ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Tuesday, May 28, 2013 10:46 AM
To: Snyder, Amy
Cc: Buckberg, Perry; ANDERSON Katherine (EXTERNAL AREVA); DELANO Karen (AREVA); HONMA George (EXTERNAL AREVA); LEIGHLITER John (AREVA); LEWIS Ray (EXTERNAL AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); SHEPHERD Tracey (AREVA); VANCE Brian (AREVA); LENTZ Tony (EXTERNAL AREVA); CRIBB Arnie (EXTERNAL AREVA); BALLARD Bob (AREVA); GUCWA Len (EXTERNAL AREVA)
Subject: Advanced Response to U.S. EPR Design Certification Application RAI No. 557 (6690), FSAR Ch. 14, New Phase 4 RAI, Question 14.03.07-39
Attachments: Advanced Response to RAI 557 Question 14.03.07-39 US EPR DC.pdf

Amy,

Attached is an Advanced Response for RAI 557, Question 14.03.07-39 in advance of the June 28, 2013 final date.

To keep our commitment to send a final response to this question by the commitment date, we need to receive all NRC staff feedback and comments no later than **June 21, 2013**.

Please let me know if NRC staff has any questions or if the response to this question can be sent as final.

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Friday, May 17, 2013 6:59 PM
To: Amy.Snyder@nrc.gov
Cc: Buckberg, Perry <Perry.Buckberg@nrc.gov> (Perry.Buckberg@nrc.gov); ANDERSON Katherine (External AREVA NP INC.); DELANO Karen (RS/NB); HONMA George (EXT); LEIGHLITER John (RS/NB); LEWIS Ray (External RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); SHEPHERD Tracey (RS/NB); VANCE Brian (RS/NB); GUCWA Len (External RS/NB); CRIBB Arnie (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 557 (6690), FSAR Ch. 14, New Phase 4 RAI, Question 14.03.07-39 - STATUS

Amy,

AREVA provided a schedule for an Advanced Response to RAI 557, Question 14.03.07-39 in letter NRC:13:012 (dated April 12, 2013) of May 2, 2013 with a final response date of June 28, 2013. A revised schedule for the Advanced Response to this question of May 17, 2013 was provided in the e-mail below on May 2, 2013.

A revised schedule for the Advanced Response to this RAI 557 question is provided below:

Question #	Advanced Response Date
RAI 557 — 14.03.07-39	**May 28, 2013**

The final response date for this question remains unchanged.

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
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From: WILLIFORD Dennis (RS/NB)
Sent: Thursday, May 02, 2013 5:32 PM
To: Amy.Snyder@nrc.gov
Cc: LENTZ Tony (External RS/NB); CRIBB Arnie (EXT); Buckberg, Perry <Perry.Buckberg@nrc.gov> (Perry.Buckberg@nrc.gov); ANDERSON Katherine (External AREVA NP INC.); DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); VANCE Brian (RS/NB); GUCWA Len (External RS/NB)
Subject: RE: Response to U.S. EPR Design Certification Application RAI No. 557 (6690), FSAR Ch. 14, New Phase 4 RAI - STATUS

Amy,

AREVA provided a schedule for an Advanced Response to RAI 557, Question 14.03.07-39 in letter NRC:13:012 (dated April 12, 2013) of May 2, 2013 with a final response date of June 28, 2013.
A revised schedule for the Advanced Response to this RAI 557 question is provided below:

Question #	Advanced Response Date
RAI 557 — 14.03.07-39	**May 17, 2013**

The final response date for this question remains unchanged.

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
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Phone: 704-805-2223
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From: WILLIFORD Dennis (RS/NB)
Sent: Friday, October 12, 2012 2:29 PM
To: Amy.Snyder@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); LENTZ Tony (External RS/NB); tanya.ford@nrc.gov
Subject: Response to U.S. EPR Design Certification Application RAI No. 557 (6690), FSAR Ch. 14, New Phase 4 RAI

Amy,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 557 Response US EPR DC.pdf," provides a schedule since a technically correct and complete responses to the single question cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 557 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 557 — 14.03.07-39	2	3

The schedule for a technically correct and complete response to this question is provided below.

