



*A subsidiary of Pinnacle West Capital Corporation*

Palo Verde Nuclear  
Generating Station

John H. Hesser  
Vice President  
Nuclear Engineering

Tel: 623-393-5553  
Fax: 623-393-6077

Mail Station 7605  
PO Box 52034  
Phoenix, Arizona 85072-2034

**102-06122-JHH/GAM**  
**January 18, 2010**

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

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)**  
**Units 1, 2, and 3**  
**Docket Nos. STN 50-528, 50-529 and 50-530**  
**Response to December 3, 2009, Request for Additional Information**  
**Regarding Balance of Plant for the Review of the PVNGS License**  
**Renewal Application, and License Renewal Application Amendment**  
**No. 8**

By letter dated December 3, 2009, the NRC issued a request for additional information (RAI) related to the PVNGS license renewal application (LRA). Enclosure 1 contains APS's response to the December 3, 2009, RAI. Enclosure 2 contains PVNGS LRA updates to reflect changes made as a result of the RAI responses.

In addition to LRA changes reflecting the RAI responses, the following changes are included in Enclosure 2, Attachment 1:

- LRA Table 3.3.2-21, "Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator System," is being changed to reflect a correction in the material for the diesel generator system pre-lube oil pump from stainless steel to carbon steel. This material difference was identified during a component-material-environment verification performed during the aging management program (AMP) audit.
- LRA Section 3.3.2.1.24, "WRF Fuel System," and Table 3.3.2-24, "Auxiliary Systems – Summary of Aging Management Evaluation – WRF Fuel System," are being changed to reflect a change of environment and the associated Aging Management Program for the Water Reclamation Facility (WRF) fuel oil storage tank no. 2. The WRF fuel oil storage tank no. 2 is normally empty but remains available for use during the period of extended operation as a fuel storage tank

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Response to December 3, 2009, Request for Additional Information for the Review of  
the Palo Verde Nuclear Generating Station License Renewal Application  
Page 2

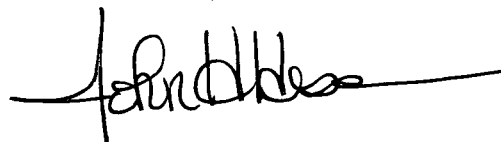
for the Station Blackout Generators (SBOGs) if conditions require. Accordingly, WRF fuel oil storage tank no. 2 is evaluated within the scope of license renewal for 10 CFR 54.4(a)(3) considerations. Since the tank is normally empty, the tank and portions of attached piping lines are subject to the internal environment of "Wetted Gas" instead of "Fuel Oil." This environment change was identified during a component-material-environment verification performed in response to RAI 2.3.3.24-01.

APS makes no commitments in this letter. Should you need further information regarding this submittal, please contact Russell A. Stroud, Licensing Section Leader, at (623) 393-5111.

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

Executed on JANUARY 18, 2010  
(date)

Sincerely,



JHH/RAS/GAM

Enclosures:

1. Response to December 3, 2009, Request for Additional Information Regarding Balance of Plant for the Review of the PVNGS License Renewal Application
2. Palo Verde Nuclear Generating Station License Renewal Application Amendment No. 8

Attachment 1: LRA Changes for RAI Responses Except for RAI 2.3.3.30-01 and 02 Responses

Attachment 2: LRA Changes for RAI 2.3.3.30-01 and 02 Responses

cc:	E. E. Collins Jr.	NRC Region IV Regional Administrator
	J. R. Hall	NRC NRR Project Manager
	R. I. Treadway	NRC Senior Resident Inspector for PVNGS
	L. M. Regner	NRC License Renewal Project Manager

## **ENCLOSURE 1**

**Response to December 3, 2009, Request for Additional  
Information Regarding Balance of Plant for the Review of the  
PVNGS License Renewal Application**

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.2-01**

**Background:**

LRA Section 2.1.1 states "The first step in the integrated plant assessment (IPA) process identified the plant SSCs within the scope of 10 CFR 54."

**Issue:**

The following UFSAR systems could not be located in LRA Table 2.2-1.

<b>UFSAR Section</b>	<b>System</b>
Table 12.2-11 Systems Used In Post-Accident Shielding Review	Post Accident Sampling System
14.2.12 Individual Test Descriptions	Post-Accident Monitoring System
7.2.5 Supplemental Protection System	Supplementary Protection System
3.2 Classification of Structures, Components, and Systems, Table 3.2-1 Structures	Equipment Building

**Request:**

Provide the reasoning for not including the above systems/structures in Table 2.2-1.

**APS Response to RAI 2.2-01**

The Post Accident Sampling System, Supplementary Protection System, and Equipment Building were not included on LRA Table 2.2-1 for the reasons noted below.

**Post Accident Sampling System (PASS)**

Note PP to UFSAR Table 1.8-1, PVNGS Compliance with Regulatory Guide 1.97 (Revision 2) Requirements, identifies that APS has eliminated PASS as documented in CE-NPSD-1157, as accepted by NRC Safety Evaluation Report dated May 16, 2000, for CEOG Topical Report CE-1157 Revision 1. Palo Verde Units 1, 2, and 3 Operating License Amendment Nos. 136, 136, and 136, issued in NRC letter to APS, dated September 28, 2001, (Agencywide Document Access and Management System [ADAMS] Accession No. ML012710441) documented acceptance of the request to remove PASS from the licensing and technical basis of the Palo Verde plant.

**Post Accident Monitoring (PAM) System**

UFSAR Chapter 14 contains historical pre-operation test descriptions. The post accident monitoring system, specified for pre-operational testing as described in UFSAR

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

Sections 14.2.12 and 14B.29, refers to the post accident monitoring (PAM) instrumentation which is identified in UFSAR Table 1.8-1 and analyzed in UFSAR 7.5.2.5. UFSAR Table 1.8-1 identifies PAM instrumentation in 30 plant systems which perform the PAM function. These 30 systems are included in LRA Table 2.2-1, PVNGS Scoping Results.

**Supplementary Protection System (SPS)**

LRA section 2.1.2.3.3 identifies that the SPS is part of the equipment required by the ATWS Rule for reduction of risk from an ATWS event. LRA section 2.1.2.3.3 also identifies that all ATWS components are within the scope of license renewal. UFSAR section 7.2.5 identifies that the SPS is part of the Reactor Protection System (RPS) and augments the RPS for initiation of the reactor trip to satisfy the requirements of the ATWS Rule. The RPS is identified on LRA Table 2.2-1 as a system within the scope of license renewal.

**Equipment Building**

UFSAR Table 3.2-1, Quality Classification of Structures, Systems, and Components, item 25, identifies that the Equipment Building is part of the Containment Building. Note (gg) of UFSAR Table 3.2-1, item 25, identifies the Equipment Building as the Containment Equipment Hatch. LRA Table 2.4-1 identifies the Equipment Hatch as one of the Containment Building components within the scope of license renewal and subject to aging management review (AMR). The Containment Building is identified on LRA Table 2.2-1 as a structure within the scope of license renewal.

**NRC RAI 2.3-01**

**Background:**

Portions of several systems have spatial interaction as non-safety affecting safety-related components in the fuel building and in the auxiliary building and are within the scope of license renewal as non-safety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

**Issue:**

The following spatial interaction terminations are shown as license renewal boundaries for 10 CFR 54.4(a)(2) piping. However, the basis for the spatial interaction termination cannot be determined, e.g. entering a building/room with no safety-related components, becoming buried pipe.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Normal Chilled Water System (2.3.3.5)**

LRA drawing LR-PVNGS-WC-01-M-WCP-001:

- Location G-1 upstream of valve PSV-119.
- Location D-15 lines 275-HBDB-4" and 015-HBDB-10".
- Location C-14 at valve V090.
- Location C-13 near valve V016.
- Location C-13 line 001-HBDB-10".
- Location C-11 near valve V089.
- Location E-10 line 030-HBDB-2½".
- Location B-11 line 277-HBDB-4".
- Location A-11 line 192-HBDB-1".
- Location C-8 near valve V088.
- Location E-7 lines 012-HBDB-4", 029-HBDB-4", 010-HBDB-8", and 031-HBDB-8".
- Location A-6 lines 195-HBDB-1" and 014-HBDB-1".
- Location E-5 lines 073-HBDB-1", 074-HBDB-1", 077-HBDB-4", and 078-HBDB-4".
- Locations D-2 and D-3 line 239-HBDB-1".
- Location B-2 lines 079-HBDB-4" and 090-HBDB-4".

**Nuclear Cooling Water System (2.3.3.6)**

- LRA drawing LR-PVNGS-NC-01-M-NCP-001(D-4), 023-HBDB-1" and 028-HBDB-1" lines from equipment coolers.
- LRA drawing LR-PVNGS- NC-01-M-NCP-002 (E-8 and F-8), lines to and from gas stripper package (N-065-HBDB-6" and N-066-HBDB-6").
- LRA drawing LR-PVNGS- NC-01-M-NCP-002(F-4), line N-068-HBDB-8" upstream of valve HCV209.
- LRA drawing LR-PVNGS- NC-01-M-NCP-003 (D-6 and G-6), downstream of valves V414, V415 and V412, V413 respectively.

**Chemical Volume and Control System (2.3.3.10)**

LR-PVNGS-CH-01-CHP-001:

- Piping N-438-CCDA-1" upstream of valve V162 (E-14).
- Piping N-426-HCDA-1" downstream of valve V004 (D-13).
- Piping N-045-HCDA-1" downstream of valve V445 (F-10).
- Piping N-475-HCDB-1" downstream of valve VM34 (G-6).

LR-PVNGS-CH-01-CHP-002, Sht. 1:

- Piping N-192-HCDA-3" upstream of valve V195 (F-11).

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

- Piping N-466-HCDB-1" downstream of Charging Pump No. 3 (CHE-P01) (G-3).
- Piping N-471-HCDB-1" downstream of valve V203 (F-2).
- Piping N-465-HCDB-1" downstream of Charging Pump No. 2 (CHB-P01) (E-3).
- Piping N-469-HCDB-1" downstream of valve V204 (D-2).
- Piping N-464-HCDB-1" downstream of Charging Pump No. 1 (CHA-P01) (C-3).
- Piping N-467-HCDB-1" downstream of valve V205 (B-2).
- Piping N-226-HCDA-1" downstream of valve V117 (C-6).

**LR-PVNGS-CH-01-CHP-003:**

- Piping N-393-HCDA-3" downstream of valve UV-511 (D-3).
- Piping N-386-HCDA-3" downstream of valve V776 (C-2).
- Piping N-386-HCDA-3" downstream and upstream of Reactor Makeup Water Filter (CHN-F05) (C-2).
- Piping N-333-HCDB-3" upstream of valve V450 (A-9).
- Piping N-332-HCDB-1½" downstream of valve V662 (A-10).

**Radioactive Waste Drains System (2.3.3.27)**

- Drawing LR-PVNGS-RD-01-M-RDP-001, location D-2, a portion of piping 086-HCDA2½".
- Drawing LR-PVNGS-RD-01-M-RDP-002, location D-12, the continuation of B-114- HCDA-4" pipe section to LR-PVNGS-01-N-LRP-001(F-8).
- Drawing LR-PVNGS-RD-01-M-RDP-002, location H-12, the continuation of CH-N-538-HCDA-1" pipe section to LR-PVNGS-CH-01-M-CHP-001(A-15).

**Miscellaneous Auxiliary Systems (2.3.3.30)**

**Drawing LR-PVNGS-LR-01-N-LRP-001:**

- Locations F-1, E-1, and D-1, lines downstream of in-line instruments FG-40, 41, & 42 to the non-ESF sump.
- Location B-2, a portion of line N-062-HCDA-2".
- Location C-5, a portion of line N-293-HCDC-2".

**Drawing LR-PVNGS-LR-01-N-LRP-002-02:**

- Locations F-1, E-2, E-1, and E-2, four (4) lines N-194-HCDA-3, N-192-HCDA-3, N-193- HCDA-3, and N-184-HCDA-3.

**Drawing LR-PVNGS-OW-01-M-OWP-001:**

- Location B-2, a section of line 146-HBDD-6".

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Drawing LR-PVNGS-OW-01-M-OWP-003:**

- Locations C-1, C-2, and C-8, two sections of drain lines 171-XBDA-4" (from the northeast and southeast corners) and two 164-XBDA-4" (from northwest and southwest corners).
- Location D-3, a section of line 170-HGDH-4".

**Drawing LR-PVNGS-SR-01-N-SRP-001:**

- Location C-3, line N-012-HCDA-2.

**Drawing LP-PVNGS-CM-01-M-CMP-001:**

- Location C-7, line N-027-HBDB-2".
- Location C-6, line N-024-HBDB-2".

**Drawing LP-PVNGS-CM-01-M-CMP-001:**

- Location F-7, two portions of line N-001-XCDA-4".

**Drawing LR-PVNGS-AS-01-M-ASP-001:**

- Location E-3, a portion of line 014-HBDB-8".
- Location D-1, portions of lines 013-HBDB-6" & 018-HBDB-4".
- Location G-1, a portion of line 025-ZZKC-3".
- Location F-2, a portion of line 021-ZZKC-6".
- Location E-7, a portion of line 035-HBDB-3".

**Request:**

Provide the bases (e.g., entering a building/room with no safety-related components, becoming buried pipe) for the spatial interaction terminations.

**APS Response to RAI 2.3-01**

Palo Verde spatial interaction terminations are associated with the following two situations:

1. Piping exits an area with safety-related components to an area with no safety-related components – the spatial interaction termination point is located where the piping leaves the safety-related area.
2. Piping has an open end to atmosphere – the termination point is located at the end of the pipe where it is open to atmosphere. It is a Palo Verde license renewal specific practice to not show a spatial interaction symbol for an open ended drain to reduce congestion on boundary drawings.

There is no specific spatial interaction termination associated with buried piping. The spatial interaction termination would be located at the point where the piping leaves the safety-related area and is not related to buried piping. It is also possible to have piping



**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

enter and exit safety-related areas several times on the same boundary drawing such that the piping could alternate from red to black several times.

The specific cases identified in the RAI have been reviewed to confirm that the spatial interaction terminations were correct to be either leaving a safety-related area or associated with open ended drain/vent piping. Clarifications and corrections are discussed below.

Normal Chilled Water System (2.3.3.5)

License Renewal Boundary Drawing LR-PVNGS-WC-01-M-WCP-001, Location G-1 upstream of valve PSV-119:

Pipe line 229-HBDB-1" downstream of valve PSV-119 and the associated air handling unit pan drain line has been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2) for spatial interaction.

Chemical and Volume Control (2.3.3.10)

License Renewal Boundary Drawing LR-PVNGS-CH-01-CHP-001, Piping N-745-HCDB-1" downstream of valve VM34:

License renewal boundary drawing LR-PVNGS-CH-01-CHP-001 shows a spatial interaction termination and an interface continuation to license renewal boundary drawing LR-PVNGS-RD-01-M-RDP-003 for pipe line N-745-HCDB-1" downstream of valve VM34. License renewal boundary drawing LR-PVNGS-RD-01-M-RDP-003 also shows a spatial interaction termination symbol. License renewal boundary drawing LR-PVNGS-CH-01-CHP-001 has been revised to remove the termination symbol.

License Renewal Boundary Drawing LR-PVNGS-CH-01-CHP-002, Sht. 1, Piping N-466-HCDB-1" downstream of Charging Pump No. 3 (CHE-P01):

The spatial interaction termination symbol is correctly shown and applies to line N-499-HCDB-1 and does not apply to piping N-466-HCDB-1" downstream of Charging Pump No. 3. Line N-466-HCDB-1 does not have a spatial interaction function. The internal environment is wetted gas. No changes required.

License Renewal Boundary Drawing LR-PVNGS-CH-01-CHP-002, Sht. 1, Piping N-465-HCDB-1" downstream of Charging Pump No. 2 (CHB-P01):

This is the same condition as pipe line N-466-HCDB-1" noted above for Charging Pump No. 3 (CHE-P01). No changes required.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

License Renewal Boundary Drawing LR-PVNGS-CH-01-CHP-002, Sht. 1, Piping N-464-HCDB-1" downstream of Charging Pump No. 1 (CHA-P01):

This is the same condition as pipe line N-466-HCDB-1" noted above for Charging Pump No. 3 (CHE-P01). No changes required.

Radioactive Waste Drains (2.3.3.27)

License Renewal Boundary Drawing LR-PVNGS-RD-01-M-RDP-002, Piping CH-N-538-HCDA-1" continuation to license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-001:

Pipe line CH-N-538-HCDA-1" continuation to license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-001 is abandoned in place on license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-001. License renewal boundary drawing LR-PVNGS-CH-01-M-CHP-001 has been revised to include pipe line CH-N-538-HCDA-1" within the scope of license renewal based on criterion 10 CFR 54.4 (a)(2) for spatial interactions.

Miscellaneous Auxiliary Systems (2.3.3.30) – Liquid Radwaste

License Renewal Boundary Drawing LR-PVNGS-LR-01-N-LRP-001, Locations F-1, E-1, and D-1, lines downstream of in-line instruments FG-40, 41, & 42 to the non-ESF sump:

The spatial interaction termination for FG-42 is shown correctly. The spatial termination symbols associated with piping to FG-40 and FG-41 are located correctly but the drawing is highlighted incorrectly. License renewal boundary drawing LR-PVNGS-LR-01-N-LRP-001 has been revised to indicate the short piece of pipe between the spatial termination symbol location and instruments FG-40 and FG-41 is not within the scope of license renewal (colored black).

Miscellaneous Auxiliary Systems (2.3.3.30) –Oily Waste and Non-Radioactive Waste

License Renewal Boundary Drawing LR-PVNGS-OW-01-M-OWP-003, Location D-3, a section of line 170-HGDH-4":

See the response to RAI 2.3.3.30-02

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3-02**

**Background:**

License renewal rule 10 CFR 54.21(a) requires applicants to list all component types subject to an AMR. The staff confirms inclusion of all component types subject to an AMR by reviewing components within the license renewal boundary.

**Issue:**

The following identifies license renewal drawings where the staff was unable to identify the license renewal boundary because: (1) continuations were not provided or are incorrect, or (2) the continuation drawing was not provided.

<b>LRA Section/Drawing</b>	<b>Issue</b>
<b>Section 2.3.3.10</b>	
LR-PVNGS-CH-01-M- CHP-002, Sht. 1	Location F-6, line 509-HCDB-½" downstream of valve V104, drawing SSP-001, Sht. 2.
LR-PVNGS-CH-01-M- CHP-003	Location C-10, line N-341-HCDB-½" downstream of valve V458, drawing SSP-001, Sht. 2.
<b>Section 2.3.3.21</b>	
LR-PVNGS-DG-M-DGP- 001-03	Piping N-098-HBDA-2" at location E-5 and N-091-HBDB-2" at location E-1 on drawing.
LR-PVNGS-DG-M-DGP- 001-04	Overflow piping at locations G-1 and G-5 on drawing.
LR-PVNGS-DG-M-DGP- 001-09	Piping N-040-HBDA-3/4" at location B-5, N-038-HBDA-3/4" at location D-5, N-042-HBDA-3/4" at location F-5, and N-044-HBDA-3/4" at location G-5 on drawing.
<b>Section 2.3.3.22</b>	
LR-PVNGS-DS-01-M- DSP-002	Zone D-3 shows continuation of line N-266-YDGA-1 to LRPVNGS-HJ-02-M-HJP-001 (Zone A-13).
<b>Section 2.3.3.24</b>	
LR-PVNGS-FS-A0-W- FSP-300	Location B-4, line 042-HBDB-8" attached to in-scope Fuel Oil Storage Tank (FSN-T02).
	Location F-4, line 043-HBDB-8" attached to in-scope Fuel Oil Storage Tank (FSN-T01).

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

<b>LRA Section/Drawing</b>	<b>Issue</b>
<b>Section 2.3.3.25</b>	
LR-PVNGS-GA-01-M- GAP-002	Zone E-8 shows continuations of a four (4) 10 CFR 54.4 (a)(3) pipe sections (to NW accumulators) to drawing LR-PVNGS-SG-01-MSGP-001.

**Request:**

Provide additional information to locate the continuations described above.

**APS Response to RAI 2.3-02**

These continuation issues are addressed by the RAIs described below. Please refer to the referenced RAIs for the responses.

**Section 2.3.3.10 - Chemical and Volume Control**

Refer to RAI 2.3.3.10-02

License Renewal Boundary Drawings:

- LR-PVNGS-CH-01-M-CHP-002, Sht. 1
- LR-PVNGS-CH-01-M-CHP-003

**Section 2.3.3.21 - Diesel Generator**

Refer to RAI 2.3.3.21-02

License Renewal Boundary Drawings:

- LR-PVNGS-DG-M-DGP-001-03
- LR-PVNGS-DG-M-DGP-001-04
- LR-PVNGS-DG-M-DGP-001-09

**Section 2.3.3.22 - Domestic Water**

Refer to RAI 2.3.3.22-02

License Renewal Boundary Drawing:

- LR-PVNGS-DS-01-M-DSP-002

**Section 2.3.3.24 - WRF Fuel System**

Refer to RAI 2.3.3.24-02

License Renewal Boundary Drawing:

- LR-PVNGS-FS-A0-WFSP-300

**Section 2.3.3.25 - Service Gases (N2 and H2)**

Refer to RAI 2.3.3.25-01

License Renewal Boundary Drawing:

- LR-PVNGS-GA-01-M-GAP-002

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.1-01**

**Background:**

In LRA Section 2.3.3.1 portions of the fuel handling and storage system are within the scope of license renewal based on criteria 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). License renewal rule 10 CFR 54.21(a) requires applicants to list all components that are subject to an AMR.

