Summary of Aging Management Evaluation – Auxiliary Steam System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Aux Steam Drain Rec Vent Cond)	LBS, SIA, SS	Carbon Steel	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VII.F2-9	3.3.1.48	B
Heat Exchanger (Aux Steam Drain Rec Vent Cond)	LBS, SIA, SS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Heat Exchanger (Aux Steam Drain Rec Vent Cond)	LBS, SIA, SS	Carbon Steel	Steam (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-8	3.4.1.37	E, 6
Heat Exchanger (Aux Steam Drain Rec Vent Cond)	LBS, SIA, SS	Carbon Steel	Steam (Int)	Wall thinning	Flow-Accelerated Corrosion (B2.1.6)	VIII.B1-9	3.4.1.29	B

Table 3.4.2-3 Steam and Power Conversion System – Summary of Aging Management Evaluation – Feedwater System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Sample Cooler)	LBS, SIA, SS	Copper Alloy	Closed-Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VIII.G-18	3.4.1.26	D
Heat Exchanger (Sample Cooler)	LBS, SIA, SS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	C

Table 3.4.2-4 Steam and Power Conversion System – Summary of Aging Management Evaluation – Condensate System

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	Elastomer	Plant Indoor Air (Ext)	Hardening and loss of strength	External Surfaces Monitoring Program (B2.1.20)	VII.F4-6	3.3.1.11	E
Expansion Joint	PB	Elastomer	Secondary Water (Int)	Hardening and loss of strength	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	None	None	G
Heat Exchanger (Main Condenser)	PB, SIA	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Heat Exchanger (Main Condenser)	PB, SIA	Carbon Steel	Secondary Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VIII.E-37	3.4.1.03	E, 1
Heat Exchanger (Main Condenser)	PB, SIA	Carbon Steel	Steam (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VIII.A-16	3.4.1.02	E, 1

Table 3.4.2-4 Steam and Power Conversion System – Summary of Aging Management Evaluation – Condensate System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	~~LBS, SIA,~~ PB	Carbon Steel	Atmosphere/ Weather (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-8	3.4.1.28	B
Piping	LBS, PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
~~Piping~~	~~PB~~	~~Carbon Steel~~	~~Plant Indoor Air (Ext)~~	~~Loss of material~~	~~External Surfaces Monitoring Program (B2.1.20)~~	~~VIII.H-7~~	~~3.4.1.28~~	~~B~~
Piping	~~LBS,~~ PB, ~~SIA~~	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-34	3.4.1.04	A
Pump	LBS, PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Pump	LBS, PB	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-34	3.4.1.04	A

G Environment not in NUREG-1801 for this component and material.

Table 3.4.2-5 Steam and Power Conversion System – Summary of Aging Management Evaluation – Auxiliary Feedwater System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Aux Feedwater Turbine Governor Oil Cooler)	HT, PB	Copper Alloy	Lubricating Oil (Int)	Reduction of heat transfer	Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)	VIII.G-8	3.4.1.10	B
Heat Exchanger (Aux Feedwater Turbine Governor Oil Cooler)	HT, PB	Copper Alloy	Lubricating Oil (Int)	Loss of material	Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)	VIII.G-19	3.4.1.18	B
Heat Exchanger (Aux Feedwater Turbine Governor Oil Cooler)	HT, PB	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A

Table 3.4.2-5 Steam and Power Conversion System – Summary of Aging Management Evaluation – Auxiliary Feedwater System (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat Exchanger (Aux Feedwater Turbine Governor Oil Cooler)	HT, PB	Copper Alloy	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.A-5	3.4.1.15	A
Heat Exchanger (Aux Feedwater Turbine Governor Oil Cooler)	HT, PB	Copper Alloy	Secondary Water (Int)	Reduction of heat transfer	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.G-10	3.4.1.09	A

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

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Barrier	SH	Glass	Atmosphere/ Weather (Structural) (Ext)	None	None	None	None	F
Barrier	SH	Glass	Plant Indoor Air (Structural) (Ext)	None	None	None	None	F
Compressible Joints & Seals	ES, SH	Elastomer	Atmosphere/ Weather (Structural) (Ext)	Loss of sealing	Structures Monitoring Program (B2.1.32)	III.A6-12	3.5.1.44	A
Compressible Joints & Seals	ES, SH	Elastomer	Plant Indoor Air (Structural) (Ext)	Loss of sealing	Structures Monitoring Program (B2.1.32)	III.A6-12	3.5.1.44	A
Metal Roofing and Siding	SH	Carbon Steel	Atmosphere/ Weather (Structural) (Ext)	Loss of material	Structures Monitoring Program (B2.1.32)	III.A3-12	3.5.1.25	A
Metal Roofing and Siding	SH	Carbon Steel	Plant Indoor Air (Structural) (Ext)	Loss of material	Structures Monitoring Program (B2.1.32)	III.A3-12	3.5.1.25	A
Roofing Membrane	SH	Elastomer	Atmosphere/ Weather (Structural) (Ext)	Loss of material	Structures Monitoring Program (B2.1.32)	III.A6-12	3.5.1.44	C
Roofing Panel	SH	Fiberglass	Atmosphere/ Weather (Structural) (Ext)	Reduction of strength and cracking/ ultraviolet exposure	Structures Monitoring Program (B2.1.32)	None	None	J, 4

F Material not in NUREG-1801 for this component.

4. NUREG-1801 does not provide a line to evaluate Fiberglass in Atmosphere/Weather environment.

Table A4-1 License Renewal Commitments

Item #	Commitment	LRA Section	Implementation Schedule
14	Enhance the Structures Monitoring program procedures to: • Monitor groundwater samples every five years for pH, sulfates and chloride concentrations, including consideration for potential seasonal variations, and • Specify inspections of bar racks and associated structural components in the intake structure. • Inspect the administration building, the elevated walkway connecting the turbine building to the administration building, and the structural members that support the walkway.	B2.1.32	Prior to the period of extended operation