Question #	Response Date
RAI 557 — 14.03.07-39	**June 28, 2013**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Friday, September 14, 2012 1:58 PM
To: ZZ-DL-A-USEPR-DL
Cc: Dehmel, Jean-Claude; McCoppin, Michael; Jaffe, David; Segala, John; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 557 (6690), FSAR Ch. 14, New Phase 4 RAI

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on August 23, 2012, and on September 6, 2012, you informed us that the RAI is clear and no further clarification is needed. The RAI has been reorganized and revised for clarity. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

Thanks,

Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/LB1
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 4502

Mail Envelope Properties (554210743EFE354B8D5741BEB695E65617823D)

Subject: Advanced Response to U.S. EPR Design Certification Application RAI No. 557 (6690), FSAR Ch. 14, New Phase 4 RAI, Question 14.03.07-39
Sent Date: 5/28/2013 10:45:31 AM
Received Date: 5/28/2013 10:45:50 AM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

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"Snyder, Amy" <Amy.Snyder@nrc.gov>
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Post Office: FUSLYNCMX03.fdom.ad.corp

Files	**Size**	**Date & Time**	
MESSAGE	6167	5/28/2013 10:45:50 AM	
Advanced Response to RAI 557 Question 14.03.07-39 US EPR DC.pdf			187508

Options
Priority: Standard
Return Notification: No

Reply Requested: No
Sensitivity: Normal
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Recipients Received:

Advanced Response to

Request for Additional Information 557 (6690), Question 14.03.07-39
Issue Date: 9/14/2012
Application Title: U. S. EPR Standard Design Certification - Docket Number 52-020
AREVA NP Inc.

Review Section: 14.03.07 - Plant Systems - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: 14.3

Question 14.03.07-39:

OPEN ITEM

New Phase 4 RAI

In FSAR Tier 2, Rev. 3, Table 1.9-2, the applicant has endorsed the use of Regulatory Guide (RG) 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants," Rev. 2, with no exceptions (heretofore simply referred as RG 1.143). FSAR Table 1.9-2 states that the guidance of RG 1.143 applies to structures, systems, and components (SSCs) described in FSAR Tier 2, Rev. 3, Sections 3.2.1, 3.7.2, 3.10, 10.4.8, 11.2, 11.3, and 11.4.

RG 1.143 lists applicable codes and standards that are acceptable to the NRC. The codes and standards address specifications on design and construction, materials, welding, and inspection and testing. The regulatory guide identifies natural and man-induced hazards, design loads, and design criteria and associated safety classifications. The safety classifications are RW-IIa (high hazard), RW-IIb (hazardous), and RW-IIc (non-safety), with radiological criteria assigned to each one. The evaluation process of SSCs is described in Regulatory Position C.5, which focuses on acceptable radiological criteria, while Regulatory Position C.6 addresses natural phenomena and man-induced events and combination of design loads and their applicability to the safety classification system.

As part of the review of the FSAR Tier 2, Rev. 3, Sections 3.2.1, 3.7.2, 3.10, 10.4.8, 11.2, 11.3, and 11.4, the staff (Health physics and Structural) has identified a number of inconsistencies that warrant clarification to ensure that RG 1.143 guidance is properly applied in FSAR Tier 1 and 2 and provide the necessary technical basis to support the related FSAR Tier 1 ITAAC commitments. The staff has issued a separate RAI on FSAR Tier 2 on the related SSCs.

The applicant is requested to review the following items a through g, below, and confirm and revise all appropriate Tier 1, sections, tables, and figures, accordingly. The applicant is requested to review and confirm the adequacy of ITAAC for Structure, Systems, and Component (SSCs) in FSAR Tier 2, Rev. 3, Sections 3.2.1, 3.7.2, 3.10, 10.4.8, 11.2, 11.3, and 11.4 given the commitment to apply the guidance of RG 1.143 (see Tables 2, 3, and 4) for natural phenomena and man-induced hazards, which include an earthquake, wind, tornado, tornado generated missiles, flood, precipitation, accidental explosions from a fixed facility and a transportation vehicle, vehicular assault, and crash of a small aircraft. While this RAI is issued on FSAR Tier 1, Rev. 3, Section 2, it should be noted that its applicability extends to other SSCs (as noted below in Part g). The staff deems it more effective to issue a single RAI in avoiding unnecessary duplication and facilitate an integrated review and resolution of the staff's concerns across all relevant FSAR sections since RG 1.143 applies to the LWMS, GWMS, SWMS, and SG Blowdown systems with associated system descriptions given in FSAR Tier 2, Sections 10.4.8 and 11.2 to 11.4.