**Issue:**

In LRA Section 2.3.3.1, System Description, the control element assembly (CEA) change platform was listed as a component that is within the scope of license renewal. The CEA change platform is used to move the CEAs within the upper guide structure and the CEA elevator. The CEA change platform was not included as a component subject to AMR in Table 2.3.3-1 for the fuel handling and storage system.

**Request:**

Provide additional information explaining why the CEA change platform is not included as a component subject to an AMR in LRA Table 2.3.3-1.

**APS Response to RAI 2.3.3.1-01**

The CEA change platform consists of several major components, some of which are passive and subject to aging management review as well as some of which are active components and not subject to aging management review. The system description of LRA section 2.3.3.1 lists components of the Fuel Storage and Handling System and identifies the CEA Change Platform as within the scope of license renewal. The Palo Verde plant equipment list identifies the CEA Change Platform as four components: CEA Change Platform - Bridge Structure, CEA Change Platform - Trolley Assembly, CEA Change Platform - Drive Assembly (North Truck) and CEA Change Platform - Drive Assembly (South Truck).

LRA Table 2.3.3-1 presents the component types that are subject to AMR together with the license renewal intended functions evaluated. The CEA Change Platform - Bridge Structure is included in Table 2.3.3-1 with component type "crane." The rails associated with the CEA Change Platform - Bridge Structure are included in Table 2.3.3-1 with component type "crane - rails." The CEA Change Platform - Trolley Assembly is included in Table 2.3.3-1 with component type "trolley." The rails associated with the CEA Change Platform - Trolley Assembly are included in Table 2.3.3-1 with component type "crane-rails." The CEA Change Platform - Drive Assembly (North Truck) and CEA Change Platform - Drive Assembly (South Truck) are evaluated as active components and are not subject to an AMR.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.2-01**

**Background:**

In LRA Section 2.3.3.2 portions of the spent fuel pool cooling and cleanup system are within the scope of license renewal based on criteria 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). License renewal rule 10 CFR 54.21(a) requires applicants to list all components that are subject to an AMR.

**Issue:**

On LRA drawing LR-PVNGS-PC-01-M-PCP-001 (G-2 and C-2) and in LRA Section 2.3.3.2, a component is described as being an ion-exchanger. It appears in LRA Table 2.3.3-2 the ion-exchanger is a demineralizer since an ion-exchanger is not listed.

**Request:**

Provide additional information explaining why the component described as an ion-exchanger on the LRA drawing and in LRA Section 2.3.3.2 appears to be identified as a demineralizer in LRA Table 2.3.3-2.

**APS Response to RAI 2.3.3.2-01**

Individual component names and component types in the LRA are consistent with the component names and component types as they appear in the Palo Verde plant equipment database. The ion exchanger shown on LRA drawing LR-PVNGS-PC-01-M-PCP-001 (G-2 and C-2), has a component name in the Palo Verde plant equipment database that includes the words "ion exchanger" and the component type of "demineralizer." When a specific component is described in Section 2.3.3.2, the component name is used for clarity and specificity. In LRA Table 2.3.3-2, component types are listed together with license renewal intended functions. Thus, the component type for the components depicted on LRA drawing LR-PVNGS-PC-01-M-PCP-001 (G-2 and C-2) are listed as component type "demineralizer" consistent with the component type assigned within the Palo Verde plant equipment database.

**NRC RAI 2.3.3.3-01**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Issue:**

License renewal drawing LR-PVNGS-EW-01-M-EWP-001 (B-7 and F-7) show 1" lines N-020-HBDB-1" and N-079-HBDB-1" as within the scope of license renewal as non-safety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2). However, parts of these lines continuing to the drain are shown as not within scope for license renewal.

**Request:**

Provide additional information explaining why the lines to the drains are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

**APS Response to RAI 2.3.3.3-01**

License renewal boundary drawing LR-PVNGS-EW-01-M-EWP-001 has been revised to identify that relief valve drain lines N-020-HBDB-1" and N-079-HBDB-1" have been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

LRA Table 3.3.2-3 was revised to add a leakage boundary spatial function for the relief valve drain lines to the carbon steel Essential Cooling Water piping in a wetted gas environment line as shown in LRA Amendment No. 8 in Enclosure 2, Attachment 1.

**NRC RAI 2.3.3.4-01**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Issue:**

Drawing LR-PVNGS-EC-01-M-ECP-001 shows several lines in and out of the ACU's (listed below) within the scope of license renewal for license renewal for 10 CFR 54.4(a)(2). However the ACU's are shown as not within the scope of license renewal.

- Location G-8 CS pump room essential ACU HAA-Z03 Q1M
- Location G-7 HPSI pump room essential ACU HAA-Z01 Q1M
- Location G-5 LPSI pump room essential ACU HAA-Z02 Q1M
- Location F-8 ELEC penetration room essential ACU HAA-Z06 Q1M
- Location F-7 ECW pump room essential ACU HAA-Z05 Q1M
- Location F-5 aux feed water pump room essential ACU HAA-Z04 Q1M

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

- Location D-8 control room essential ACU HJA-F04 Q1M
- Location D-6 CS DC equipment room essential ACU HJA-Z04 Q1M
- Location D-5 ESF switchgear room essential ACU HJA-Z03 Q1M
- Location G-4 CS pump room essential ACU HAB-Z03 Q1M
- Location G-3 HPSI pump room essential ACU HAB-Z01 Q1M
- Location G-2 LPSI pump room essential ACU HAB-Z02 Q1M
- Location F-4 ELEC penetration room essential ACU HAB-Z06 Q1M
- Location F-3 ECW pump room essential ACU HAB-Z05 Q1M
- Location F-2 aux feed water pump room essential ACU HAB-Z04 Q1M
- Location E-4 control room essential ACU HJB-F04 Q1M
- Location E-3 CS DC equipment room essential ACU HJB-Z04 Q1M
- Location E-2 ESF switchgear room essential ACU HJB-Z03 Q1M

**Request:**

Provide additional information explaining why the ACU's are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4 (a).

**APS Response to RAI 2.3.3.4-01**

The ACUs have been confirmed to be within the scope of license renewal and confirmed to be highlighted on license renewal boundary drawings LR-PVNGS-HA-02-M-HAP-001 (Auxiliary Building HVAC) and LR-PVNGS-HJ-02-M-HJP-001 (Control Building HVAC). The ACUs are shown with dashed lines (phantom) on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001 (Essential Chilled Water System), which indicates that the units are in other plant systems. Dashed lines that indicate other plant systems are not highlighted on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001.

**NRC RAI 2.3.3.4-02**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Issue:**

License renewal drawing LR-PVNGS-EC-01-M-ECP-001 shows lines N-233-HBDB-2" (Zone A7), N-142-HBDB-1½" (Zone C-6), N-224-HBDB-2" (Zone A-3), and N-079-HBDB-1½" (Zone D-2) within the scope of license renewal as non-safety affecting safety-related components based on the criteria of 10 CFR 54.4(a)(2) (Spatial Interaction).



**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

However, a portion of these lines downstream of seismic anchors are shown as not within the scope of license renewal for spatial interaction.

Request:

Provide additional information explaining why the sections of pipe identified above are not within the scope of license renewal.

**APS Response to RAI 2.3.3.4-02**

Portions of pipe lines N-233-HBDB-2" and N-224-HBDB-2" shown on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001 are evaluated as within the scope of license renewal for 10 CFR 54.4(a)(2) (Structural Integrity [Attached]) extending from the Essential Chiller refrigerant loop safety-related pressure relief valves and safety-related solenoid valves PV580 and PV579 to the respective seismic anchors as marked on the license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001. These pipe lines are evaluated as not within the scope of license renewal for spatial interaction as they are dry and open-ended. Should any of the safety-related valves attached to pipe lines N-233-HBDB-2" and N-224-HBDB-2" leak-by into the piping, the leaking fluid would be dry gas (refrigerant), which poses no potential for spatial interaction. The portions of pipe lines N-233-HBDB-2" and N-224-HBDB-2" shown on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001 extending from the seismic anchors downstream to the vent at the end of the pipe line are evaluated as having no license renewal intended functions and are not within the scope of license renewal.

Portions of pipe lines N-142-HBDB-1½" and N-079-HBDB-1½" shown on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001 are evaluated as within the scope of license renewal for 10 CFR 54.4(a)(2) (Structural Integrity [Attached]) extending from the safety-related Essential Chilled Water Expansion Tank nitrogen-space pressure relief valves PSV-75 and PSV-76 to the respective seismic anchors marked on the license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001. These pipe lines are evaluated as not within the scope of license renewal for spatial interaction as they are dry and open-ended. Additionally, should PSV-75 and PSV-76 leak-by into lines N-142-HBDB-1½" and N-079-HBDB-1½", the fluid leaked would be dry gas (nitrogen), which poses no potential for adverse spatial interaction. Pipe lines N-142-HBDB-1½" and N-079-HBDB-1½" are shown on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001 as open and ending at a drain funnel. The portions of pipe lines N-142-HBDB-1½" and N-079-HBDB-1½" shown on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001 extending from the seismic anchors downstream to the open end of the pipe line are evaluated as having no license renewal intended functions and are not within the scope of license renewal.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.4-03**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Issue:**

License renewal drawing LR-PVNGS-CT-01-M-CTP-001 (C-2) shows valve V063 and the capped end upstream of valve V063 as within the scope of license renewal for 10 CFR 54.4(a)(1) and 10 CFR 54.4 (a)(2) respectively. However, a small portion of the line in between the valve and capped end is shown as out of scope for license renewal.

**Request:**

Provide additional information explaining why this section of pipe is not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

**APS Response to RAI 2.3.3.4-03**

Highlighting of the pipe between valve V063 and the capped end of the pipe was inadvertently omitted on license renewal boundary drawing LR-PVNGS-CT-01-M-CTP-001. The pipe segment between valve V063 and the capped end of the pipe on license renewal boundary drawing LR-PVNGS-CT-01-M-CTP-001 has been confirmed to be within the scope of license renewal for criterion 10 CFR 54.4(a)(2). License renewal boundary drawing LR-PVNGS-CT-01-M-CTP-001 has been revised to show the pipe segment between valve V063 and the capped end of the pipe completely highlighted.

**NRC RAI 2.3.3.4-04**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Issue:**

License renewal drawing LR-PVNGS-EC-01-M-ECP-001 (Zone F-2) shows line N-122-HBDB-1½" as within the scope of license renewal for 10 CFR 54.4(a)(2). The

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

continuation of this line on license renewal drawing LR-PVNGS-RD-01-M-RDP-002 (Zone F-9) is shown as not within the scope of license renewal.

**Request:**

Provide additional information explaining why LR-PVNGS-EC-01-M-ECP-001 (Zone F-2) shows N-122-HBDB-1½" as in scope, and LR-PVNGS-RD-01-M-RDP-002 (Zone F-9) shows this line as out of scope.

**APS Response to RAI 2.3.3.4-04**

This issue was also addressed by RAI 2.3.3.27-01 for line N-122-HBD-1½" on license renewal boundary drawing LR-PVNGS-RD-01-M-RDP-002. Refer to RAI 2.3.3.27-01 for resolution.

**NRC RAI 2.3.3.5-01**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Issue:**

License renewal drawing LR-PVNGS-WC-01-M-WCP-001 shows several lines in and out of the ACU's and AHU's within the scope of licensed renewal for 10 CFR 54.4(a)(2). However the ACU's and AHU's (listed below) are shown as not within the scope of license renewal.

- Location G-15 and G-16 containment normal ACU HCN-A01A R9M
- Location G-13 containment normal ACU HCN-A01B R9M
- Location G-10 and G-11 containment normal ACU HCN-A01C R9M
- Location G-7 and G-8 containment normal ACU HCN-A01D R9M
- Location G-2 and H-2 control building normal ACU HJN-A01A S3M
- Location D-16 charging pump room normal ACU HAN-Z01C S3M
- Location D-14 charging pump room normal ACU HAN-Z01B S3M
- Location D-13 charging pump room normal ACU HAN-Z01A S3M
- Location E-3 ESP switchgear room normal AHU HJN-A03 S3M
- Location E-2 and F-2 control room normal AHU HJN-A02 S3M
- Location G-3 CEDM control cabinet room normal AHU HAN-Z02A S3M
- Location G/D-1 CEDM control cabinet room normal AHU HAN-Z02A S3M

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Request:**

Provide additional information explaining why these components are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

**APS Response to RAI 2.3.3.5-01**

The ACUs or AHUs have been confirmed to be within the scope of license renewal and confirmed to be highlighted on the license renewal boundary drawings noted below. The ACUs or AHUs are shown with dashed lines (phantom) on license renewal boundary drawing LR-PVNGS-WC-01-M-WCP-001 (Normal Chilled Water System), which indicates that the units are in other plant systems. Dashed lines that indicate other plant systems are not highlighted on license renewal boundary drawing LR-PVNGS-WC-01-M-WCP-001.

- ACU HCN-A01A R9M - LR-PVNGS-HC-02-M-HCP-001 (Containment Building HVAC).
- ACU HCN-A01B R9M - LR-PVNGS-HC-02-M-HCP-001 (Containment Building HVAC).
- ACU HCN-A01C R9M - LR-PVNGS-HC-02-M-HCP-001 (Containment Building HVAC).
- ACU HCN-A01D R9M - LR-PVNGS-HC-02-M-HCP-001 (Containment Building HVAC).
- ACU HJN-A01A S3M - LR-PVNGS-HJ-02-M-HJP-002 (Control Building HVAC).
- ACU HAN-Z01C S3M - LR-PVNGS-HA-02-M-HAP-002 (Auxiliary Building HVAC).
- ACU HAN-Z01B S3M - LR-PVNGS-HA-02-M-HAP-001 (Auxiliary Building HVAC).
- ACU HAN-Z01A S3M - LR-PVNGS-HA-02-M-HAP-001 (Auxiliary Building HVAC).
- AHU HJN-A03 S3M - LR-PVNGS-HJ-02-M-HJP-002 (Control Building HVAC).
- AHU HJN-A02 S3M - LR-PVNGS-HJ-02-M-HJP-001 (Control Building HVAC).
- AHU HAN-Z02A S3M - LR-PVNGS-HA-02-M-HAP-004 (Auxiliary Building HVAC).
- AHU HAN-Z02A S3M - LR-PVNGS-HA-02-M-HAP-004 (Auxiliary Building HVAC).

**NRC RAI 2.3.3.5-02**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Issue:**

On LRA drawing LR-PVNGS-WC-01-M-WCP-001 several lines (listed below) attached to 10 CFR 54.4(a)(2) lines are shown as not in-scope for license renewal.

- Location G-14 line 267-HBDB-1" downstream of valve PSV-131.
- Location G-12 line 233-HBDB-1" downstream of valve PSV-132.
- Location G-9 line 232-HBDB-1" downstream of valve PSV-133.
- Location G-6 line 231-HBDB-1" downstream of valve PSV-134.
- Location F-2 line 271-HBDB-1".
- Location E-1 line 228-HBDB-1".
- Location G-2 line 069-HBDB-1½".
- Location C-1 line 131-HBDB-1½".
- Location E-2 line 234-HBDB-1½".
- Location C-3 line 153-HBDB-1½".
- Location E-3 line 274-HBDB-1½".

**Request:**

Provide additional information explaining why these pipe sections are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

**APS Response to RAI 2.3.3.5-02**

License renewal boundary drawing LR-PVNGS-WC-01-M-WCP-001 has been revised to identify that the following relief valve drain lines or air handling unit pan drain lines have been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2) for spatial interaction:

- 267-HBDB-1" drain line downstream of valve PSV-131.
- 233-HBDB-1" drain line downstream of valve PSV-132.
- 232-HBDB-1" drain line downstream of valve PSV-133.
- 231-HBDB-1" drain line downstream of valve PSV-134.
- 271-HBDB-1" drain line downstream of valve PSV-143.
- 228-HBDB-1" drain line downstream of valve PSV-118.
- 069-HBDB-1½" air handling unit pan drain line.
- 131-HBDB-1½" air handling unit pan drain line.
- 234-HBDB-1½" air handling unit pan drain line.
- 153-HBDB-1½" air handling unit pan drain line.
- 274-HBDB-1½" air handling unit pan drain line.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

Pipe line 229-HBDB-1" downstream of valve PSV-119 and the associated air handling unit pan drain line have also been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2) for spatial interaction.

**NRC RAI 2.3.3.6-01**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Issue:**

Several portions of the nuclear cooling water system are within the scope of license renewal as non-safety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2). However on the following drawings several lines attached to the 10 CFR 54.4(a)(2) lines are shown as not within the scope of license renewal.

**LRA Drawing LR-PVNGS-NC-01-M-NCP-001:**

- Location F-1, line 057-HBDB-1" downstream of valve PSV-51.
- Location F-2, line 061-HBDB-1" downstream of valve PSV-53.
- Location F-3, line 063-HBDB-1" downstream of valve PSV-54.
- Location F-3, line 055-HBDB-1" downstream of valve PSV-50.
- Location F-4, line 059-HBDB-1" downstream of valve PSV-52.
- Location D-1, line 177-HBDB-1" downstream of valve PSV-137.
- Location D-2, line 178-HBDB-1" downstream of valve PSV-138.
- Location D-2, line 179-HBDB-1" downstream of valve PSV-139.
- Location D-3, line 175-HBDB-1" downstream of valve PSV-135.
- Location D-3, line 176-HBDB-1" downstream of valve PSV-136.
- Location D-4, line 174-HBDB-1" downstream of valve PSV-134.
- Location B-1, line 163-HBDB-1" downstream of valve PSV-269.
- Location B-3, line 293-HBDB-1" downstream of valve PSV-149.

**LRA drawing LR-PVNGS-NC-01-M-NCP-002:**

- Location E-6, line N-096-HBDB-1" downstream of valve PSV-204.

**LRA drawing LR-PVNGS-NC-01-M-NCP-003:**

- Location C-3, line 152-HBDB-1" downstream of valve PSV-417.
- Location C-5, line 150-HBDB-1" downstream of valve PSV-416.
- Location F-3, line 146-HBDB-1" downstream of valve PSV-415.
- Location F-5, line 144-HBDB-1" downstream of valve PSV-414.
- Location G-7, line 262-HBDB-1" downstream of valve PSV-499.
- Location E-6, line 145-HBDB-1" downstream of valve PSV-450.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**LRA drawing LR-PVNGSC- 01-M-SCP-006-01:**

- Location E-16 line N-221-DCDB-3/8" downstream of valve V233 (SC-638).
- Location E-14, 3 line N-222-DCDB-3/8" downstream of valve V236 (SC-637).
- Location E-13, line N-223-DCDB-3/8" downstream of valve V239 (SC-636).
- Location E-11, line N-225-DCDB-3/8" downstream of valve V245 (SC-641).
- Location E-9, line N-226-DCDB-3/8" downstream of valve V248 (SC-640).
- Location E-8, line N-227-DCDB-3/8" downstream of valve V251 (SC-633).

**Request:**

Provide additional information explaining why these sections of pipe are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

**APS Response to RAI 2.3.3.6-01**

The following license renewal boundary drawings have been revised to reflect that the following relief valve drain lines or drain lines have been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2) for spatial interaction.

**LRA Drawing LR-PVNGS-NC-01-M-NCP-001:**

- 057-HBDB-1" drain line downstream of valve PSV-51.
- 061-HBDB-1" drain line downstream of valve PSV-53.
- 063-HBDB-1" drain line downstream of valve PSV-54.
- 055-HBDB-1" drain line downstream of valve PSV-50.
- 059-HBDB-1" drain line downstream of valve PSV-52.
- 177-HBDB-1" drain line downstream of valve PSV-137.
- 178-HBDB-1" drain line downstream of valve PSV-138.
- 179-HBDB-1" drain line downstream of valve PSV-139.
- 175-HBDB-1" drain line downstream of valve PSV-135.
- 176-HBDB-1" drain line downstream of valve PSV-136.
- 174-HBDB-1" drain line downstream of valve PSV-134.
- 163-HBDB-1" drain line downstream of valve PSV-269.
- 293-HBDB-1" drain line downstream of valve PSV-149.

**LRA drawing LR-PVNGS-NC-01-M-NCP-002:**

- N-096-HBDB-1" drain line downstream of valve PSV-204.

**LRA drawing LR-PVNGS-NC-01-M-NCP-003:**

- 152-HBDB-1" drain line downstream of valve PSV-417.
- 150-HBDB-1" drain line downstream of valve PSV-416.
- 146-HBDB-1" drain line downstream of valve PSV-415.
- 144-HBDB-1" drain line downstream of valve PSV-414.
- 262-HBDB-1" drain line downstream of valve PSV-499.
- 145-HBDB-1" drain line downstream of valve PSV-450.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**LRA drawing LR-PVNGSC- 01-M-SCP-006-01:**

- N-221-DCDB-3/8" drain line downstream of valve V233 (SC-638).
- N-222-DCDB-3/8" drain line downstream of valve V236 (SC-637).
- N-223-DCDB-3/8" drain line downstream of valve V239 (SC-636).
- N-225-DCDB-3/8" drain line downstream of valve V245 (SC-641).
- N-226-DCDB-3/8" drain line downstream of valve V248 (SC-640).
- N-227-DCDB-3/8" drain line downstream of valve V251 (SC-633).

In addition, LRA Table 3.3.2-6 was revised to add a leakage boundary spatial function for the relief valve drain lines to the carbon steel Nuclear Cooling Water piping in a wetted gas environment line, as shown in LRA Amendment No. 8 in Enclosure 2, Attachment 1.

**NRC RAI 2.3.3.6-02**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Issue:**

Drawing LR-PVNGS-NC-01-M-NCP-003 (D-8 and G-8) show several lines in and out of the ACU's within the scope of license renewal for 10 CFR 54.4(a)(2). However the two ACU's (HCN-A02B and HCN-A02A) are shown as not within the scope of license renewal.

**Request:**

Provide additional information explaining why ACU's HCN-A02B and HCN-A02A are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

**APS Response to RAI 2.3.3.6-02**

The ACUs have been confirmed to be within the scope of license renewal and confirmed to be highlighted on license renewal boundary drawing LR-PVNGS-HC-02-M-HCP-002 (Containment Building HVAC). The ACUs are shown with dashed lines (phantom) on license renewal boundary drawing LR-PVNGS-NC-01-M-NCP-003 (Nuclear Cooling Water System), which indicates that the units are in another plant system. Dashed lines that indicate other plant systems are not highlighted on license renewal boundary drawing LR-PVNGS-NC-01-M-NCP-003.



Enclosure 1

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.6-03**

**Background:**

LRA Section 2.3.3.6, Nuclear Cooling Water System, states that components are within the scope of license renewal for 10 CFR 54.4(a)(1), 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing a pressure boundary, leakage boundary, and structural integrity.

**Issue:**

Drawing LR-PVNGS-NC-01-M-NCP-003 (C-4) shows line 124-HBDB-8" as within the scope of license renewal for 10 CFR 54.4 (a)(3) whereas a small portion of the same line is shown as within the scope of license renewal for 10 CFR 54.4 (a)(2).

**Request:**

Provide additional information to clarify the scoping classification for this pipe section.

**APS Response to RAI 2.3.3.6-03**

Line 124-HBDB-6" (referred to as 124-HBDB-8" in RAI 2.3.3.6-03) extending from Reactor Coolant Pump 2B thrust bearing lube oil cooler to line 120-HBDB-6" is within the scope of license renewal based on 10 CFR 54.4 (a)(3) for fire protection requirements as described in LR Note 3 on license renewal boundary drawing LR-PVNGS-NC-01-M-NCP-003. The short segment of the line that is highlighted in red that appears on license renewal boundary drawing LR-PVNGS-NC-01-M-NCP-003 between line 120-HBDB-6" and line 116-HBDB-6" has been revised to highlight the line green and place the line within the scope of license renewal based on 10 CFR 54.4 (a)(3) for fire protection requirements.

**NRC RAI 2.3.3.7-01**

**Background:**

License renewal rule 10 CFR 54.21(a)(1) requires applicants to list all components subject to an AMR. The staff confirms inclusion of all components subject to an AMR by reviewing component types within the license renewal boundary.

**Issue:**

Drawing LR-PVNGS-SP-01-M-SPP-002 (D-3 and D-7) shows two 1-inch lines (N-075-HCDA-1" and N-042-HCDA-1") as within the scope of license renewal for 10 CFR

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

54.4(a)(2). However the continuation of these lines, after the seismic anchor, to the drains is shown as not within the scope of license renewal.

**Request:**

Provide additional information explaining why portions of these lines are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

**APS Response to RAI 2.3.3.7-01**

License renewal boundary drawing LR-PVNGS-SP-01-M-SPP-002 has been revised to reflect that relief valve drain lines N-075-HCDA-1" and N-042-HCDA-1" have been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2) for spatial interaction.

LRA Table 3.3.2-7 was revised to add a leakage boundary spatial function for the relief valve drain lines to the stainless steel Essential Spray Pond piping in a wetted gas environment line as shown in LRA Amendment No. 8 in Enclosure 2, Attachment 1.

**NRC RAI 2.3.3.8-01**

**Background:**

The nuclear sampling system is in-scope for license renewal based on criteria 10 CFR 54.4(a)(1). Portions are also in-scope as nonsafety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criteria of 10 CFR 54.4(a)(2) and portions support fire protection and environmental qualification requirements based on the criteria of 10 CFR 54(a)(3).

**Issue:**

License renewal drawing LR-PVNGS-SS-01-N-SSP-001-1 (C-6) shows continuation of 10 CFR 54.4(a)(2) pipe section, DW-N-079-HCDA-1", to drawing LR-PVNGS-DW-01-M-DWP-002 (H-3). On drawing LR-PVNGS-DW-01-M-DWP-002 the continuation is not within the scope of license renewal.

**Request:**

Provide additional information to justify why the continuation on drawing LR-PVNGS-DW-01-M-DWP-002 is not within the scope of license renewal.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**APS Response to RAI 2.3.3.8-01**

Line N-079-HCDA-1" is not within the scope of license renewal in the Nuclear Sampling System or the Demineralized Water System because it is not safety related, and neither connects to safety related equipment nor traverses areas occupied by safety related equipment. Highlighting of pipe line N-079-HCDA-1" was inadvertently colored on license renewal boundary drawing LR-PVNGS-SS-01-N-SSP-001-01. License renewal boundary drawing LR-PVNGS-SS-01-N-SSP-001-01 has been revised to remove the highlighting for pipe line N-079-HCDA-1" and add a spatial interaction termination flag at coordinate C-4 on line N-018-HCDB-3/8". There is no continuation to the Demineralized Water System.

**NRC RAI 2.3.3.8-02**

**Background:**

The nuclear sampling system is in-scope for license renewal based on criteria 10 CFR 54.4(a)(1). Portions are also in-scope as nonsafety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criteria of 10 CFR 54.4(a)(2) and portions support fire protection and environmental qualification requirements based on the criteria of 10 CFR 54(a)(3).

**Issue:**

Drawing LR-PVNGS-SS-01-N-SSP-001-01 (B-1) shows a continuation of 10 CFR 54.4(a)(2) pipe section, N-46-XCDA-2", to "Hot Lab Sink Drain" on drawing LR-PVNGS-CM-01-M-CMP-001 (H-8). On drawing LR-PVNGS-CM-01-M-CMP-001 the continuation is not within the scope of license renewal.

**Request:**

Provide additional information to justify why the continuation on drawing LR-PVNGS-CM-01-M-CMP-001 is not within the scope of license renewal.

**APS Response to RAI 2.3.3.8-02**

Line N-046-XCDA-2" is within the scope of license renewal in the Nuclear Sampling System. Line N-046-XCDA-2" is not within the scope of license renewal in the Chemical Waste System. License renewal boundary drawing LR-PVNGS-SS-01-N-SSP-001-1 has been revised to add a spatial interaction termination flag on line N-046-XCDA-2" and to remove the highlighting downstream of the spatial interaction termination flag prior to the continuation to license renewal boundary drawing LR-PVNGS-CM-01-M-CMP-001. There is no continuation to drawing LR-PVNGS-CM-01-M-CMP-001.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.8-03**

**Background:**

License renewal rule 10 CFR 54.21(a) requires applicants to list all component types subject to an AMR. The staff confirms inclusion of all component types subject to an AMR by reviewing components within the license renewal boundary.

**Issue:**

License renewal drawing LR-PVNGS-SS-03-N-SSP-003-01 (Zone D-3), shows a continuation of 10 CFR 54.4(a)(2) pipe section N-067-HCDA-1/2" to "Equipment Drain Tank" on license renewal drawing LR-PVNGS-CH-01-CHP-003 (Zone A-9). License renewal drawing LR-PVNGS-CH-01-CHP-003 (Zone A-9) contains a pipe section N-067-HCDA-1/2"; however, this pipe section is identified as coming from license renewal drawing LR-PVNGS-SS-N-SSP-002 (Zone D-5). A review of license renewal drawing LR-PVNGS-SS-N-SSP-002 (Zone D-5) identified the subject line going to license renewal drawing LR-PVNGS-CH-01-CHP-003 (Zone A-8). The staff is unable to identify the continuation of pipe section N-067-HCDA-1/2" from license renewal drawing LR-PVNGS-SS-03-N-SSP-003-01 (Zone D-3) to license renewal drawing LR-PVNGS-CH-01-CHP-003 (Zone A-9). The staff is also unable to find a link between license renewal drawings LR-PVNGS-SS-03-N-SSP-003-01 (Zone D-3) and LR-PVNGS-SS-N-SSP-002 (Zone D-5) for pipe N-067-HCDA-1/2" that ties them together.

**Request:**

Provide additional information to locate the continuation of pipe section N-067-HCDA-1/2" from LR-PVNGS-SS-03-N-SSP-003-01 (Zone D-3).

**APS Response to RAI 2.3.3.8-03**

Line N-067-HCDA-1/2" is continuous as depicted on the license renewal boundary drawings from LR-PVNGS-SS-03-N-SSP-003 and LR-PVNGS-SS-01-N-SSP-002-1 to LR-PVNGS-CH-01-CHP-003. The same pipe section of line N-067-HCDA-1/2" is shown on both boundary drawings, LR-PVNGS-SS-01-SSP-002-1 (location D-5 is applicable to Unit 1 only) and LR-PVNGS-SS-03-SSP-003-1 (location D-3 is applicable to Units 2 and 3). The inconsistency in continuation grid coordinates (A-8 or A-9) on boundary drawings LR-PVNGS-SS-01-SSP-002-1 and LR-PVNGS-SS-03-SSP-003-1 is caused from using a Unit 3 P&ID to create license renewal boundary drawing LR-PVNGS-SS-03-N-SSP-003-1 with a continuation to a Unit 1 boundary drawing LR-PVNGS-CH-01-CHP-003. License renewal boundary drawings LR-PVNGS-CH-01-CHP-003, and LR-PVNGS-SS-01-N-SSP-002-1 were created from Unit 1 P&IDs.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.10-01**

**Background:**

LRA Section 2.3.3.10, Chemical Volume and Control System, states components are within the scope of license renewal for 10 CFR 54.4(a)(1), 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing structural integrity, insulation, and pressure and leakage boundary.

**Issue:**

Several portions of the chemical volume and control system are within the scope of license renewal as non-safety affecting safety-related components based on the criterion of 10 CFR 54.4 (a)(2). However on the following drawings several lines attached to 10 CFR 54.4(a)(2) lines are shown as not within the scope of license renewal.

**Drawing LR-PVNGS-CH-01-M-CHP-001:**

- Location A-11, line N-544-HCDA-2" downstream of valve V916.
- Location D-13, line N-526-HCDA-1" downstream of valve V004.
- Location F-11, line N-046-HCDA-1" downstream of valve V445.

**Drawing LR-PVNGS-CH-01-M-CHP-002, Sht. 1:**

- Location F-12, line N-170-HCDB-1" downstream of valve V121.
- Location G-12, line N-444-HCDB-2" downstream of boric acid batching tank CHN-T03.
- Location G-8, line N-215-HCDB-1" downstream of valve PSV-105 continued to GRP-001 (F-8).
- Location G-6, line N-221-HCDB-½" downstream of valve V100.

**Drawing LR-PVNGS-CH-01-M-CHP-003:**

- Location F-10, line N-322-HCDA-3" downstream of valve V655.
- Location E-9, line N-218-HCDA-3" downstream of valve UV-567.
- Location E-8, line N-331-HCDA-4" downstream of Pump No. 1 CHN-P05A.
- Location D-8, line N-332-HCDA-4" downstream of Pump No. 2 CHN-P05B.
- Location H-6, line N-363-HCCA-2" downstream of valve V-686.
- Location G-1, line N-497-HCDB-1" downstream of valve VM61.
- Location G-1, line N-498-HCDB-1" downstream of valve VM61.
- Location G-1, line N-499-HCDB-1" downstream of valve VM61.
- Location F-1, line N-402-HCDB-1½" downstream of valve V762.
- Location F-1, line N-432-HCCA-1½" downstream of valve V861.
- Location E-1, line N-401-HCDB-1½" downstream of valve V692.
- Location D-7, line (1½" temporary injection conn. for s/u testing) downstream of valve V709.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

Drawing LR-PVNGS-SI-01-M-SIP-001:

- Location E-8, line N-024-HCDA-2" downstream of valve V474.

Drawing LR-PVNGS-RD-01-M-RDP-005:

- Location G-1, line 134-HCDA-6" upstream of the hold-up tank sump.

Drawing LR-PVNGS-AS-01-M-ASP-001:

- Location D-1, line 118-HBDB-4" downstream of valve V186.

Request:

Provide additional information explaining why these sections of pipe are not within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4 (a).

**APS Response to RAI 2.3.3.10-01**

Drawing LR-PVNGS-CH-01-M-CHP-001:

The connected sections of the three cited instances on this drawing are in scope and should have been shown as (a)(2).

- Location A-11, line N-544-HCDA-2" downstream of valve V916.

Boundary drawing LR-PVNGS-CH-01-M-CHP-001 has been revised to show the continuation of N-544-HCDA-2" in scope for (a)(2), making it consistent with boundary drawing LR-PVNGS-CH-01-M-CHP-003.

- Location D-13, line N-526-HCDA-1" downstream of valve V004.

Boundary drawing LR-PVNGS-CH-01-M-CHP-001 has been revised to show the continuation of N-526-HCDA-1" in scope for (a)(2), making it consistent with boundary drawing LR-PVNGS-RD-01-M-RDP-002.

- Location F-11, line N-046-HCDA-1" downstream of valve V445.

Boundary drawing LR-PVNGS-CH-01-M-CHP-001 has been revised to show the continuation of N-046-HCDA-1" in scope for (a)(2), making it consistent with boundary drawing LR-PVNGS-RD-01-M-RDP-003.

Drawing LR-PVNGS-CH-01-M-CHP-002, Sht. 1:

- Location F-12, line N-170-HCDB-1" downstream of valve V121, and Location G-12, line N-444-HCDB-2" downstream of boric acid batching tank CHN-T03.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

The continuation of these lines is in scope and should have been shown as (a)(2) on the drawing. Boundary drawing LR-PVNGS-CH-01-M-CHP-002, Sht. 1 has been revised for the boric acid batching tank components making it consistent with boundary drawing LR-PVNGS-RD-01-M-RDP-003 (F16).

- Location G-8, line N-215-HCDB-1" downstream of valve PSV-105 continued to LR-PVNGS-GR-01-M-GRP-001 (F-8).

It was determined that drawing LR-PVNGS-GR-01-M-GRP-001 (F-8) showing N-215-HCDB-1" highlighted (a)(2) with a termination at a seismic anchor was not correct. Line N-215-HCDB-1" is not in scope for (a)(2). Drawing LR-PVNGS-GR-01-M-GRP-001 (F-8) was revised to remove the highlight of N-215-HCDB-1" and the seismic anchor termination symbol.

- Location G-6, line N-221-HCDB-½" downstream of valve V100.

It was determined that drawing LR-PVNGS-GR-01-M-GRP-001 (F-8) showing N-221-HCDB-½" highlighted (a)(2) with a termination at a seismic anchor was not correct. Drawing LR-PVNGS-GR-01-M-GRP-001 (F-8) was revised to remove the highlight of N-221-HCDB-½" and the seismic anchor termination symbol. The structural integrity function termination at a seismic anchor (G-6) on line N-221-HCDB-½" on drawing LR-PVNGS-CH-01-M-CHP-002, Sht. 1 is correct.

**Drawing LR-PVNGS-CH-01-M-CHP-003:**

- Location F-10, line N-322-HCDA-3" downstream of valve V655.

It was determined that the termination symbol on line N-322-HCDA-3" should be removed from downstream of valve V655. Instead, spatial interaction and structural integrity (attached) termination symbols should be shown on line N-322-HCDA-3" at the pipe tunnel and upstream of valve V656. The components between these termination symbols should be in scope for (a)(2). Boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised accordingly.

- Location E-9, line N-218-HCDA-3" downstream of valve UV-567.

It was determined that the termination symbols for spatial interaction and structural integrity (attached) need to be added to line N-218-HCDA-3". Boundary drawing LR-PVNGS-CH-01-M-CHP-002, area (G-7) was revised accordingly. Line N-218-HCDA-3" shown on drawing LR-PVNGS-CH-01-M-CHP-003 downstream of UV-567 is out of scope.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

- Location E-8, line N-331-HCDA-4" downstream of Pump No. 1 CHN-P05A and Location D-8, line N-332-HCDA-4" downstream of Pump No. 2 CHN-P05B.

Boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised to show the lines downstream of these pumps to the new spatial interaction termination symbols that were added as in scope for (a)(2).

- Location H-6, line N-363-HCCA-2" downstream of valve V-686.

Line N-363-HCCA-2 and valve V-686 already are in scope for (a)(1) as pressure boundary and should have been designated (a)(1) on the drawing. Boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised to show these components as (a)(1), and downstream components have been shown as (a)(2) as appropriate for spatial interaction and structural integrity.

- Location G-1, line N-497-HCDB-1" downstream of valve VM61, Location G-1, line N-498-HCDB-1" downstream of valve VM61, and Location G-1, line N-499-HCDB-1" downstream of valve VM61.

Boundary drawings LR-PVNGS-CH-01-M-CHP-003 and LR-PVNGS-CH-01-M-CHP-002 have been revised to show lines N-497-HCDB-1", N-498-HCDB-1", and N-499-HCDB-1" downstream of valve VM61 as in scope for (a)(2).

- Location F-1, line N-402-HCDB-1½" downstream of valve V762.

Boundary drawing LR-PVNGS-CH-01-M-CHP-003 (F-1) has been revised to show line N-402-HCDB-1½" and downstream piping to the next termination symbols as in scope for (a)(2).

- Location F-1, line N-432-HCCA-1½" downstream of valve V861.

Line N-432-HCCA-1½" and valve V861 are in scope for (a)(1). Boundary drawing LR-PVNGS-CH-01-M-CHP-003 (F-1) has been revised to show these components as (a)(1) and associated downstream components have been shown as (a)(2) as appropriate for spatial interaction and structural integrity.

- Location E-1, line N-401-HCDB-1½" downstream of valve V692.

Boundary drawing LR-PVNGS-CH-01-M-CHP-003 (E1) has been revised to show N-401-HCDB-1½" in scope for (a)(2). Terminal components were identified for spatial interaction and structural integrity (attached) and LR-PVNGS-CH-01-M-CHP-003 was revised accordingly.



**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

- Location D-7, line (1½" temporary injection connection for startup testing) downstream of valve V709. (This line connects to line N-373-HCDB-2".)

Terminal symbols have been added to drawing LR-PVNGS-CH-01-M-CHP-002 (G-15), and line N-373-HCDB-2" downstream of the terminal point on drawing LR-PVNGS-CH-01-M-CHP-002 has been revised showing not in scope. The portions of line N-373-HCDB-2" on drawing LR-PVNGS-CH-01-M-CHP-003 remain out of scope, including the 1½" temporary injection connection.

Drawing LR-PVNGS-SI-01-M-SIP-001:

- Location E-8, line N-024-HCDA-2" downstream of valve V474.

Line N-024-HCDA-2" is in scope for (a)(2) spatial interaction and should have been shown as (a)(2). Boundary drawing LR-PVNGS-SI-01-M-SIP-001 has been revised to show the remainder of line N-024-HCDA-2" on LR-PVNGS-SI-01-M-SIP-001 as in scope for (a)(2).

Drawing LR-PVNGS-RD-01-M-RDP-005:

- Location G-1, line 134-HCDA-6" upstream of the hold-up tank sump.

The function of structural integrity was extended to include line 134-HCDA-6" on drawing LR-PVNGS-RD-01-M-RDP-005 (G-1). Line 134-HCDA-6" on drawing LR-PVNGS-RD-01-M-RDP-005 (G-1) has been added as in scope for (a)(2) up to where line 134-HCDA-6" enters the concrete. The connecting line is labeled as line N-718-HCDA-6" on drawing LR-PVNGS-CH-01-M-CHP-002 (C-15), and the seismic anchor symbol was removed.

Drawing LR-PVNGS-AS-01-M-ASP-001:

- Location D-1, line 118-HBDB-4" downstream of valve V186.