The applicant is requested to review and confirm the adequacy of ITAAC for the SSCs in FSAR Tier 2, Rev. 3, Sections 3.2.1, 3.7.2, 3.10, 10.4.8, 11.2, 11.3, and 11.4 SSCs given the commitment to apply the guidance of RG 1.143 for natural phenomena and man-induced hazards, as noted above:

a. FSAR Tier 1, Rev. 3, Section 2.1.4 ITAAC assigns RG 1.143, RW-IIa classification to the key design features of the RWB. The design commits to ½ SSE, with deviations evaluated if found during construction. Explain why there are no ITAAC commitments identified for the other natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.

b. A review of FSAR Tier 1, Rev. 3, Section 2.8.8 indicates that there are no ITAAC assigned to the SG blowdown treatment systems. FSAR Tier 1, Rev. 3, Section 2.8.7 describes specific commitments for the SG blowdown system, but no references are made to RG 1.143. Confirm that system components have been designed and built in compliance with these FSAR Tier 2 commitments as RW-IIc under RG 1.143 for natural phenomena and design loads stipulated in RG 1.143, Tables 2, 3, and 4.

c. A review of FSAR Tier 1, Rev. 3, Section 2.1.3 describes specific commitments for the NAB, but no references are made to RG 1.143 given that NAB is assigned dual classification, Category II and Radwaste Seismic (RS). Confirm that the NAB is designed and built in compliance with these FSAR Tier 2 commitments under RG 1.143 for natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.

d. A review of FSAR Tier 1, Rev. 3, Section 2.9.1 describes specific commitments for the LWMS, but no references are made to RG 1.143, given a RW-IIa classification. Confirm that the LWMS is designed and built in compliance with these FSAR Tier 2 commitments under RG 1.143 for natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.

e. A review of FSAR Tier 1, Rev. 3, Section 2.9.2 describes specific commitments for the SWMS, but no references are made to RG 1.143, given a RW-IIa classification. Confirm that the SWMS is designed and built in compliance with these FSAR Tier 2 commitments under RG 1.143 for natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.

f. A review of FSAR Tier 1, Rev. 3, Section 2.9.3 describes specific commitments for the GWMS, but no references are made to RG 1.143, given a RW-IIa and RW-IIc classification for portions of the CVCS tanks piping to the GWMS. Confirm that the GWMS (and interface to another system) are designed and built in compliance with these FSAR Tier 2 commitments under RG 1.143 for natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.

g. Provide the results of a review of all ITAAC for SSC for which the design references a commitment to RG 1.143 to assure a consistent approach to demonstrate compliance with 10 CFR Part 20 and 10 CFR Part 50, Appendix A, General Design Criteria 60 and 61.

Response to Question 14.03.07-39:

AREVA has reviewed the inspections, tests, analyses, and acceptance criteria (ITAAC) for the structures, systems and components (SSCs) in U.S. EPR FSAR Tier 2, Sections 3.2.1, 3.7.2,

3.10, 10.4.8, 11.2, 11.3, and 11.4 with respect to the guidance of Regulatory Guide 1.143 for natural phenomena and man-induced hazards. The following changes will be made to Tier 1 sections of the U.S. EPR FSAR:

Item a:

U.S. EPR FSAR Tier 1, Section 2.1.4 will be revised to include commitments for the Radioactive Waste Processing Building regarding other natural phenomena and man-induced hazards and design loads stipulated in Regulatory Guide 1.143, Tables 2, 3, and 4.

Item b:

U.S. EPR FSAR Tier 1, Section 2.8.7 will be revised to include commitments for the steam generator blowdown system regarding other natural phenomena and man-induced hazards and design loads stipulated in Regulatory Guide 1.143, Tables 2, 3, and 4.