Line 118-HBDB-4" downstream of V186 is in scope for (a)(2) and should have been shown as in scope on the drawing. Boundary drawing LR-PVNGS-AS-01-M-ASP-001 has been revised to show the remainder of line 118-HBDB-4" up to the drawing interface as in scope for (a)(2).

As a result of the changes described above and the associated aging management review updates, aging management evaluations summarized in LRA Table 3.3.2-10 have been revised as shown in Amendment 8 in Enclosure 2, Attachment 1.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.10-02**

**Background:**

License renewal rule 10 CFR 54.21(a) requires applicants to list all component types subject to an AMR. The staff confirms inclusion of all component types subject to an AMR by reviewing components within the license renewal boundary.

**Issue:**

A continuation drawing was not provided in the license renewal package for the following piping continuations:

**Drawing LR-PVNGS-CH-01-M-CHP-002, Sht. 1:**

- Location F-6, line 509-HCDB-½" downstream of valve V104, drawing SSP-001, Sht. 2.

**Drawing LR-PVNGS-CH-01-M-CHP-003:**

- Location C-10, line N-341-HCDB-½" downstream of valve V458, drawing SSP-001, Sht. 2.

**Request:**

Provide additional information to locate the license renewal boundaries.

**APS Response to RAI 2.3.3.10-02**

Pipe line 509-HCDB-½" downstream of valve V104 is within the scope of license renewal based on criterion 10 CFR 54.4 (a)(2) with an intended function of structural integrity (attached). However, pipe line 509-HCDB-½" is terminated at the seismic support on license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-002, Sht. 1, (F-6) before continuing on to the Nuclear Sampling System.

Pipe line N-341-HCDB-½" is not within the scope of license renewal and is correctly shown on boundary drawing LR-PVNGS-CH-01-M-CHP-003 (C-10). Pipe line N-341-HCDB-1 is terminated at the seismic support downstream of V564 on license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003 (C-10) before continuing on to the Nuclear Sampling System.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.10-03**

**Background:**

LRA Section 2.3.3.10, Chemical Volume and Control System, states components are in-scope for license renewal for 10 CFR 54.4(a)(1), 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing a structural integrity, insulation, pressure and leakage boundary.

**Issue:**

License renewal drawings show several lines as not within the scope of license renewal yet are connected to piping and tanks which are shown as within the scope of license renewal as follows:

**LR-PVNGS-CH-01-M-CHP-002, Sht.1:**

- Location F-15, line N-713-HCDA-8" attached to in-scope Refueling Water Tank (CHE-T01).
- Location E-13, line N-171-HCDB-2" attached to in-scope Boric Acid Batching Educator (CHN-J01).

**LR-PVNGS-CH-01-M-CHP-003:**

- Location C-16, line SI-N-201-HCDA-1" attached to in-scope line 277-HCDA-3".
- Location D-16, line N-121-HCDA-2" attached to in-scope line 273-HCDA-3".
- Location D-15, line N-281-HCDB-1" attached to in-scope Reactor Drain Tank (CHN-X02).
- Location D-14, line N-278-HCDB-1" attached to in-scope Reactor Drain Tank (CHN-X02).
- Location A-11, line N-339-HCCA-1" attached to in-scope Equipment Drain Tank (CHNX04).
- Location B-9, line N-906-HCDB-1" attached to in-scope Receiving Vessel (Note 9).
- Location C-5, line N-378-HCDA-3" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location C-5, line N-727-HCDA-3" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location D-5, line N-393-HCDA-3" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location D-5, line N-381-HCDA-3" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location D-5, line N-415-HCDB-1½" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location C-5, line N-384-HCDA-3" attached to in-scope valve V771.
- Location D-5, line N-694-HCDB-3/4" attached to in-scope Reactor Makeup

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

- Water Tank (CHN-T02).
- Location D-5, line N-380-HCDB-1" attached to in-scope Reactor Makeup Water Tank (CHN-T02).

**Request:**

Provide additional information to justify why these lines are not within the scope of license renewal.

**APS Response to RAI 2.3.3.10-03**

**LR-PVNGS-CH-01-M-CHP-002, Sht.1**

- Location F-15, line N-713-HCDA-8" attached to in-scope Refueling Water Tank (RWT) (CHE-T01).

Line N-713-HCDA is not safety related and is the vent line for the RWT. Line N-713-HCDA is located entirely within the RWT and is exposed to the RWT internal environment. Line N-713-HCDA does not have a spatial interaction with the refueling water storage tank and is not within the scope of license renewal.

- Location E-13, line N-171-HCDB-2" attached to in-scope Boric Acid Batching Eductor (CHN-J01).

In response to RAI 2.3.3.10-01 regarding drawing LR-PVNGS-CH-01-M-CHP-002, Sheet 1, the license renewal boundary drawing has been revised to identify that the Boric Acid Batching Tank components, including line N-171-HCDB-2", have been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

**LR-PVNGS-CH-01-M-CHP-003**

- Location C-16, line SI-N-201-HCDA-1" attached to in-scope line 277-HCDA-3".

License renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised to identify that line SI-N-201-HCDA-1" for relief valves PSV-169 and PSV-755 has been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2). License renewal boundary drawing LR-PVNGS-SI-01-M-SIP-002 (location B-10) has also been revised to identify that this line has been added to the scope of license renewal.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

- Location D-16, line N-121-HCDA-2" attached to in-scope line 273-HCDA-3".

License renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised to identify that relief valve PSV-199 line N-121-HCDA-2" has been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

- Location D-15, line N-281-HCDB-1" attached to in-scope Reactor Drain Tank (CHN-X02) and Location D-14, line N-278-HCDB-1" attached to in-scope Reactor Drain Tank (CHN-X02).

Lines CH-N-281- HCDB-1" and CH-N-278- HCDB-1" are not within the scope of license renewal because they are service gas (nitrogen) lines and are not fluid-filled lines. There is no structural integrity or spatial interaction functions for lines CH-N-281- HCDB-1" and CH-N-278- HCDB-1". Therefore, these lines are not within the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

- Location A-11, line N-339-HCCA-1" attached to in-scope Equipment Drain Tank (CHNX04).

Highlighting of Line N-339-HCCA and the associated valves, V830 and PCV831 was inadvertently omitted on license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003. Line N-339-HCCA and the associated valves V830 and PCV831 on license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003 have been confirmed to be within the scope of license renewal for criteria 10 CFR 54.4(a)(1). License renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised to show line N-339-HCCA and the associated valves V830 and PCV831 as completely highlighted. License renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised to identify that the connected line GA-N-021-HBDA has also been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

- Location B-9, line N-906-HCDB-1" attached to in-scope to in-scope Receiving Vessel (Note 9).

License renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised to identify that line N-906-HCDB-1" (vent to the essential pipe density tunnel) has been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

- Various lines connected to Reactor Makeup Water Tank (CHN-T02):
  - Location C-5, line N-378-HCDA-3" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
  - Location C-5, line N-727-HCDA-3" attached to in-scope Reactor Makeup Water Tank (CHN-T02).

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

- Location D-5, line N-393-HCDA-3" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location D-5, line N-381-HCDA-3" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location D-5, line N-415-HCDB-1½" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location C-5, line N-384-HCDA-3" attached to in-scope valve V771.
- Location D-5, line N-694-HCDB-3/4" attached to in-scope Reactor Makeup Water Tank (CHN-T02).
- Location D-5, line N-380-HCDB-1" attached to in-scope Reactor Makeup Water Tank (CHN-T02).

Reactor Makeup Water Tank (CHN-T02) is within the scope of license renewal based on criteria 10 CFR 54.4(a)(3). License renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003 has been revised to identify that portions of the lines noted above have been added to the scope of license renewal based on criteria 10 CFR 54.4(a)(3) up to the isolation valves that support the intended function of the Reactor Makeup Water Tank (CHN-T02). Line N-381-HCDA-3" is an overflow line and its failure would not cause failure of the intended function of the Reactor Makeup Water Tank (CHN-T02) and is not included within the scope of license renewal. The lines noted above do not have a structural integrity function nor do the lines have a spatial interaction with safety related components and are not within the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

As a result of the changes described above and the associated aging management review updates, aging management evaluations summarized in LRA Table 3.3.2-10 have been revised as shown in Amendment 8 in Enclosure 2, Attachment 1.

**NRC RAI 2.3.3.20-01**

**Background:**

LRA Section 2.3.3.20, License Renewal Drawings, provides the license renewal drawings for the diesel generator fuel oil storage and transfer system.

**Issue:**

Drawing LR-PVNGS-DF-01-M-DFP-001 could not be found in the LRA drawing package. License renewal drawing LR-PVNGS-DF-02-M-DFP-001 was found in the LRA drawing package.

**Request:**

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

Provide additional information to verify which drawing was the correct drawing to use during the scoping and screening review.

**APS Response to RAI 2.3.3.20-01**

License renewal boundary drawing LR-PVNGS-DF-02-M-DFP-001 is the correct drawing. The reference to license renewal boundary drawings in LRA Section 2.3.3.20 contained a typographical error and should read "LR-PVNGS-DF-02-M-DFP-001" instead of "LR-PVNGS-DF-01-M-DFP-001." The license renewal boundary drawing number in LRA section 2.3.3.20 has been corrected to identify license renewal boundary drawing LR-PVNGS-DF-02-M-DFP-001, as shown in LRA Amendment No. 8 in Enclosure 2, Attachment 1.

**NRC RAI 2.3.3.21-01**

**Background:**

In LRA Section 2.3.3.21 portions of the diesel generator system are in-scope based on criteria 10 CFR 54.4(a)(1) and 10 CFR 54.4(a)(2). License renewal rule 10 CFR 54.21(a) requires applicants to list all component types subject to an AMR.

**Issue:**

The following license renewal drawing locations show components that are within the scope of license renewal for criteria 10 CFR 54.4(a)(1) or 10 CFR 54.4(a)(2) and not included in Table 2.3.3-21. The components and their drawing locations follow:

- Diesel air intake silencers at locations H-3 and H-7 and diesel exhaust silencers at locations H-2 and H-5 on drawing LR-PVNGS-DG-01-M-DGP-001-01.
- Local observation glasses, LG 344 and LG 343, at locations G-3 and G-7 on drawing LR-PVNGS-DG-01-M-DGP-001-01.
- Turbocharger housings at locations E-4 and E-7 on drawing LR-PVNGS-DG-01-M-DGP-001-02.
- Diesel generator air intake manifolds at locations C-3, C-7, G-3, and G-7 and exhaust manifolds at E-3 and E-7 on drawing LR-PVNGS-DG-01-M-DGP-001-02.
- Starting air header in the Starting Air Subsystem at locations C-4, C-8, G-4 and G-8 on drawing LR-PVNGS-DG-02-M-DGP-001-06.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

- Injector housings in the Fuel Oil Subsystem at location F-1, F-2, F-5, and F-6 on drawing LR-PVNGS-DG-01-M-DGP-001-07.

**Request:**

Provide additional information explaining why the components identified above are not included as component types subject to an AMR in LRA Table 2.3.3-21.

**APS Response to RAI 2.3.3.21-01**

Individual component names and component types in the LRA are consistent with the component names and component types as they appear in the Palo Verde plant equipment database as follows:

- Diesel air intake silencers on drawing LR-PVNGS-DG-01-M-DGP-001-01 at locations H-3 and H-7 and diesel exhaust silencers at locations H-2 and H-5 are included in LRA Table 2.3.3-21 with the component type "filter" consistent with the Palo Verde plant equipment database.
- Local observation glasses, LG 344 and LG 343, on drawing LR-PVNGS-DG-01-M-DGP-001-01 at locations G-3 and G-7 are included in LRA Table 2.3.3-21 and subject to AMR with component type "sight gauge" consistent with the Palo Verde plant equipment database.
- Turbocharger housings on drawing LR-PVNGS-DG-01-M-DGP-001-02 at locations E-4 and E-7 are included in LRA Table 2.3.3-21 and subject to AMR with component type "blower" consistent with the Palo Verde plant equipment database.
- Diesel generator air intake manifolds on drawing LR-PVNGS-DG-01-M-DGP-001-02 at locations C-3, C-7, G-3, and G-7 and exhaust manifolds at E-3 and E-7 are depicted as boxes; do not have unique component identification numbers and, therefore, are evaluated as within scope of license renewal as integral parts of the Emergency Diesel Generator. NEI 95-10 Appendix B, line 56, identifies the Emergency Diesel Generator as not subject to AMR per 10 CFR 54.21(a)(1). LRA Table 2.3.3-21 presents the component types that are subject to AMR together with the license renewal intended functions evaluated. Since these SSCs are not subject to AMR, they are not presented in LRA Table 2.3.3-21.
- Starting air headers in the Starting Air Subsystem on drawing LR-PVNGS-DG-02-M-DGP-001-06 at locations C-4, C-8, G-4, and G-8 have been identified as generic piping component GC-DG028; and have been evaluated as within scope of license renewal and subject to AMR. The starting air headers are included in LRA Table 2.3.3-21 and subject to AMR with the component type "piping."



**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.21-02**

**Background:**

License renewal rule 10 CFR 54.21(a) requires applicants to list all component types subject to an AMR. The staff confirms inclusion of all component types subject to an AMR by reviewing components within the license renewal boundary.

**Issue:**

The following pipelines lack drawing continuation information at the end locations of criterion 10 CFR 54.4(a)(2) pipe.

- Piping N-098-HBDA-2" at location E-5 and N-091-HBDB-2" at location E-1 on drawing LR-PVNGS-DG-M-DGP-001-03.
- Overflow piping at locations G-1 and G-5 on drawing LR-PVNGS-DG-M-DGP-001-04.
- Piping N-040-HBDA-3/4" at location B-5, N-038-HBDA-3/4" at location D-5, N-042-HBDA 3/4" at location F-5, and N-044-HBDA-3/4" at location G-5 on drawing LR-PVNGS-DG-M-DGP-001-09.

**Request:**

Provide additional information to locate the license renewal boundary.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**APS Response to RAI 2.3.3.21-02**

The appropriate license renewal terminal component symbol has been added to the end locations of each of the following criterion 10 CFR 54.4(a)(2) pipes, as described below.

- Piping N-098-HBDA-2" at location E-5 and N-091-HBDB-2" at location E-1 on license renewal boundary drawing LR-PVNGS-DG-M-DGP-001-03 does not show drawing continuation information because the piping is depicted as ending on license renewal boundary drawing LR-PVNGS-DG-M-DGP-001-03. As detailed in the project database, the criterion 10 CFR 54.4(a)(2) license renewal intended function ends where these lines end. For clarity, the appropriate license renewal terminal component symbol has been added to drawing LR-PVNGS-DG-M-DGP-001-03.
- Overflow piping at locations G-1 and G-5 on drawing LR-PVNGS-DG-M-DGP-001-04 are uniquely identified as piping lines N-017-HBDA-21/2" and N-006-HBDA-21/2" and do not show drawing continuation information because the piping is depicted as ending on license renewal boundary drawing LR-PVNGS-DG-M-DGP-001-04. As detailed in the project database, the criterion 10 CFR 54.4(a)(2) license renewal intended function ends where these lines end. For clarity, the appropriate license renewal terminal component symbol has been added to drawing LR-PVNGS-DG-M-DGP-001-04.
- Piping N-040-HBDA-3/4" at location B-5, N-038-HBDA-3/4" at location D-5, N-042-HBDA- 3/4" at location F-5, and N-044-HBDA-3/4" at location G-5 on license renewal boundary drawing LR-PVNGS-DG-M-DGP-001-09 does not show drawing continuation information because the piping is depicted as ending on license renewal boundary drawing LR-PVNGS-DG-M-DGP-001-09. As detailed in the project database, the criterion 10 CFR 54.4(a)(2) license renewal intended function ends where these lines end. For clarity, the appropriate license renewal terminal component symbol has been added to drawing LR-PVNGS-DG-M-DGP-001-09.

**NRC RAI 2.3.3.22-01**

**Background:**

LRA Section 2.3.3.22, Domestic Water System, states that components are within the scope of license renewal for 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing a pressure and leakage boundary.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Issue:**

Drawing LR-PVNGS-DS-01-M-DSP-002 (B-4) shows continuation of lines N-446-YDGA-1½" and N-065-YDGA-1½" as within the scope of license renewal. The continuations on LR-PVNGS-HD-01-M-HDP-001 are not within the scope of license renewal.

**Request:**

Provide additional information to clarify the scoping classification for these pipe sections.

**APS Response to RAI 2.3.3.22-01**

Highlighting of the continuation of pipe lines N-446-YDGA-1½" and N-065-YDGA-1½" was inadvertently omitted on license renewal boundary drawing, LR-PVNGS-HD-01-M-HDP-001. The continuations of pipe lines N-446-YDGA-1½" and N-065-YDGA-1½" on license renewal boundary drawing LR-PVNGS-HD-01-M-HDP-001 have been confirmed to be within the scope of license renewal. License renewal boundary LR-PVNGS-HD-01-M-HDP-001 has been revised to highlight the continuation of pipe lines N-446-YDGA-1½" and N-065-YDGA-1½". The continuation on drawing LR-PVNGS-DS-01-M-DSP-002 (B-4) is correct.

**NRC RAI 2.3.3.22-02**

**Background:**

License renewal rule 10 CFR 54.21(a) requires applicants to list all component types subject to an AMR. The staff confirms inclusion of all component types subject to an AMR by reviewing components within the license renewal boundary.

**Issue:**

Drawing LR-PVNGS-DS-01-M-DSP-002 (D-3) shows continuation of line N-266-YDGA-1 to HJP-001 (A-13). The continuation on LR-PVNGS-HJ-02-M-HJP-001 could not be located.

**Request:**

Provide additional information to locate the license renewal boundary.

**APS Response to RAI 2.3.3.22-02**

Line N-268-YDGA-1 (referred to in RAI 2.3.3.22-02 and RAI 2.3-02 as line N-266-YDGA-1) has been cut and capped, and no longer continues on to license renewal boundary drawing LR-PVNGS-HJ-02-M-HJP-001. License renewal boundary drawing

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

LR-PVNGS-DS-01-M-DSP-002 has been revised to show that line N-268-YDGA-1 is now cut and capped, and does not continue to drawing LR-PVNGS-HJ-02-M-HJP-001.

**NRC RAI 2.3.3.22-03**

**Background:**

LRA Section 2.3.3.22, Domestic Water System, states that components are within the scope of license renewal for 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing a pressure boundary and leakage boundary.

**Issue:**

Drawing LR-PVNGS-DS-13-P-KDE-002 (F-6) and LR-PVNGS-DS-13-P-KDE-003 (G-2 and C-7) show 13-MDSN-X02, 13-MDSN-X03 and 13-MDSN-X05 with reliefs and drain lines as not within the scope of license renewal. Note that similar components on LR-PVNGS-DS-13-P-KDE-001 (F-2), 13-M-DSN-X01A and 13-M-DSN-X01B, are within the scope of license renewal.

**Request:**

Provide additional information to explain why 13-MDSN-X02, 13-MDSN-X03 and 13-MDSN-X05 are not within the scope of license renewal.

**APS Response to RAI 2.3.3.22-03**

License renewal boundary drawings LR-PVNGS-DS-13-P-KDE-002 and LR-PVNGS-DS-13-P-KDE-003 have been revised to reflect that 13-MDSN-X02, 13-MDSN-X03 and 13-MDSN-X05 and their associated relief and drain lines have been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

LRA section 3.3.2.1.22 and LRA Table 3.3.2-22 were revised to add the Domestic Water relief drain lines to the scope of license renewal as shown in LRA Amendment No. 8 in Enclosure 2, Attachment 1. This revision resulted in the addition of copper alloy Domestic Water piping in a wetted gas environment to LRA Table 3.3.2-22 and the addition of a wetted gas environment to the list of Domestic Water environments in LRA section 3.3.2.1.22.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**NRC RAI 2.3.3.24-01**

**Background:**

LRA Section 2.3.3.24, Water Reclamation Facility Fuel System, states components are within the scope of license renewal for 10 CFR 54.4(a)(3) and have intended functions of providing a pressure boundary, filter, and pressure relief.

**Issue:**

License renewal drawing LR-PVNGS-FS-A0-W-FSP-300 shows two lines as not within the scope of license renewal that are connected to tanks which are shown as within the scope of license renewal as follows:

- Zone C-5, line 042-HBDB-8" attached to in-scope Fuel Oil Storage Tank (FSN-T02), and
- Zone G-5, line 043-HBDB-8" attached to in-scope Fuel Oil Storage Tank (FSN-T01).

There is also no indication where these lines go.

**Request:**

Provide additional basis for not including these lines in the scope of license renewal. Also, identify where these lines go.

**APS Response to RAI 2.3.3.24-01**

Pipe lines 042-HBDB-8" and 043-HBDB-8" were identified as not within the scope of license renewal, and are connected to Station Blackout generator (SBOG) fuel oil storage tanks that are in scope as shown on license renewal boundary drawing LR-PVNGS-FS-A0-FSP-300. The following LR Note has been added to license renewal boundary drawing LR-PVNGS-FS-A0-FSP-300, to clarify why the pipe lines are not in the scope of license renewal:

LR Note: The pipeline is above the minimum fuel oil level necessary to support SBOG operation. The minimum fuel oil level elevation is ~ 974' - 5" and the centerline elevation of the pipe is 987' - 1 5/8", therefore the piping is not required to maintain the tank pressure boundary. The pipe size is much smaller than the tank, and consequently has no structural impact. The tank penetration is not associated with venting. Pipe lines 042-HBDB-8" and 043-HBDB-8" are not within the scope of license renewal.

There is no continuation of the pipe lines 042-HBDB-8" and 043-HBDB-8" on license renewal boundary LR-PVNGS-FS-A0-FSP-300. Isometric drawing A0-W-FSG-0310,

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

Section A, identifies the pipe lines have a "free end" that is open to atmosphere and discharges to the area enclosed by the dykes that surround the SBOG fuel oil storage tanks.

**NRC RAI 2.3.3.24-02**

**Background:**

License renewal rule 10 CFR 54.21(a) requires applicants to list all component types subject to an AMR. The staff confirms inclusion of all component types subject to an AMR by reviewing components within the license renewal boundary.

**Issue:**

On drawing LR-PVNGS-FS-A0-W-FSP-300 the following pipe lines lack drawing continuation information at the end locations of pipe.

- Location B-4, line 042-HBDB-8" attached to in-scope Fuel Oil Storage Tank (FSN-T02).
- Location F-4, line 043-HBDB-8" attached to in-scope Fuel Oil Storage Tank (FSN-T01).

**Request:**

Provide additional information to locate the license renewal boundary.

**APS Response to RAI 2.3.3.24-02**

There is no continuation of the pipe lines 042-HBDB-8" and 043-HBDB-8" on license renewal boundary LR-PVNGS-FS-A0-FSP-300. Isometric drawing A0-W-FSG-0310, Section A, identifies the pipe lines have a "free end" that is open to atmosphere and discharges to the area enclosed by the dykes that surround the SBOG fuel oil storage tanks.

**NRC RAI 2.3.3.25-01**

**Background:**

The service gases system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1). Portions are within the scope of license renewal as non-safety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criteria of 10 CFR 54.4(a)(2). Portions of the service gases

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

system support equipment qualification and station blackout requirements based on the criteria of 10 CFR 54.4(a)(3).

**Issue:**

Drawing LR-PVNGS-GA-01-M-GAP-002 (E-8) shows continuation of a 10 CFR 54.4(a)(3) pipe sections (to Nw accumulators) to drawing LR-PVNGS-SG-01-M-SGP-001. Review of drawing LR-PVNGS-SG-01-M-SGP-001-01 could not locate this continuation.

**Request:**

Provide additional information to locate the license renewal boundary.

**APS Response to RAI 2.3.3.25-01**

The continuations of the following pipe lines from license renewal boundary drawing LR-PVNGS-GA-02-M-GAP-001 (incorrectly identified as LR-PVNGS-GA-01-M-GAP-002) to license renewal boundary drawing LR-PVNGS-SG-M-SGP-001-02 are correctly identified as within the scope of license renewal on license renewal boundary drawing LR-PVNGS-SG-M-SGP-001-02. Note that the following locations are identified on license renewal boundary drawing LR-PVNGS-SG-M-SGP-001-02 which is sheet 2 of the license renewal boundary drawing.

- Pipe line 175-GBDA-1" LR-PVNGS-SG-M-SGP-001-02 (B-5).
- Pipe line 177-GBDA-1" LR-PVNGS-SG-M-SGP-001-02 (D-5).
- Pipe line 178-GBDA-1" LR-PVNGS-SG-M-SGP-001-02 (E-5).
- Pipe line 176-GBDA-1" LR-PVNGS-SG-M-SGP-001-02 (G-5).

**NRC RAI 2.3.3.26-01**

**Background:**

The gaseous radwaste system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1). Portions are within the scope of license renewal as non-safety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criteria of 10 CFR 54.4(a)(2) and portions support the criteria of 10 CFR 54(a)(3).

**Issue:**

Drawing LR-PVNGS-GR-01-N-GRP-001 (F-8) shows continuation of 10 CFR 54.4(a)(2) pipe section CH-N-215-HCDB-1" "to volume control tank relief" to drawing LR-PVNGS-CH-01-M-CHP-002. The staff noted that the pipe section on drawing LR-PVNGS-CH-01-M-CHP-002 was not within the scope of license renewal.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Request:**

Provide additional information to clarify the scoping classification for this pipe section.

**APS Response to RAI 2.3.3.26-01**

This issue was also addressed by RAI 2.3.3.10-01 for line CH-N-215-HCDB-1" on license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-002. Refer to RAI 2.3.3.10-01 for resolution.

**NRC RAI 2.3.3.27-01**

**Background:**

The radioactive waste drains system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1). Portions are also within the scope of license renewal as non-safety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criteria of 10 CFR 54.4(a)(2) and portions are required to support environmental qualification based on the criteria of 10 CFR 54(a)(3).

**Issue:**

License renewal drawing LR-PVNGS-RD-01-M-RDP-002 (F-9) shows a section of piping continuing from LR-PVNGS-EC-M-ECP-001 (Essential ACU) as not within the scope of license renewal. This section is included in-scope for 10 CFR 54.4(a)(2) on LR-PVNGS-EC-M-ECP-001. Note similar piping section as included in-scope at F-12 (Essential ACU).

**Request:**

Provide additional information to justify why this section of the piping is included within the scope of license renewal on LR-PVNGS-EC-M-ECP-001 and not within the scope of license renewal on LR-PVNGS-EC-M-ECP-001.

**APS Response to RAI 2.3.3.27-01**

Line N-122-HBDB-1½" shown on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001 is within scope of license renewal based criterion 10 CFR 54.4(a)(2) for spatial interaction and structural integrity (attached) license renewal intended functions. The structural integrity (attached) license renewal intended function terminates at the seismic anchor identified on license renewal boundary drawing LR-PVNGS-EC-01-M-ECP-001. Beyond the seismic anchor, line N-122-HBDB-1½" remains within the scope of license renewal for spatial interaction and is continued onto license renewal boundary drawing LR-PVNGS-RD-01-M-RDP-002. The portion of line N-122-HBDB-1½"



**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

extending onto license renewal boundary drawing LR-PVNGS-RD-01-M-RDP-002 has been revised to include line N-122-HBDB-1½" within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) for a spatial interaction intended function. Line N-122-HBDB-1½" on license renewal boundary drawing LR-PVNGS-RD-01-M-RDP-002 has been highlighted red and a spatial interaction termination flag has been added.

**NRC RAI 2.3.3.27-02**

**Background:**

The radioactive waste drains system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1). Portions are also within the scope of license renewal as non-safety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criteria of 10 CFR 54.4(a)(2) and portions are required to support environmental qualification based on the criteria of 10 CFR 54(a)(3).

**Issue:**

Drawing LR-PVNGS-RD-01-M-RDP-003 (F-15 and F-16) show continuations of 10 CFR 54.4 (a)(2) pipe sections, CH-N-444-HCDB-2" and CH-N170-HCDB-1", to drawing LR-PVNGS-CH-01-M-CHP-002 (G-11 and F-11), respectively. On drawing LR-PVNGS-CH-01- M-CHP-002 the continuations are not within the scope of license renewal.

**Request:**

Provide additional information to explain why the continuations on LR-PVNGS-CH-01-M-CHP-002 are not within the scope of license renewal.

**APS Response to RAI 2.3.3.27-02**

This issue was also addressed by RAI 2.3.3.10-01 for lines CH-N-444-HCDB-2" and CH-N170-HCDB-1" on license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-002. Refer to RAI 2.3.3.10-01 for resolution.

**NRC RAI 2.3.3.27-03**

**Background:**

The radioactive waste drains system is within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1). Portions are also in-scope as non-safety-related affecting safety-related components for structural integrity and/or spatial interaction

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

based on the criteria of 10 CFR 54.4(a)(2) and portions are required to support environmental qualification based on the criteria of 10 CFR 54(a)(3).

**Issue:**

Drawing LR-PVNGS-RD-01-M-RDP-005 (G-2) shows continuation of 10 CFR 54.4(a)(2) pipe sections, RD-N-331-HCDA-4" and RD-N-332-HCDA-4", to drawing LR-PVNGS-CH-01-M-CHP-003 (E-8 and D-8), respectively. On drawing LR-PVNGS-CH-01-M-CHP-003 these continuations are not within the scope of license renewal.

**Request:**

Provide additional information to explain why the continuations on LR-PVNGS-CH-01-M-CHP-003 are not within the scope of license renewal.

**APS Response to RAI 2.3.3.27-03**

This issue was also addressed by RAI 2.3.3.10-01 for lines RD-N-331-HCDA-4" and RD-N-332-HCDA-4" on license renewal boundary drawing LR-PVNGS-CH-01-M-CHP-003. Refer to RAI 2.3.3.10-01 for resolution.

**NRC RAI 2.3.3.30-01**

**Background:**

Portions of the oily waste and non-radioactive waste system that are located in the auxiliary building, diesel generator building and control building have effects of spatial interaction with safety-related components and are within the scope of license renewal as non-safety affecting safety-related components based on the criteria of 10 CFR 54.4(a)(2).

Portions of the floor drains in the diesel generator building and control building are credited for protection of safety-related equipment from flooding in an event of pipe break in the associated areas. They are included within the scope of licensing renewal for the criteria of 10 CFR 54.4(a)(2).

Portions of the oily waste and non-radioactive waste system attach to safety-related essential chilled water system piping through the demineralized water system such that the structural failure of the oily waste and non-radioactive waste system piping could prevent satisfactory accomplishment of safety-related essential chilled water system functions. These portions of the oily waste and non-radioactive waste system are within the scope of license renewal as nonsafety components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Issue:**

Drawing LR-PVNGS-OW-01-M-OWP-002 (E-3 and E-6) shows sections of lines 193-XBDA-4" and 191-XBDA-4" not within the scope of license renewal. The two lines are connected to lines 101-XBDA-4" and 112-XBDA-4" which are shown within the scope of license renewal based on 10 CFR 54.4(a)(2).

**Request:**

Provide additional information to justify why lines 193-XBDA-4" and 191-XBDA-4", attached to lines 101-XBDA-4" and 112-XBDA-4" are not within the scope for license renewal.

**APS Response to RAI 2.3.3.30-01**

Line 193-XBDA-4" and line 191-XBDA-4" are the drain lines from the fuel oil day tank floors. Palo Verde Updated Final Safety Analysis Report (UFSAR) Table 9B.3-1, Section F, Item 10, Diesel Fuel Oil Storage Areas, identifies that the fuel oil day tank floors have drains designed to remove oil and fire water to a safe location. Therefore, this piping has a 10 CFR 54(a)(3) function to remove oil and fire water. Boundary Drawing LR-PVNGS-OW-01-M-OWP-002 was revised to add this piping and associated components within the scope of license renewal.

As shown in LRA Amendment No. 8 in Enclosure 2, Attachment 2, LRA Table 2.2-1 and Section 2.3.3.30, Miscellaneous Auxiliary Systems in-scope ONLY for Criterion 10 CFR 54.4(a)(2), were revised to delete the Oily Waste and Non-Radioactive Waste System due to the addition of the fire protection intended functions. LRA Section 2.3.3.31, a line item for LRA Table 2.2-1, LRA section 3.3.2.1.31 and Table 3.3.2-31, were created to identify that Oily Waste and Non-Radioactive Waste System also supports fire protection requirements based on the criteria of 10 CFR 54(a)(3) in addition to non-safety affecting safety related component interactions based on criterion (a)(2). Conforming LRA changes were also made to LRA section 2.3.3, LRA Section 3.3.1, LRA Section 3.3.2, LRA Section 3.3.2.1.30, and LRA Table 3.3.2-30.

**NRC RAI 2.3.3.30-02**

**Background:**

Portions of the oily waste and non-radioactive waste system that are located in the auxiliary building, diesel generator building and control building have effects of spatial interaction with safety-related components and are within the scope of license renewal as non-safety affecting safety-related components based on the criteria of 10 CFR 54.4(a)(2).

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

Portions of the floor drains in the diesel generator building and control building are credited for protection of safety-related equipment from flooding in an event of pipe break in the associated areas. They are included within the scope of license renewal for the criteria of 10 CFR 54.4(a)(2).

Portions of the oily waste and non-radioactive waste system attach to safety-related essential chilled water system piping through the demineralized water system such that the structural failure of the oily waste and non-radioactive waste system piping could prevent satisfactory accomplishment of safety-related essential chilled water system functions. These portions of the oily waste and non-radioactive waste system are within the scope of license renewal as non-safety components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

**Issue:**

Drawing LR-PVNGS-OW-01-M-OWP-003 (D-2 and D-7) shows lines 170-HGDH-4" and 165-HGDH-4" within the scope for license renewal based 10 CFR 54.4(a)(2). Several lines attached to lines 170-HGDH-4" and 165-HGDH-4", at the same location, are shown as not within the scope of license renewal for 10 CFR 54.4(a)(2).

**Request:**

Provide additional information to justify why the lines attached to 170-HGDH-4" and 165-HGDH-4" are not within the scope of license renewal.

**APS Response to RAI 2.3.3.30-02**

Drain line 170-HGDH-4" and drain line 165-HGDH-4" are completely contained within the Control Building. As depicted on license renewal boundary drawing LR-PVNGS-OW-01-M-OWP-003, drain line 170-HGDH-4" and drain line 165-HGDH-4" originate in the floor at the 100' elevation and connect to drain lines 244-XMGA-4" and 243-XMGA-4" respectively at the floor of the 74' elevation. They pass through the 74' elevation of the Control Building which contains safety-related components. One of the spatial interaction terminations for each of these is where the piping becomes encased in the concrete at the 100' elevation. The other termination for each of these is where the piping attaches to drain line 244-XMGA-4" and 243-XMGA-4" respectively and become encased in concrete at the 74' elevation.

Vent lines 212-HTDA-2", 213-HTDA-2", and 198-HTDA-3" are connected to drain line 170-HGDH-4" as shown on license renewal boundary drawing LR-PVNGS-OW-01-M-OWP-003. Portions of this vent piping are below the elevation of the downstream drain piping. The vent lines have a spatial interaction intended function and are within the scope of license renewal based on criterion 10 CFR 54.4(a)(2). Drain line 165-HGDH-4" and vent lines 214-HTDA-2", 215-HTDA-2", and 197-HTDA-3" are designed with a

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

similar configuration and, therefore, also have a spatial interaction intended function and are within the scope of license renewal based on criterion 10 CFR 54.4(a)(2). License renewal boundary drawing LR-PVNGS-OW-01-M-OWP-003 has been revised to show the vent lines within the scope of scope license renewal based on criterion 10 CFR 54.4(a)(2).

LRA section 3.3.2.1.31 and LRA Table 3.3.2-31 were revised to add the Oily Waste and Non-Radioactive System vent lines to the scope of license renewal as shown in LRA Amendment No. 8 in Enclosure 2, Attachment 2. This revision resulted in the addition of Polyvinyl Chloride (PVC) Oily Waste and Non-Radioactive System piping in a raw water environment to LRA Table 3.3.2-31 and the addition of a PVC material to the list of Oily Waste and Non-Radioactive System materials in LRA section 3.3.2.1.31.

**NRC RAI 2.3.3.30-03**

**Background:**

Portions of the oily waste and non-radioactive waste system that are located in the auxiliary building, diesel generator building and control building have effects of spatial interaction with safety-related components and are within the scope of license renewal as non-safety affecting safety-related components based on the criteria of 10 CFR 54.4(a)(2).

Portions of the floor drains in the diesel generator building and control building are credited for protection of safety-related equipment from flooding in an event of pipe break in the associated areas. They are included within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(2).

Portions of the oily waste and non-radioactive waste system attach to safety-related essential chilled water system piping through the demineralized water system such that the structural failure of the oily waste and non-radioactive waste system piping could prevent satisfactory accomplishment of safety-related essential chilled water system functions. These portions of the oily waste and non-radioactive waste system are within the scope of license renewal as non-safety components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

**Issue:**

Drawing LR-PVNGS-OW-01-M-OWP-003 (C-3) shows line DS-449-HBDD-4" not within the scope of license renewal. Several lines adjacent to DS-449-HBDD-4" on LRA drawing LR-PVNGS-OW-01-M-OWP-003, at the same location, are shown as within the scope for license renewal per 10 CFR 54.4(a)(2) for spatial interaction.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Request:**

Provide additional information to justify why line DS-449-HBDD-4" is not within the scope of license renewal.

**APS Response to RAI 2.3.3.30-03**

Highlighting of the continuation of pipe line DS-449-HBDD-4" was inadvertently omitted on license renewal boundary drawing LR-PVNGS-OW-01-M-OWP-003. Pipe line DS-449-HBDD-4" is identified on Domestic Water license renewal boundary drawing LR-PVNGS-DS-01-M-DSP-002 as within the scope of license renewal based on criterion 10 CFR 54.4(a)(2). License renewal boundary drawing LR-PVNGS-OW-01-M-OWP-003 has been revised to show pipe line DS-449-HBDD-4" continuation completely highlighted including pipe line 226-HBDD-6" where the piping connects to the sump cover.

**NRC RAI 2.3.4.1-01**

**Background:**

LRA Section 2.3.4.1, Main Steam System, states that components are within the scope of license renewal for 10 CFR 54.4(a)(1), 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing structural integrity, insulation and pressure and leakage boundary.

**Issue:**

License renewal drawings show several locations where the license renewal spatial interaction termination cannot be determined as follows:

**LR-PVNGS-SG-01-M-SGP-002:**

- Piping N-007-DCDA-8" upstream of valve UV-172 (G-13)
- Piping N-010-DBDB-8" upstream of valve UV-175 (C-13)
- Piping E-039-DABA-6" downstream of valve UV-5000 (E-2)
- Piping E-048-DABA-6" downstream of valve UV-5008 (B-2)

**LR-PVNGS-SG-01-M-SGP-001-02:**

- Piping N-335-HDDA-1" upstream of valve V346 (G-4)
- Piping N-335-HDDA-1" upstream of valve V348 (G-4)
- Piping N-321-HDDA-1" upstream of valve V358 (D-4)
- Piping N-321-HDDA-1" upstream of valve V357 (D-4)

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Request:**

Provide additional information to locate the license renewal spatial interaction terminations.

**APS Response to RAI 2.3.4.1-01**

Spatial interaction for Piping N-007-DCDA-8", N-010-DBDB-8", E-039-DABA-6", and E-048-DABA-6" in the Turbine Building was determined not to be applicable. Each of the pipe lines is supported by a "five way whip restraint" at the Main Steam Support Structure (MSSS)/Turbine Building wall penetrations. Drawing note 2 identifies that the class break occurs after the restraint which is located at the MSSS/Turbine Building wall penetration. The support locations for the Steam Generator Blowdown lines (E-039-DABA-6" and E-048-DABA-6") are shown on UFSAR Figure 3.6-29. The support locations for the Downcomer Feedwater lines (N-007-DCDA-8", N-010-DBDB-8") are shown on UFSAR Figure 3.6-30. There is no safety related equipment located in the Turbine Building. License renewal boundary drawing LR-PVNGS-SG-01-M-SGP-002 was revised to highlight the pipe segment downstream of valve UV-172 (pipe N-007-DCDA-8") and the pipe segment downstream of valve UV-175 (pipe N-010-DBDB-8") as green to be consistent with the pipe class.

Spatial interaction for piping N-335-HDDA-1" and N-321-HDDA-1" on drawing LR-PVNGS-SG-01-M-SGP-001-02 was determined not to be applicable because the pipe lines internal environment is dry gas. The pipe lines provide nitrogen gas to the main steam atmospheric dump valve accumulators. The pipe lines are within the scope of license renewal for structural integrity (attached) only.

**NRC RAI 2.3.4.1-02**

**Background:**

LRA Section 2.3.4.1, Main Steam System, states that components are within the scope of license renewal for 10 CFR 54.4(a)(1), 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing structural integrity, insulation and pressure and leakage boundary.

**Issue:**

Drawing LR-PVNGS-SG-01-M-SGP-002 (D-8 and G-8) shows 2 flow nozzles out of each of the steam generators 1 & 2 (RCE-E01A & B) as not within the scope of license renewal.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Request:**

Provide additional information explaining why the flow nozzles out of steam generators 1 & 2 are not within the scope of license renewal.

**APS Response to RAI 2.3.4.1-02**

The Steam Generators and associated nozzles are evaluated in LRA Table 2.3.1-4 as components within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). License renewal boundary drawing LR-PVNGS-SG-01-M-SGP-002 has been revised to highlight the Steam Generators and associated nozzles and add a note stating that the Steam Generators and associated nozzles are evaluated as LRID SGR.

**NRC RAI 2.3.4.1-03**

**Background:**

LRA Section 2.3.4.1, Main Steam System, states that components are within the scope of license renewal for 10 CFR 54.4(a)(1), 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing structural integrity, insulation and pressure and leakage boundary.

**Issue:**

Drawing LR-PVNGS-SG-01-M-SGP-001-01 shows eight boxes on the main steam piping downstream of the main steam isolation valves that are not defined:

- 2 boxes on piping E-206-DLBB-28" downstream of valve UV-170 (G-9)
- 2 boxes on piping E-207-DLBB-28" downstream of valve UV-180 (E-9)
- 2 boxes on piping E-208-DLBB-28" downstream of valve UV-171 (D-9)
- 2 boxes on piping E-209-DLBB-28" downstream of valve UV-181 (B-9)

**Request:**

Provide additional information explaining this box symbol and if this component type is subject to an AMR.

**APS Response to RAI 2.3.4.1-03**

The box symbols on license renewal boundary drawing LR-PVNGS-SG-01-M-SGP-001-01 represent "five way whip restraints" and provide structural support at the Main Steam Support Structure/Turbine Building wall penetrations. The "five way whip restraints" are evaluated as structural component type "Supports ASME 2 and 3" and are identified in LRA Table 2.4-14 as components within the scope of license renewal and subject to



**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

AMR. Only mechanical components within the scope of license renewal are highlighted on mechanical boundary drawings.

**NRC RAI 2.3.4.1-04**

**Background:**

LRA Section 2.3.4.1, Main Steam System, states that components are within the scope of license renewal for 10 CFR 54.4(a)(1), 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing structural integrity, insulation and pressure and leakage boundary.

**Issue:**

Drawing LR-PVNGS-SG-01-M-SGP-001-02 (D-8 and G-8) shows 2 drag resistors N-299-HBDB-54" and N-300-HBDB-54" as not within the scope of license renewal. However, both the inlet piping E-059-DLBB-12" and E-084-DLBB-12" as well as the outlet piping N-306-GBDB-1" and N-312-GBDB-1" are within the scope of license renewal. Also, FX-178 & FX-179 are shown as within the scope of license renewal inside of the drag resistors.

**Request:**

Provide additional information explaining why the drag resistors are not within the scope of license renewal.

**APS Response to RAI 2.3.4.1-04**

License renewal boundary drawing LR-PVNGS-SG-01-M-SGP-001-02 has been revised to identify pipe shrouds N-299-HBDB-54" and N-300-HBDB-54" have been added to the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

**NRC RAI 2.3.4.2-01**

**Background:**

LRA Section 2.3.4.2, Condensate Transfer and Storage System, states that components are within the scope of license renewal for 10 CFR 54.4(a)(1), 10 CFR 54.4(a)(2) and 10 CFR 54.4(a)(3) and have intended functions of providing a pressure and leakage boundary, and structural integrity.

**Enclosure 1**

**Response to December 3, 2009, Request for Additional  
Information for the Review of the PVNGS License Renewal Application**

**Issue:**

Drawing LR-PVNGS-CT-01-M-CTP-001 (C-2) shows line N-031-HCDA-3" not within the scope of license renewal for 10 CFR 54.4(a)(2). However, the continuation of this 3" line on drawing LR-PVNGS-PC-01-M-PCP-001 (H-11) shows this line is within the scope of license renewal for 10 CFR 54.4(a)(2).

**Request:**

Provide additional information explaining why there is a difference in the scope classification between drawing LR-PVNGS-CT-01-M-CTP-001 and the continuation on LR-PVNGS-PC-01-M-PCP-001.

**APS Response to RAI 2.3.4.2-01**

Highlighting of the continuation of pipe line N-031-HCDA-3" was inadvertently omitted on license renewal boundary drawing LR-PVNGS-CT-01-M-CTP-001 when updating the license renewal boundary drawing for the addition of Condensate Storage and Transfer System branch lines. The continuation of pipe line N-031-HCDA-3" on license renewal boundary drawing LR-PVNGS-CT-01-M-CTP-001 has been confirmed to be within the scope of license renewal. License renewal boundary drawing LR-PVNGS-CT-01-M-CTP-001 has been revised to show pipe line N-031-HCDA-3" continuation completely highlighted. The continuation on license renewal boundary drawing LR-PVNGS-PC-01-M-PCP-001 is correct.

Due to the recent revision to add branch lines, LRA section 3.4.2.1.2 and LRA Table 3.4.2-2 were revised to add Condensate Storage and Transfer branch line components to the scope of license renewal as shown in LRA Amendment No. 8 in Enclosure 2, Attachment 1. This revision resulted in the addition of the following components to LRA Table 3.4.2-2:

- Stainless steel piping in buried environment
- Stainless steel valves in an atmosphere/weather environment
- Stainless steel closure bolting in an atmosphere/weather environment

As a result of these aging management evaluation changes to LRA Table 3.4.2-2, LRA Section 3.4.2.1.2 was revised to add "Buried" to the list of Condensate Storage and Transfer environments and add "Buried Piping and Tanks Inspection (B2.1.18)" to the list of Condensate Storage and Transfer AMPs.

## **ENCLOSURE 2**

**Palo Verde Nuclear Generating Station  
License Renewal Application Amendment No. 8**

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Enclosure 2  
Attachment 1**

**LRA Changes for Component-Material-Environment Verification and  
RAI Responses Except for RAI 2.3.3.30-01 and 02 Responses**

**Affected LRA Sections and Pages**

<b>LRA Section</b>	<b>Page Nos.</b>	<b>RAI No.</b>
Table 3.3.2-3	3.3-85	2.3.3.3-01
Table 3.3.2-6	3.3-105	2.3.3.6-01
Table 3.3.2-7	3.3-110	2.3.3.7-01
Table 3.3.2-10	3.3-130 and 3.3-136	2.3.3.10-01 and 2.3.3.10-03
2.3.3.20	2.3-60	2.3.3.20-01
3.3.2.1.22	3.3-26	2.3.3.22-03
Table 3.3.2-22	3.3-203	2.3.3.22-03
3.4.2.1.2	3.4-3 and 3.4-4	2.3.4.2-01
Table 3.4.2-2	3.4-28	2.3.4.2-01
Table 3.3.2-21	3.3-196	Component- material- environment verification
3.3.2.1.24	3.3-28 and 3.3-29	Component- material- environment verification
Table 3.3.2-24	3.3-210 to 3.3-213	Component- material- environment verification

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: RAI 2.3.3.3-01 Response**

**LRA Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Essential Cooling Water System (page 3.3-85), is revised as follows (new text underlined):**

*Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Essential 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
Piping	<u>LBS</u> , SIA	Carbon Steel	Wetted Gas (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VIII.B1-7	3.4.1.30	B

**Source: RAI 2.3.3.6-01 Response**

**LRA Table 3.3.2-6, Auxiliary Systems – Summary of Aging Management Evaluation – Nuclear Cooling Water System (page 3.3-105), is revised as follows (new text underlined):**

*Table 3.3.2-6 Auxiliary Systems – Summary of Aging Management Evaluation – Nuclear Cooling 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	SIA, <u>LBS</u>	Carbon Steel	Wetted Gas (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VIII.B1-7	3.4.1.30	B

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: RAI 2.3.3.7-01 Response**

**LRA Table 3.3.2-7, Auxiliary Systems – Summary of Aging Management Evaluation – Essential Spray Pond System (page 3.3-110), is revised as follows (new text underlined):**

*Table 3.3.2-7 Auxiliary Systems – Summary of Aging Management Evaluation – Essential Spray Pond System*

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	SIA, <u>LBS</u>	Stainless Steel	Wetted Gas (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

**Source: RAI 2.3.3.10-01 and -03 Responses**

**Table 3.3.2-10, Auxiliary Systems – Summary of Aging Management Evaluation – Chemical and volume control (page 3.3-130), is revised as follows (new text underlined):**

*Table 3.3.2-10 Auxiliary Systems – Summary of Aging Management Evaluation – Chemical and Volume Control (Continued)*

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Orifice	<u>LBS-PB</u>	Stainless Steel Cast Austenitic	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-29	3.4.1.16	A
Orifice	<u>LBS-PB</u>	Stainless Steel Cast Austenitic	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: RAI 2.3.3.10-01 and -03 Responses**

**Table 3.3.2-10, Auxiliary Systems – Summary of Aging Management Evaluation – Chemical and volume control (page 3.3-136), is revised as follows (new text underlined and deleted text crossed out):**

*Table 3.3.2-10 Auxiliary Systems – Summary of Aging Management Evaluation – Chemical and Volume Control (Continued)*

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Vol. 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Valve	LBS	Carbon Steel	Secondary Water (Int) Plant Indoor Air (Ext)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16) External Surfaces Monitoring Program (B2.1.20)	VIII.E-34 VII.I-8	3.4.1.04 3.3.1.58	A B
Valve	LBS, PB, SIA	Stainless Steel	Borated Water Leakage (Ext)	None	None	VII.J-16	3.3.1.99	A
Valve	LBS	Stainless Steel	Deminearlized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-29	3.4.1.16	A
Valve	LBS, PB, SIA	Stainless Steel	Treated Borated Water (Int)	Loss of Material	Water Chemistry (B2.1.2)	VII.E1-17	3.3.1.91	A
Valve	LBS	Stainless Steel	Wetted Gas (Int)	Loss of Material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	V.D1-29	3.2.1.08	E

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: RAI 2.3.3.20-01 Response**

**LRA Section 2.3.3.20, Diesel Generator Fuel Oil Storage and Transfer System (page 2.3-60), is revised as follows (new text underlined and deleted text crossed out):**

**License Renewal Drawings**

The license renewal drawings for the diesel generator fuel oil storage and transfer system are listed below:

~~LR-PVNGS-DF-01-M-DFP-001~~ LR-PVNGS-DF-02-M-DFP-001

LR-PVNGS-DG-01-M-DGP-001-1

**Source: RAI 2.3.3.22-03 Response**

**LRA Section 3.3.2.1.22, Domestic Water System (page 3.3-26), is revised as follows (new text underlined):**

**Environment**

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

- Atmosphere/ Weather
- Buried
- Plant Indoor Air
- Potable Water
- Raw Water
- Wetted Gas



**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: Component-material-environment verification**

**LRA Section 3.3.2.1.24 WRF Fuel System (pages 3.3-28 and 3.3-29), is revised as follows (new text underlined):**

**3.3.2.1.24 WRF Fuel System**

**Materials**

The materials of construction for the WRF fuel system component types are:

- Aluminum
- Carbon Steel
- Cast Iron (Gray Cast Iron)
- Copper Alloy
- Glass
- Stainless Steel

**Environment**

The WRF fuel system component types are exposed to the following environments:

- Atmosphere/ Weather
- Buried
- Encased in Concrete
- Fuel Oil
- Wetted Gas

**Aging Effects Requiring Management**

The following WRF fuel 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 WRF fuel system component types:

- Bolting Integrity (B2.1.7)
- Buried Piping and Tanks Inspection (B2.1.18)
- External Surfaces Monitoring Program (B2.1.20)
- Fuel Oil Chemistry (B2.1.14)
- One-Time Inspection (B2.1.16)
- Internal Surfaces Monitoring (B2.1.22)

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: Component-material-environment verification**

**LRA Table 3.3.2-24, Auxiliary Systems – Summary of Aging Management Evaluation – WRF Fuel System (pages 3.3-210 to 3.3-213), is revised as follows (new text underlined and deleted text crossed out):**

*Table 3.3.2-24 Auxiliary Systems – Summary of Aging Management Evaluation – WRF Fuel 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	PB, PR	Aluminum	Fuel Oil (Int)	Loss of material	Fuel Oil Chemistry (B2.1.14) and One-Time Inspection (B2.1.16)	VII.H1-4	3.3.1.32	B
Vent (Emergency)	PB, PR	Aluminum	Fuel Oil (Int)	Loss of material	Fuel Oil Chemistry (B2.1.14) and One-Time Inspection (B2.1.16)	VII.H1-4	3.3.1.32	B
Vent (Emergency)	PB, PR	Carbon Steel	Fuel Oil (Int)	Loss of material	Fuel Oil Chemistry (B2.1.14) and One-Time Inspection (B2.1.16)	VII.H1-40	3.3.1.20	B
Flame Arrestor	PB	Aluminum	Wetted Gas (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Duct Components (B2.1.22)	VII.F4-10	3.3.1.27	E
Piping	PB	Carbon Steel	Wetted Gas (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Duct Components (B2.1.22)	VII.H2-21	3.3.1.71	B
Tank	PB	Carbon Steel	Wetted Gas (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Duct Components (B2.1.22)	VII.H2-21	3.3.1.71	D
Valve	PB	Carbon Steel	Wetted Gas (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Duct Components (B2.1.22)	VII.H2-21	3.3.1.71	B

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

*Table 3.3.2-24 Auxiliary Systems – Summary of Aging Management Evaluation – WRF Fuel System (Continued)*

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
<u>Valve</u>	<u>PB, PR</u>	<u>Aluminum</u>	<u>Wetted Gas (Int)</u>	<u>Loss of material</u>	<u>Inspection of Internal Surfaces in Miscellaneous Piping and Duct Components (B2.1.22)</u>	<u>VII.F4-10</u>	<u>3.3.1.27</u>	<u>E</u>
<u>Vent (Emergency)</u>	<u>PB, PR</u>	<u>Aluminum</u>	<u>Wetted Gas (Int)</u>	<u>Loss of material</u>	<u>Inspection of Internal Surfaces in Miscellaneous Piping and Duct Components (B2.1.22)</u>	<u>VII.F4-10</u>	<u>3.3.1.27</u>	<u>E</u>
<u>Vent (Emergency)</u>	<u>PB, PR</u>	<u>Carbon Steel</u>	<u>Wetted Gas (Int)</u>	<u>Loss of material</u>	<u>Inspection of Internal Surfaces in Miscellaneous Piping and Duct Components (B2.1.22)</u>	<u>VII.H2-21</u>	<u>3.3.1.71</u>	<u>B</u>

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: RAI 2.3.3.22-03 Response**

**LRA Table 3.3.2-22, Auxiliary Systems – Summary of Aging Management Evaluation – Domestic Water System (page 3.3-207), is revised as follows (new text underlined):**

***Table 3.3.2-22 Auxiliary Systems – Summary of Aging Management Evaluation – Domestic Water System***

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Vol. 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Piping	LBS	Copper Alloy	Wetted Gas (Internal)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping and Ducting Components (B2.1.22)	VII.G-9	3.3.1.28	E

Notes for Table 3.3.2-22:

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

Plant Specific Notes:

None

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: RAI 2.3.4.2-01 Response**

**LRA Section 3.4.2.1.2, Condensate Storage and Transfer System (pages 3.4-3 and 3.4-4), is revised as follows (new text underlined):**

**Environment**

The condensate storage and transfer system components are exposed to the following environments:

- Atmosphere/ Weather
- Buried
- Dry Gas
- Encased in Concrete
- Plant Indoor Air
- Secondary Water
- Wetted Gas

**Aging Management Programs**

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

- Bolting Integrity (B2.1.7)
- Buried Piping and Tanks Inspection (B.2.1.18)
- 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)
- Water Chemistry (B2.1.2)

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Source: RAI 2.3.4.2-01 Response**

**LRA Table 3.4.2-2, Auxiliary Systems – Summary of Aging Management Evaluation – Condensate Storage and Transfer System (page 3.4-28), is revised as follows (new text underlined):**

*Table 3.4.2-2 Auxiliary Systems – Summary of Aging Management Evaluation – Condensate Storage and Transfer System*

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Closure Bolting	PB	Stainless Steel	Atmosphere/Weather (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	None	None	G,1
Piping	SIA	Stainless Steel	Buried (Ext)	Loss of material	Buried Piping and Tanks Inspection (B2.1.18)	VIII.E-28	3.4.1.17	E
Valve	PB	Stainless Steel	Atmosphere/Weather (Ext)	None	None	None	None	G

**Source: AMP Audit Component-Material-Environment Walkdown**

**LRA Table 3.3.2-21, Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator System (page 3.3-196), is revised to remove the following line items (text strikethrough) associated with changing the material for the Diesel Generator system pre-lube oil pump from stainless steel to carbon steel.**

*Table 3.3.2-21 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
Pump	PB	Stainless Steel	Lubricating Oil (Int)	Loss of material	Lubricating Oil Analysis (B2.1.23) and One-Time Inspection (B2.1.16)	VII.H2-17	3.3.1.33	B
Pump	PB	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment No. 8**

**Enclosure 2  
Attachment 2**

**LRA Changes for RAI 2.3.3.30-01 and 02 Responses**

**Affected LRA Sections and Pages**

<b>LRA Section</b>	<b>Page Nos.</b>	<b>RAI No.</b>
Table 2.2-1	2.2-4	2.3.3.30-01 and 02
2.3.3	2.3-20 and 21	2.3.3.30-01 and 02
2.3.3.30	2.3-76 to 2.3-83	2.3.3.30-01 and 02
2.3.3.31 (new)	2.3-83a and 83b	2.3.3.30-01 and 02
3.3.1	3.3-2	2.3.3.30-01 and 02
3.3.2	3.3-2 to 3.3-4	2.3.3.30-01 and 02
3.3.2.1.30	3.3-33 and 34	2.3.3.30-01 and 02
3.3.2.1.31 (new)	3.3-34a	2.3.3.30-01 and 02
Table 3.3.2-30	3.3-233 to 244	2.3.3.30-01 and 02
Table 3.3.2-31 (new)	3.3-245 to 248	2.3.3.30-01 and 02

**Palo Verde Nuclear Generating Station  
License Renewal Application  
Amendment 8**

**Source: RAI 2.3.3.30-01 and 2.3.3.30-02 Responses**

- Table 2.2-1 Plant-Level Scoping Results, page 2.2-4 is revised as shown in the following pages (delete strikethrough and new text underlined).
- Section 2.3.3 Auxiliary Systems, page 2.3-20 is revised as shown in the following pages (delete strikethrough and new text underlined)
- Section 2.3.3.30 Miscellaneous Auxiliary Systems in-scope ONLY for Criterion 10 CFR 54.4(a)(2), pages 2.3-76 through 2.3-83 is revised as shown in the following pages (delete strikethrough).
- Section 2.3.3.31 Oily Waste and Non-Radioactive Waste System is added as a new section after Section 2.3.3.30 as shown in the following pages (new text underlined).
- Section 3.3.1 Introduction, page 3.3-2 is revised as shown in the following pages (delete strikethrough and new text underlined)
- Section 3.3.2 Results, page 3.3-4 is revised as shown in the following pages (new text underlined)
- Section 3.3.2.1.30 Miscellaneous Auxiliary Systems in-scope ONLY for Criterion 10 CFR 54.4(a)(2), pages 3.3-33 thru 3.3-34 is revised as shown in the following pages (delete strikethrough).
- Section 3.3.2.1.31 Oily Waste and Non-Radioactive Waste System is added as a new section after Section 3.3.2.1.30 as shown in the following pages (new text underlined).
- Table 3.3.2-30, Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope ONLY based on Criterion 10 CFR 54.4(a)(2) is revised as shown in the following pages 3.3-233 through 3.3-244 (delete strikethrough).
- Table 3.3.2-31 Auxiliary Systems – Summary of Aging Management Evaluation – Oily Waste and Non-Radioactive Waste System is added as a new table after LRA Table 3.3.2-30 as shown in the following pages 3.3-245 through 3.3-248 (new text underlined).



Section 2.2  
PLANT-LEVEL SCOPING RESULTS

Table 2.2-1 PVNGS Scoping Results (Continued)

System/Structure	In Scope	Section 2 Scoping Results
Fuel handling and storage	Yes	2.3.3.1
Fire protection	Yes	2.3.3.19
Station blackout generator	Yes	2.3.3.28
Gaseous radwaste	Yes	2.3.3.26
Miscellaneous auxiliary systems in-scope ONLY for criterion 10 CFR 54.4(a)(2), includes:	Yes	2.3.3.30
Auxiliary steam		
Chemical waste		
Liquid radwaste		
Oily waste and non-radioactive waste		
Solid radwaste		
Sanitary sewage and treatment		
Secondary chemical control, includes Ecodyne Graver		
<u>Oily waste and non-radioactive waste</u>	Yes	<u>2.3.3.31</u>
Misc. Site Structures/Spray Pond Pump House HVAC	Yes	2.3.3.18
Normal chilled water	Yes	2.3.3.5
Nuclear cooling water	Yes	2.3.3.6
Nuclear sampling	Yes	2.3.3.8
Radioactive waste drains	Yes	2.3.3.27
Radwaste building HVAC	Yes	2.3.3.16
Service gases (N <sub>2</sub> and H <sub>2</sub> )	Yes	2.3.3.25
Spent fuel pool cooling and cleanup	Yes	2.3.3.2
Turbine building HVAC	Yes	2.3.3.17
WRF fuel	Yes	2.3.3.24
Chemical production, includes:	No	N/A
Hypochlorite subsystem		
Caustic subsystem		
Lube oil storage, transfer and purification	No	N/A

### **2.3.3        Auxiliary Systems**

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

- Fuel handling and storage
- Spent fuel pool cooling and cleanup
- Essential cooling water
- Essential chilled water
- Normal chilled water
- Nuclear cooling water
- Essential spray pond
- Nuclear sampling
- Compressed air
- Chemical and volume control
- Control building HVAC
- Auxiliary building HVAC
- Fuel building HVAC
- Containment building HVAC
- Diesel generator building HVAC
- Radwaste building HVAC
- Turbine building HVAC
- Miscellaneous site structures/spray pond pump house HVAC
- Fire protection
- Diesel generator fuel oil storage and transfer
- Diesel generator
- Domestic water
- Demineralized water
- WRF fuel system
- Service gases (N2 and H2)
- Gaseous radwaste
- Radioactive waste drains
- Station blackout generator
- Cranes, hoists, and elevators
- Miscellaneous auxiliary systems in-scope only for criterion 10 CFR 54.4(a)(2):
  - Auxiliary steam
  - Chemical waste
  - Liquid radwaste
  - ~~Oily waste and non-radioactive waste~~
  - Solid radwaste

- Sanitary sewage and treatment
- Secondary chemical control
- Oily waste and non-radioactive waste

### **2.3.3.1 Fuel Handling and Storage System**

#### **System Description**

The purpose of the fuel handling and storage system is to provide on site storage of new and spent fuel assemblies, provide manipulation of fuel assemblies and control element assemblies, provide radiation shielding for spent fuel and provide for the servicing of the reactor vessel closure head and internals. Crane supports are evaluated with their appropriate structure. The system consists of cranes, elevators, fuel storage racks, lift rigs, machines, transfer systems and trolleys. The following components are within the scope of license renewal:

- containment building polar crane
- 150/15 ton dry cask crane
- 10 ton new fuel handling crane
- spent fuel handling machine
- new fuel elevator
- refueling machine
- CEA change platform
- upper guide structure lift rig
- core support barrel lift rig
- reactor vessel head lift rig
- new fuel storage racks
- spent fuel storage racks
- fuel transfer carriage and trolley assembly (rails)

#### **System Intended Function**

The fuel handling and storage system is within the scope of license renewal based on the criteria of 10 CFR 54(a)(1).

Portions of the fuel handling and storage system have spatial interaction as nonsafety affecting safety-related components in the fuel and the containment buildings and are in-scope based on the criterion of 10 CFR 54(a)(2).

#### **PVNGS UFSAR References**

Additional details of the fuel handling and storage system are included in UFSAR Sections 9.1.1, 9.1.2, and 9.1.4.

#### **License Renewal Drawings**

There are no license renewal drawings for the fuel handling and storage system.

Section 2.3  
**SCOPING AND SCREENING RESULTS:  
 MECHANICAL SYSTEMS**

*Table 2.3.3-29 – Cranes, Hoists, and Elevators System*

Component Type	Intended Function
Crane	Non-S/R Structural Support
Cranes - Rails	Non-S/R Structural Support
Hoist	Non-S/R Structural Support
Trolley	Non-S/R Structural Support

**2.3.3.30 Miscellaneous Auxiliary Systems in-scope ONLY for Criterion 10  
 CFR 54.4(a)(2)**

Auxiliary 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 aging management review due only to scoping criterion 10 CFR 54.4(a)(2) are evaluated in this section.

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

- Auxiliary steam
- Chemical waste
- Liquid radwaste
- ~~Oily waste and non-radioactive waste~~
- Solid radwaste
- Sanitary sewage and treatment
- Secondary chemical control

**System Descriptions/System Intended Functions**

*Auxiliary steam*

The purpose of the auxiliary steam system is to provide a source of steam for various nonsafety-related functions during plant startup, shutdown, normal operations, and testing evolutions. The auxiliary steam system consists of an auxiliary boiler, transfer pumps, receivers, tanks, piping, and valves.

Portions of the auxiliary steam system in the auxiliary building contain nonsafety-related components that are spatially oriented such that their failure could prevent the satisfactory

Section 2.3  
**SCOPING AND SCREENING RESULTS:  
MECHANICAL SYSTEMS**

accomplishment of a safety-related function associated with a safety-related component. The auxiliary steam system attaches to nonsafety-related auxiliary feedwater system piping such that the structural failure of the auxiliary steam system piping could prevent satisfactory accomplishment of safety-related auxiliary feedwater system functions. These portions of the auxiliary steam system are within the scope of license renewal as nonsafety-related components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

*Chemical waste*

The chemical waste system consists of five sub-systems:

- (1) The radioactive chemical waste sub-system that collects the corrosive radioactive waste from the chemical laboratory and decontamination stations. The sub-system transports the liquid waste and drainage from decontamination room, sample hood and hot lab fume hoods, instrumentation respirator maintenance and issue room, cold lab fume hood, to the chemical drain tanks by gravity flow.
- (2) The cooling water waste sub-system that collects the chemically treated cooling water from the auxiliary and radwaste buildings for reuse or disposal. In addition to collecting leakage, the sub-system accepts drainage during maintenance of plant equipment containing chemically treated cooling water, and collects in the cooling water holdup tank by gravity flow. The sub-system is normally aligned to transfer the contents to the chemical waste neutralizer tanks of the radwaste system. Branch lines are provided for diverting the contents of the cooling water holdup tank to the essential cooling water surge tanks or to the nuclear cooling water surge tanks, for use only during maintenance, to return the drainage from the equipment to the appropriate cooling water loop.
- (3) The condensate polisher regeneration waste sub-system that collects the rinse washes from the condensate polisher demineralizers and neutralizes the waste for disposal to the retention basin if it is non-radioactive, or discharges to the liquid radwaste system if the waste exceeds the release limits.
- (4) The spent regenerate waste sub-system that collects and neutralizes the rinse washes from the makeup demineralizers for disposal.
- (5) The yard areas chemical tank drains sub-system. The yard area chemical tanks and pumps are installed on concrete slabs with retaining curbs. Small sumps are provided inside the curbs to collect equipment leakage.

All sub-systems of chemical waste system have no safety-related functions.

Portions of the chemical waste system in the auxiliary building and pipe tunnel contain nonsafety-related components that are spatially oriented such that their failure could prevent the satisfactory accomplishment of the safety-related functions associated with the surrounding safety-related components. Portions of the chemical waste system attach to

Section 2.3  
**SCOPING AND SCREENING RESULTS:  
MECHANICAL SYSTEMS**

safety-related essential cooling water system piping such that the structural failure of the chemical waste system piping could prevent satisfactory accomplishment of safety-related essential cooling water system functions. These portions of the chemical waste system are within the scope of license renewal as nonsafety-related components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

*Liquid Radwaste*

The purpose of the liquid radwaste system is to collect, process, monitor and recycle or dispose of liquid radwaste. Liquid radwaste is sampled and analyzed for radioactivity. Based on the analysis, liquid radwaste is recycled for eventual reuse in the plant, retained for further processing or dispatched to the solid radwaste system or to the onsite evaporation pond under controlled conditions. Plant design precludes the release of radioactive liquids to the environment. The liquid radwaste system is composed of instrumentation and process components such as piping, filters, pumps, tanks and an evaporator.

Portions of the liquid radwaste system have spatial interaction as nonsafety affecting safety-related components in the fuel building and in the auxiliary building and are within the scope of license renewal as nonsafety affecting safety-related components based on the criterion of 10 CFR 54(a)(2).

~~*Oily waste and non-radioactive waste*~~

~~The oily waste and non-radioactive waste system collects and transports liquid waste from equipment and floor drains of the turbine building, the control building, the diesel generator buildings, the fire pump house, and the yard area. The system removes entrained oil from the wastewater for disposal and conveys the oil-free water to the evaporation pond.~~

~~The turbine building oil/water separator receives effluent from the turbine building sumps, the control building sumps, and the diesel generator building sumps. A duplex retention basin is provided to act as a storage basin for the wastewater from the turbine building oil/water separator. When the chemistry of the waste in the retention basin is acceptable, the waste in the retention basin is discharged to the evaporation pond. A connection for a portable ion exchanger is provided in the unlikely event that radioactivity greater than the release limits are detected in one of the retention basins. The waste oil is sampled to detect any activity before being manually transferred to the external waste oil container for disposal.~~

~~The oily waste and non-radioactive waste system for the fire pump house is entirely separate from the other parts of the oily waste and non-radioactive waste system. The collected waste is treated in the fire pump house oil/water separator. The oily waste and non-radioactive waste system in the yard area receives drainage and liquid waste from the areas associated with the demineralized water storage tank and pumps, the auxiliary boiler, and turbine building normal air handling units. The collected waste from the yard area is discharged to the circulating water intake structure.~~

Section 2.3  
**SCOPING AND SCREENING RESULTS:  
MECHANICAL SYSTEMS**

~~Portions of the oily waste and non-radioactive waste system that are located in the auxiliary building, diesel generator building and control building have effects of spatial interaction with safety-related components and are in scope as nonsafety affecting safety-related components based on the criteria of 10 CFR 54.4(a)(2).~~

~~Portions of the floor drains in the diesel generator building and control building are credited for protection of safety-related equipment from flooding in an event of pipe break in the associated areas. They are included in scope for the criteria of 10 CFR 54.4(a)(2).~~

~~Portions of the oily waste and non-radioactive waste system attach to safety-related essential chilled water system piping through demineralized water system such that the structural failure of the oily waste and non-radioactive waste system piping could prevent satisfactory accomplishment of safety-related essential chilled water system functions. These portions of the oily waste and non-radioactive waste system are within the scope of license renewal as nonsafety components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).~~

#### *Solid Radwaste*

The purpose of the solid radwaste system is to provide processing and packaging capability for concentrated waste solutions and spent resins. The system provides a means for packaging and disposal of spent radioactive cartridge filters and solid wastes from the liquid radwaste system and the chemical and volume control system. Additionally, the solid radwaste system provides a means of compacting and packaging miscellaneous dry radioactive materials such as paper, rags, clothing and tools. The solid radwaste system is made up of multiple piping runs, valves, tanks and pumps and consists of the following subsystems: spent resin transfer subsystem, wet waste processing subsystem, dry waste disposal subsystem and the filter handling and disposal subsystem.

Portions of the solid radwaste system have spatial interaction as nonsafety affecting safety-related components in the auxiliary building. Portions of the solid radwaste system provide structural integrity attached to safety-related equipment in the fuel pool cooling and cleanup system and in the chemical and volume control system. These portions of the solid radwaste system are in-scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54(a)(2).

#### *Sanitary Sewage and Treatment*

The sanitary sewage and treatment system collects the sanitary wastewater from facilities throughout the plant through drain piping and transports it through one wet well, one sewage lift station, one surge tank, to the three package sewage treatment units, where the waste is treated and clarified. The wastewater is then transported to the chlorine contact chamber for chlorination before being transported to the sanitary waste water sump. Two sump pumps, with automatic level control, pump the wastewater from the sanitary waste water sump to the water reclamation plant for further treatment and reuse.

**Section 2.3**  
**SCOPING AND SCREENING RESULTS:**  
**MECHANICAL SYSTEMS**

Portions of the sanitary sewage and treatment system that are located in the auxiliary building and control building have effects of spatial interaction with safety-related components and are within the scope of license renewal as nonsafety affecting safety-related components based on the criteria of 10 CFR 54.4(a)(2).

*Secondary Chemical Control*

The secondary chemical control system is an integrated system comprised of a condensate demineralizer subsystem, a steam generator blowdown processing subsystem, the chemical monitoring and addition subsystem, and the online process sampling subsystem. These subsystems operating concurrently maintain the required operating water chemistry of the condensate and feedwater under all normal operating and upset or abnormal conditions.

The purpose of the condensate demineralizer subsystem is to maintain required water chemistry of the condensate/feedwater loop during upset or abnormal conditions. Dissolved solids are removed by ion exchange and suspended solids are removed by filtration. The demineralizer is normally on standby, and is placed in service only during startup, shutdown, excessive condenser leakage, or other condition requiring polishing of the condensate to maintain required chemistry.

The purpose of the steam generator blowdown subsystem is to compensate for the concentrating effect of the steam generators by continuous blowdown and processing for reuse of a portion of the fluid from each steam generator. This subsystem is also part of a system which maintains the steam generator in wet lay-up by providing the capability to adequately mix, sample and add chemicals to the steam generator.

The purpose of the chemical addition subsystem is to establish and maintain the proper chemistry within the condensate, feedwater, and steam generator secondary side water. The additives serve to control the pH, establish a reducing environment, and to scavenge any dissolved oxygen. In addition, boric acid may be injected into the secondary system for mitigating denting and intergranular attack/stress corrosion cracking in the steam generator.

The chemical monitoring subsystem provides continuous indication of significant chemical parameters in the secondary system and to alert the operator of faulty chemistry or equipment malfunction. Continuous online samples are taken from the main condenser, condensate demineralizers, main feedwater lines, steam generator blowdown lines and downcomer, and circulating water lines for analysis by the chemical monitoring system.

All components and piping associated with steam generator blowdown and blowdown sampling between the steam generator and the containment isolation valves are designed to seismic Category I with ASME Class 2 requirements and are assigned to and are evaluated with the main steam system.



**Section 2.3**  
**SCOPING AND SCREENING RESULTS:**  
**MECHANICAL SYSTEMS**

Portions of the secondary chemical control system in the auxiliary building and pipe tunnel contain nonsafety-related components that are spatially oriented such that their failure could prevent the satisfactory accomplishment of the safety-related functions associated with the surrounding safety-related components. Portions of the secondary control system attach to safety-related main steam system piping such that the structural failure of the secondary chemical control system piping could prevent satisfactory accomplishment of safety-related main steam system functions. These portions of the secondary chemical control system are within the scope of license renewal as nonsafety-related components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

**PVNGS UFSAR References**

Details of the auxiliary steam system are not discussed in the UFSAR.

Additional details of the chemical waste system are included in UFSAR Section 9.3.3.

Additional details of the liquid radwaste system are included in UFSAR Section 11.2.2.3.

~~Additional details of the oily waste and non-radioactive waste are included in UFSAR Sections 3.6 and 9.3.3.~~

Additional details of the solid radwaste system are included in UFSAR Section 11.4.

Additional details of the sanitary sewage and treatment system are included in UFSAR Section 9.3.3.

Additional details of the secondary chemical control system are provided in UFSAR Sections 9.3.2 and 10.4.6.

**License Renewal Drawings**

The license renewal drawings for the auxiliary steam system are listed below:

LR-PVNGS-AS-01-M-ASP-001

LR-PVNGS-CH-01-M-CHP-001

LR-PVNGS-CH-01-M-CHP-005

LR-PVNGS-HA-02-M-HAP-001

The license renewal drawings for the chemical waste system are listed below:

LR-PVNGS-CM-01-M-CMP-001

LR-PVNGS-CM-01-M-CMP-002

LR-PVNGS-EW-01-M-EWP-001

The license renewal drawings for the liquid radwaste system are listed below:

LR-PVNGS-LR-01-N-LRP-001

LR-PVNGS-LR-01-N-LRP-002-02

**Section 2.3**  
**SCOPING AND SCREENING RESULTS:**  
**MECHANICAL SYSTEMS**

~~The license renewal drawings for the oily waste and non-radioactive waste system are listed below:~~

~~LR-PVNGS-OW-01-M-OWP-001  
LR-PVNGS-OW-01-M-OWP-002  
LR-PVNGS-OW-01-M-OWP-003~~

The license renewal drawings for the solid radwaste system are listed below:

LR-PVNGS-SR-01-N-SRP-001  
LR-PVNGS-LR-01-N-LRP-002-02

The license renewal drawings for the sanitary sewage and treatment system are listed below:

LR-PVNGS-ST-13-P-ZAE-204  
LR-PVNGS-ST-13-P-ZAE-205  
LR-PVNGS-ST-13-P-ZAE-209-01  
LR-PVNGS-ST-13-P-ZJE-304

The license renewal drawings for the secondary chemical control system are listed below:

LR-PVNGS-SC-01-M-SCP-005-01  
LR-PVNGS-SC-01-M-SCP-006-01  
LR-PVNGS-SC-01-M-SCP-006-02  
LR-PVNGS-SG-01-M-SGP-002

**Component-Function Relationship Table**

The component types subject to aging management review are indicated in Table 2.3.3-30 - Miscellaneous Auxiliary Systems In-Scope ONLY based on Criterion 10 CFR 54.4(a)(2).

**Section 2.3**  
**SCOPING AND SCREENING RESULTS:**  
**MECHANICAL SYSTEMS**

*Table 2.3.3-30 Miscellaneous Auxiliary Systems In-Scope ONLY based on Criterion 10 CFR 54.4(a)(2)*

<b>Component Type</b>	<b>Intended Function</b>
Closure Bolting	Leakage Boundary (Spatial) Structural Integrity (Attached)
Filter	Leakage Boundary (Spatial)
Heat Exchanger (AS Condensate Vent Condenser)	Leakage Boundary (Spatial)
Heat Exchanger (Sample Cooler)	Leakage Boundary (Spatial)
Orifice	Leakage Boundary (Spatial)
Piping	Leakage Boundary (Spatial) Structural Integrity (Attached)
Pump	Leakage Boundary (Spatial)
Sight Gauge	Leakage Boundary (Spatial) Structural Integrity (Attached)
Strainer	Leakage Boundary (Spatial) Structural Integrity (Attached)
Tank	Leakage Boundary (Spatial)
Tubing	Leakage Boundary (Spatial)
Valve	Leakage Boundary (Spatial) Structural Integrity (Attached)

### **2.3.3.31 Oily Waste and Non-Radioactive Waste System**

#### **System Description**

The oily waste and non-radioactive waste system collects and transports liquid waste from equipment and floor drains of the turbine building, the control building, the diesel generator buildings, the fire pump house, and the yard area. The system removes entrained oil from the wastewater for disposal and conveys the oil-free water to the evaporation pond.

The turbine building oil/water separator receives effluent from the turbine building sumps, the control building sumps, and the diesel generator building sumps. A duplex retention basin is provided to act as a storage basin for the wastewater from the turbine building oil/water separator. When the chemistry of the waste in the retention basin is acceptable, the waste in the retention basin is discharged to the evaporation pond. A connection for a portable ion exchanger is provided in the unlikely event that radioactivity greater than the release limits are detected in one of the retention basins. The waste oil is sampled to detect any activity before being manually transferred to the external waste oil container for disposal.

The oily waste and non-radioactive waste system for the fire pump house is entirely separate from the other parts of the oily waste and non-radioactive waste system. The collected waste is treated in the fire pump house oil/water separator. The oily waste and non-radioactive waste system in the yard area receives drainage and liquid waste from the areas associated with the demineralized water storage tank and pumps, the auxiliary boiler, and turbine building normal air handling units. The collected waste from the yard area is discharged to the circulating water intake structure.

#### **System Intended Functions**

Portions of the floor drains in the diesel generator building are credited for removal of oil and fire water from the fuel oil day floors to a safe location. They are included in-scope based on the criteria of 10 CFR 54.4(a)(3).

Portions of the oily waste and non-radioactive waste system that are located in the auxiliary building, diesel generator building and control building have effects of spatial interaction with safety-related components and are in-scope as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

Portions of the floor drains in the diesel generator building and control building are credited for protection of safety-related equipment from flooding in an event of pipe break in the associated areas. They are included in-scope for the criteria of 10 CFR 54.4(a)(2).

Portions of the oily waste and non-radioactive waste system attach to safety-related essential chilled water system piping through demineralized water system such that the structural failure of the oily waste and non-radioactive waste system piping could prevent satisfactory

**Section 2.3**  
**SCOPING AND SCREENING RESULTS:**  
**MECHANICAL SYSTEMS**

accomplishment of safety-related essential chilled water system functions. These portions of the oily waste and non-radioactive waste system are within the scope of license renewal as nonsafety components affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

**PVNGS UFSAR References**

Additional details of the oily waste and non-radioactive waste are included in UFSAR Sections 3.6, 9.3.3, and Table 9B.3-1.

**License Renewal Drawings**

The license renewal drawings for the oily waste and non-radioactive waste system are listed below:

LR-PVNGS-OW-01-M-OWP-001

LR-PVNGS-OW-01-M-OWP-002

LR-PVNGS-OW-01-M-OWP-003

**Component-Function Relationship Table**

The component types subject to aging management review are indicated in Table 2.3.3-31 – Oily Waste and Non-Radioactive Waste System.

*Table 2.3.3-31 Oily Waste and Non-Radioactive Waste System*

<b><u>Component Type</u></b>	<b><u>Intended Function</u></b>
<u>Closure Bolting</u>	<u>Pressure Boundary</u> <u>Leakage Boundary (Spatial)</u>
<u>Orifice</u>	<u>Leakage Boundary (Spatial)</u>
<u>Piping</u>	<u>Pressure Boundary</u> <u>Leakage Boundary (Spatial)</u> <u>Structural Integrity (Attached)</u>
<u>Strainer</u>	<u>Leakage Boundary (Spatial)</u> <u>Structural Integrity (Attached)</u>
<u>Valve</u>	<u>Pressure Boundary</u> <u>Leakage Boundary (Spatial)</u> <u>Structural Integrity (Attached)</u>

Section 3.3

**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

- Liquid radwaste
- ~~Oily waste and non-radioactive waste~~
- Solid radwaste
- Sanitary sewage and treatment
- Secondary chemical control
- Oily waste and non-radioactive waste

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 3.x.1 (Table 1) described in Section 3.0.

### **3.3.2 Results**

The following tables summarize the results of the aging management review for the systems in the Auxiliary Systems area:

- Table 3.3.2-1 Auxiliary Systems – Summary of Aging Management Evaluation – Fuel Handling and Storage System
- Table 3.3.2-2 Auxiliary Systems – Summary of Aging Management Evaluation – Spent Fuel Pool Cooling and Cleanup System
- Table 3.3.2-3 Auxiliary Systems – Summary of Aging Management Evaluation – Essential Cooling Water System
- Table 3.3.2-4 Auxiliary Systems – Summary of Aging Management Evaluation – Essential Chilled Water System
- Table 3.3.2-5 Auxiliary Systems – Summary of Aging Management Evaluation – Normal Chilled Water System
- Table 3.3.2-6 Auxiliary Systems – Summary of Aging Management Evaluation – Nuclear Cooling Water System
- Table 3.3.2-7 Auxiliary Systems – Summary of Aging Management Evaluation – Essential Spray Pond System
- Table 3.3.2-8 Auxiliary Systems – Summary of Aging Management Evaluation – Nuclear Sampling System
- Table 3.3.2-9 Auxiliary Systems – Summary of Aging Management Evaluation – Compressed Air System
- Table 3.3.2-10 Auxiliary Systems – Summary of Aging Management Evaluation – Chemical and Volume Control System
- Table 3.3.2-11 Auxiliary Systems – Summary of Aging Management Evaluation – Control Building HVAC System

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

- Table 3.3.2-12 Auxiliary Systems – Summary of Aging Management Evaluation – Auxiliary Building HVAC System
- Table 3.3.2-13 Auxiliary Systems – Summary of Aging Management Evaluation – Fuel Building HVAC System
- Table 3.3.2-14 Auxiliary Systems – Summary of Aging Management Evaluation – Containment Building HVAC System
- Table 3.3.2-15 Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator Building HVAC System
- Table 3.3.2-16 Auxiliary Systems – Summary of Aging Management Evaluation – Radwaste Building HVAC System
- Table 3.3.2-17 Auxiliary Systems – Summary of Aging Management Evaluation – Turbine Building HVAC System
- Table 3.3.2-18 Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous site structures/Spray Pond Pump House HVAC System
- Table 3.3.2-19 Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection Systems
- Table 3.3.2-20 Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator Fuel Oil Storage and Transfer System
- Table 2.3.3-21 Auxiliary Systems – Summary of Aging Management Evaluation – Diesel Generator System
- Table 3.3.2-22 Auxiliary Systems – Summary of Aging Management Evaluation – Domestic Water System
- Table 3.3.2-23 Auxiliary Systems – Summary of Aging Management Evaluation – Demineralized Water System
- Table 3.3.2-24 Auxiliary Systems – Summary of Aging Management Evaluation – WRF Fuel System
- Table 3.3.2-25 Auxiliary Systems – Summary of Aging Management Evaluation – Service Gases (N2 and H2) System
- Table 3.3.2-26 Auxiliary Systems – Summary of Aging Management Evaluation – Gaseous Radwaste System
- Table 3.3.2-27 Auxiliary Systems – Summary of Aging Management Evaluation – Radioactive Waste Drains System
- Table 3.3.2-28 Auxiliary Systems – Summary of Aging Management Evaluation – Station Blackout Generator System

**Section 3.3**

**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

- Table 3.3.2-29 Auxiliary Systems – Summary of Aging Management Evaluation – Cranes, Hoists, and Elevators System
- Table 3.3.2-30 Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous Auxiliary Systems In-Scope ONLY based on Criterion 10 CFR 54.4(a) (2).
- Table 3.3.2-31 Auxiliary Systems – Summary of Aging Management Evaluation – Oily Waste and Non-radioactive Waste System.

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

**3.3.2.1 Materials, Environment, Aging Effects Requiring Management and Aging Management Programs**

The materials from which the component types are fabricated, the environments to which they are exposed, the potential aging effects requiring management, and the aging management programs used to manage these aging effects are provided for each of the above systems in the following subsections.

**3.3.2.1.1 Fuel Handling and Storage System**

**Materials**

The materials of construction for the fuel handling and storage system component types are:

- Carbon Steel
- Stainless Steel

**Environment**

The fuel handling and storage system components are exposed to the following environments:

- Borated Water Leakage
- Plant Indoor Air
- Submerged (Structural)
- Treated Borated Water

**Aging Effects Requiring Management**

The following fuel handling and storage system aging effects require management:

- Cracking
- Loss of material

**Aging Management Programs**

The following aging management programs manage the aging effects for the fuel handling - and storage system component types:



### **Environment**

The cranes, hoists, and elevator system component types are exposed to the following environment:

- Plant Indoor Air

### **Aging Effects Requiring Management**

The following cranes, hoists, and elevator system aging effect requires management:

- Loss of material

### **Aging Management Programs**

The following aging management program manages the aging effects for the cranes, hoists, and elevator system component types:

- Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems (B2.1.11)

### **3.3.2.1.30 Miscellaneous Auxiliary Systems In-Scope ONLY based on Criterion 10 CFR 54.4(a)(2)**

#### **Materials**

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

- Carbon Steel
- ~~Carbon Steel with Elastomer Lining~~
- Cast Iron
- Cast Iron (Gray Cast Iron)
- Copper Alloy
- Copper Alloy (Brass Copper < 85%)
- Glass
- Stainless Steel

#### **Environment**

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

- Borated Water Leakage
- Closed-Cycle Cooling Water

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

- ~~Demineralized Water~~
- Plant Indoor Air
- ~~Potable Water~~
- Raw Water
- Secondary Water
- Treated Borated Water
- Wetted Gas

**Aging Effects Requiring Management**

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

- Cracking
- Loss of material
- Loss of preload
- Wall thinning

**Aging Management Programs**

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

- Bolting Integrity (B2.1.7)
- Boric Acid Corrosion (B2.1.4)
- Closed-Cycle Cooling Water System (B2.1.10)
- 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)
- Selective Leaching of Materials (B2.1.17)
- Water Chemistry (B2.1.2)

### **3.3.2.1.31 Oily Waste and Non-Radioactive Waste System**

#### **Materials**

The materials of construction for the oily waste and non-radioactive waste system component types are:

- Carbon Steel
- Carbon Steel with Elastomer Lining
- Cast Iron
- Copper Alloy
- Stainless Steel
- Polyvinyl Chloride (PVC)

#### **Environment**

The oily waste and non-radioactive waste system component types are exposed to the following environments:

- Demineralized Water
- Encased in Concrete
- Plant Indoor Air
- Potable Water
- Raw Water

#### **Aging Effects Requiring Management**

The following oily waste and non-radioactive waste 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 waste and non-radioactive waste 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)
- One-Time Inspection (B2.1.16)
- Water Chemistry (B2.1.2)

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

**Table 3.3.2-30**      *Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope*  
*ONLY based on 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
Closure Bolting	LBS	Carbon Steel	Borated Water Leakage (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	IV.C2-8	3.1.1.52	B
Closure Bolting	LBS	Carbon Steel	Borated Water Leakage (Ext)	Loss of material	Boric Acid Corrosion (B2.1.4)	V.E-2	3.2.1.45	A
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, SIA	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	Bolting Integrity (B2.1.7)	VIII.H-4	3.4.1.22	B
Closure Bolting	LBS, SIA	Carbon Steel	Plant Indoor Air (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	VIII.H-5	3.4.1.22	B
Closure Bolting	LBS	Copper Alloy	Plant Indoor Air (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	None	None	F, 1
Closure Bolting	LBS	Stainless Steel	Borated Water Leakage (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	IV.C2-8	3.1.1.52	B
Closure Bolting	LBS, SIA	Stainless Steel	Plant Indoor Air (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	None	None	G, 1
Filter	LBS	Stainless Steel	Borated Water Leakage (Ext)	None	None	V.F-13	3.2.1.57	A
Filter	LBS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2)	V.A-27	3.2.1.49	A

Section 3.3  
AGING MANAGEMENT OF AUXILIARY SYSTEMS

Table 3.3.2-30 Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope  
ONLY based on 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
Heat Exchanger (AS Condensate Vent Condenser)	LBS	Carbon Steel	Closed-Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VIII.A-1	3.4.1.24	B
Heat Exchanger (AS Condensate Vent Condenser)	LBS	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 (AS Condensate Vent Condenser)	LBS	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-37	3.4.1.03	A
Heat Exchanger (Sample Cooler)	LBS	Carbon Steel	Closed-Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VIII.A-1	3.4.1.24	B
Heat Exchanger (Sample Cooler)	LBS	Carbon Steel	Closed-Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VIII.F-4	3.4.1.24	B
Heat Exchanger (Sample Cooler)	LBS	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 (Sample Cooler)	LBS	Stainless Steel	Closed-Cycle Cooling Water (Ext)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VIII.F-1	3.4.1.25	B

Section 3.3  
AGING MANAGEMENT OF AUXILIARY SYSTEMS

Table 3.3.2-30 Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope  
ONLY based on 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
Heat Exchanger (Sample Cooler)	LBS	Stainless Steel	Secondary Water (Int)	Cracking	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.F-3	3.4.1.14	A
Heat Exchanger (Sample Cooler)	LBS	Stainless Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.F-27	3.4.1.16	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	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 2
Orifice	LBS	Stainless Steel	Plant Indoor Air (Ext)	None	None	VIII.I-10	3.4.1.41	A
Orifice	LBS	Stainless Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-4	3.4.1.16	A
Orifice	LBS	Stainless Steel	Secondary Water (Int)	Cracking	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-5	3.4.1.14	A
Piping	LBS, 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	LBS, 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

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

**Table 3.3.2-30**      *Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope*  
*ONLY based on 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	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
Piping	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
Piping	SIA	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
Piping	LBS, SIA	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2)	VIII.B1-8	3.4.1.37	A
Piping	LBS, SIA	Carbon Steel	Secondary Water (Int)	Wall thinning	Flow-Accelerated Corrosion (B2.1.6)	VIII.B1-9	3.4.1.29	B
Piping	LBS	Carbon Steel	Secondary 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	Carbon Steel	Wetted Gas (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VIII.B1-7	3.4.1.30	B
Piping	LBS	Carbon Steel with Elastomer Lining	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 with Elastomer Lining	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

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

**Table 3.3.2-30**      *Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope*  
*ONLY based on 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	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Piping	LBS	Copper Alloy	Potable Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	None	None	G
Piping	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
Piping	LBS	Stainless Steel	Borated Water Leakage (Ext)	None	None	V.F-13	3.2.1.57	A
Piping	LBS, SIA	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One Time Inspection (B2.1.16)	VIII.E-29	3.4.1.16	A
Piping	LBS, SIA	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Piping	LBS, SIA	Stainless Steel	Plant Indoor Air (Ext)	None	None	VIII.I-10	3.4.1.41	A
Piping	LBS	Stainless Steel	Raw Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-15	3.3.1.79	E, 2
Piping	LBS	Stainless Steel	Raw Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-15	3.3.1.79	E, 2
Piping	SIA	Stainless Steel	Raw Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-15	3.3.1.79	E, 2



**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

**Table 3.3.2-30**      *Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope*  
*ONLY based on Criterion 10 CFR 54.4(a)(2) (Continued)*

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Vol. 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Piping	LBS	Stainless Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-4	3.4.1.16	A
Piping	LBS	Stainless Steel	Secondary Water (Int)	Cracking	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.B1-5	3.4.1.14	A
Piping	LBS, SIA	Stainless Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.F-23	3.4.1.16	A
Piping	LBS, SIA	Stainless Steel	Secondary Water (Int)	Cracking	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.F-24	3.4.1.14	A
Piping	LBS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2)	V.A-27	3.2.1.49	A
Pump	LBS	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Pump	LBS	Cast Iron (Gray Cast Iron)	Secondary Water (Int)	Wall thinning	Flow-Accelerated Corrosion (B2.1.6)	VIII.B1-9	3.4.1.29	B
Pump	LBS	Cast Iron (Gray Cast Iron)	Secondary 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 (Gray Cast Iron)	Secondary Water (Int)	Loss of material	Selective Leaching of Materials (B2.1.17)	VIII.E-23	3.4.1.36	B
Sight Gauge	LBS	Cast Iron	Borated Water Leakage (Ext)	Loss of material	Boric Acid Corrosion (B2.1.4)	V.E-9	3.2.1.45	A
Sight Gauge	LBS	Glass	Borated Water Leakage (Ext)	None	None	None	None	G
Sight Gauge	LBS, SIA	Glass	Plant Indoor Air (Ext)	None	None	VII.J-8	3.3.1.93	A

Section 3.3  
AGING MANAGEMENT OF AUXILIARY SYSTEMS

Table 3.3.2-30 Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope  
ONLY based on 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
Sight Gauge	LBS	Glass	Plant Indoor Air (Ext)	None	None	VIII.I-5	3.4.1.40	A
Sight Gauge	LBS, SIA	Glass	Raw Water (Int)	None	None	VII.J-11	3.3.1.93	A
Sight Gauge	LBS	Glass	Secondary Water (Int)	None	None	VIII.I-8	3.4.1.40	A
Sight Gauge	LBS	Glass	Treated Borated Water (Int)	None	None	V.F-9	3.2.1.52	A
Sight Gauge	LBS	Stainless Steel	Borated Water Leakage (Ext)	None	None	V.F-13	3.2.1.57	A
Sight Gauge	LBS, SIA	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Sight Gauge	LBS, SIA	Stainless Steel	Raw Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-15	3.3.1.79	E, 2
Sight Gauge	LBS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2)	V.A-27	3.2.1.49	A
Strainer	LBS, 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
Strainer	LBS, SIA	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
Strainer	LBS	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Strainer	LBS	Cast Iron (Gray Cast Iron)	Secondary Water (Int)	Wall thinning	Flow-Accelerated Corrosion (B2.1.6)	VIII.B1-9	3.4.1.29	B

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

**Table 3.3.2-30**      *Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope*  
*ONLY based on Criterion 10 CFR 54.4(a)(2) (Continued)*

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Vol. 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Strainer	LBS	Cast Iron (Gray Cast Iron)	Secondary 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
Strainer	LBS	Cast Iron (Gray Cast Iron)	Secondary Water (Int)	Loss of material	Selective Leaching of Materials (B2.1.17)	VIII.E-23	3.4.1.36	B
Tank	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Tank	LBS	Carbon Steel	Secondary 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
Tubing	LBS	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Tubing	LBS	Carbon Steel	Secondary 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
Tubing	LBS	Stainless Steel	Borated Water Leakage (Ext)	None	None	V.F-13	3.2.1.57	A
Tubing	LBS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2)	V.A-27	3.2.1.49	A
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 (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	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

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

**Table 3.3.2-30**      *Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope*  
*ONLY based on 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
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	Carbon Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2)	VIII.B1-8	3.4.1.37	A
Valve	LBS	Carbon Steel	Secondary Water (Int)	Wall thinning	Flow-Accelerated Corrosion (B2.1.6)	VIII.B1-9	3.4.1.29	B
Valve	LBS	Carbon Steel	Secondary 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	Wetted Gas (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VIII.B1-7	3.4.1.30	B
Valve	LBS	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VIII.H-7	3.4.1.28	B
Valve	LBS	Cast Iron (Gray Cast Iron)	Secondary Water (Int)	Wall thinning	Flow-Accelerated Corrosion (B2.1.6)	VIII.B1-9	3.4.1.29	B
Valve	LBS	Cast Iron (Gray Cast Iron)	Secondary 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 (Gray Cast Iron)	Secondary Water (Int)	Loss of material	Selective Leaching of Materials (B2.1.17)	VIII.E-23	3.4.1.36	B
Valve	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

**Table 3.3.2-30**      *Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope*  
*ONLY based on 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
Valve	LBS	Copper Alloy	Potable Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	None	None	G
Valve	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	A
Valve	LBS	Copper Alloy (Zinc >15%)	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Valve	LBS	Copper Alloy (Zinc >15%)	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
Valve	LBS	Copper Alloy (Zinc >15%)	Secondary Water (Int)	Loss of material	Selective Leaching of Materials (B2.1.17)	VIII.E-21	3.4.1.35	B
Valve	LBS	Stainless Steel	Borated Water Leakage (Ext)	None	None	V.F-13	3.2.1.57	A
Valve	LBS, SIA	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-29	3.4.1.16	A
Valve	LBS, SIA	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Valve	LBS	Stainless Steel	Plant Indoor Air (Ext)	None	None	VIII.I-10	3.4.1.41	A
Valve	LBS	Stainless Steel	Raw Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-15	3.3.1.79	E, 2
Valve	LBS	Stainless Steel	Raw Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-15	3.3.1.79	E, 2

**Section 3.3**  
**AGING MANAGEMENT OF AUXILIARY SYSTEMS**

**Table 3.3.2-30**      *Auxiliary Systems – Summary of Aging Management Evaluation - Miscellaneous Auxiliary Systems In-Scope*  
*ONLY based on Criterion 10 CFR 54.4(a)(2) (Continued)*

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Vol. 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Valve	SIA	Stainless Steel	Raw Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-15	3.3.1.79	E, 2
Valve	LBS	Stainless Steel	Secondary Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.F-23	3.4.1.16	A
Valve	LBS	Stainless Steel	Secondary Water (Int)	Cracking	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.F-24	3.4.1.14	A
Valve	LBS	Stainless Steel	Treated Borated Water (Int)	Loss of material	Water Chemistry (B2.1.2)	V.A-27	3.2.1.49	A

Notes for Table 3.3.2-30:

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

Plant Specific Notes:

- 1 Loss of Preload is considered to be applicable for all closure bolting.
- 2 Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program (B2.1.22) is credited instead of Open-Cycle Cooling Water System program (B2.1.9) for aging management of the components of solid radwaste system, sanitary drains and treatment, and chemical waste, ~~oily waste~~ systems.

Section 3.3  
AGING MANAGEMENT OF AUXILIARY SYSTEMS

Table 3.3.2-31 Oily Waste and Non-Radioactive Waste 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	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, PB	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	F, 1
Closure Bolting	LBS	Stainless Steel	Plant Indoor Air (Ext)	Loss of preload	Bolting Integrity (B2.1.7)	None	None	G, 1
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	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	VII.C1-19	3.3.1.76	E, 2
Piping	LBS, 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	Carbon Steel	Potable Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	None	None	G
Piping	LBS, PB	Carbon Steel	Raw Water (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.C1-19	3.3.1.76	E, 3



Section 3.3  
AGING MANAGEMENT OF AUXILIARY SYSTEMS

Table 3.3.2-31 Oily Waste and Non-Radioactive Waste 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	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
Piping	LBS	Carbon Steel with Elastomer Lining	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 with Elastomer Lining	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	LBS	Cast Iron	Encased in Concrete (Ext)	None	None	VII.J-21	3.3.1.96	A
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, 2
Piping	LBS	Copper Alloy	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
Piping	LBS	Copper Alloy	Potable Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	None	None	G
Piping	LBS	Polyvinyl Chloride (PVC)	Plant Indoor Air (Ext)	None	None	None	None	F,4

Section 3.3  
AGING MANAGEMENT OF AUXILIARY SYSTEMS

Table 3.3.2-31 Oily Waste and Non-Radioactive Waste 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	Polyvinyl Chloride (PVC)	Raw Water (Int)	None	None	None	None	F.5
Piping	LBS, SIA	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-29	3.4.1.16	A
Piping	LBS, SIA	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A
Strainer	LBS, 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
Strainer	LBS, SIA	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, 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	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	Potable Water (Int)	Loss of material	Inspection Of Internal Surfaces In Miscellaneous Piping And Ducting Components (B2.1.22)	None	None	G
Valve	LBS, SIA	Stainless Steel	Demineralized Water (Int)	Loss of material	Water Chemistry (B2.1.2) and One-Time Inspection (B2.1.16)	VIII.E-29	3.4.1.16	A

Section 3.3  
AGING MANAGEMENT OF AUXILIARY SYSTEMS

Table 3.3.2-31 Oily Waste and Non-Radioactive Waste 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, SIA	Stainless Steel	Plant Indoor Air (Ext)	None	None	VII.J-15	3.3.1.94	A

Notes for Table 3.3.2-31:

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

Plant Specific Notes:

- 1 Loss of Preload is considered to be applicable for all closure bolting.
- 2 Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program (B2.1.22) is credited instead of Open-Cycle Cooling Water System program (B2.1.9) for aging management of the components of oily waste systems.
- 3 External Surfaces Monitoring program (B2.1.20) is credited instead of Open-Cycle Cooling Water System program (B2.1.9) for aging management of the components of the oily waste systems.
- 4 PVC in an indoor air environment is relatively unaffected by water, concentrated alkalis, and non-oxidizing acids, oils, and ozone.
- 5 PVC in a raw water environment is relatively unaffected by water, concentrated alkalis, and non-oxidizing acids, oils, and ozone.