Item c:

U.S. EPR FSAR Tier 1, Section 2.1.3 will be revised to include commitments for the Nuclear Auxiliary Building regarding other natural phenomena and man-induced hazards and design loads stipulated in Regulatory Guide 1.143, Tables 2, 3, and 4.

Item d:

U.S. EPR FSAR Tier 1, Section 2.9.1 will be revised to include commitments for the liquid waste management system regarding other natural phenomena and man-induced hazards and design loads stipulated in Regulatory Guide 1.143, Tables 2, 3, and 4.

Item e:

U.S. EPR FSAR Tier 1, Section 2.9.2 will be revised to include commitments for the solid waste management system regarding other natural phenomena and man-induced hazards and design loads stipulated in Regulatory Guide 1.143, Tables 2, 3, and 4.

Item f:

U.S. EPR FSAR Tier 1, Section 2.9.3 will be revised to include commitments for the gaseous waste management system regarding other natural phenomena and man-induced hazards and design loads stipulated in Regulatory Guide 1.143, Tables 2, 3, and 4.

Item g:

As stated in the Response to RAI 554, Question 11.02-27, AREVA reviewed the U.S. EPR FSAR for references made to Regulatory Guide 1.143. This review was performed to confirm that compliance with 10 CFR Part 20 and 10 CFR Part 50, Appendix A, General Design Criteria 60 and 61 is demonstrated throughout the U.S. EPR FSAR. Accordingly, the resulting changes were reviewed for impact on U.S. EPR FSAR Tier 1 ITAAC. Items a through f of this response provide the results of this review.

FSAR IMPACT

U. S. EPR FSAR Tier 1, Sections 2.1.3, 2.1.4, 2.8.7, 2.9.1, 2.9.2, and 2.9.3 will be revised as described in the response and indicated on the enclosed markups.

U.S. EPR Final Safety Analysis Report Markups

2.1.3 Nuclear Auxiliary Building

Design Description

1.0 System Description

The Nuclear Auxiliary Building (NAB) is a reinforced-concrete structure that houses non-safety related auxiliary systems required for normal power operation. There are no structures, systems, or components (SSC) required for safe shutdown located in the NAB. The NAB is located adjacent to the Fuel Building (FB), Safeguard Building (SB) Division 4, and Radioactive Processing Waste Building (RWB), as shown on Figure 2.1.3-1.

2.0 Arrangement

2.1 The basic configuration of the NAB is as shown on Figure 2.1.3–1—Nuclear Auxiliary Building Location.

3.0 Mechanical Design Features

3.1 The NAB is a Seismic Category II and RW-IIa structure and will withstand design basis loads listed in Regulatory Guide 1.143 without loss of structural integrity. ~~safe shutdown earthquake (SSE) and tornado wind loadings without failure onto the adjacent FB or SB Division 4.~~

3.2 Separation is provided between the NAB and the NI common basemat structures as shown on Figure 2.1.3-1 to preclude interaction between the NAB and NI common basemat structures.

Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.1.3-1 lists the NAB ITAAC.

Table 2.1.3-1—Nuclear Auxiliary Building ITAAC

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	The basic configuration of the NAB is as shown on Figure 2.1.3–1.	An inspection of the basic configuration of the as-built NAB will be performed.	The basic configuration of the NAB is as shown on Figure 2.1.3-1.
3.1	The NAB is a Seismic Category II and RW-IIa structure and will withstand design basis loads listed in Regulatory Guide 1.143 without loss of structural integrity. ~~SSE and tornado wind loadings without failure onto the adjacent FB or SB Division 4.~~	An inspection and analysis will be performed to verify the as-built NAB structure will withstand design basis loads.~~SSE and tornado wind loadings without failure onto the adjacent FB or SB Division 4.~~	A report concludes that the NAB structure will withstand design basis loads listed in Regulatory Guide 1.143 without loss of structural integrity.~~SSE and tornado wind loadings without failure onto the adjacent FB or SB Division 4.~~
3.2	Separation is provided between the NAB and the NI common basemat structures as shown on Figure 2.1.3-1 to preclude interaction between the NAB and NI common basemat structures.	An inspection will be performed to verify the as-built physical separation distance between the NAB and the NI common basemat structures.	The NAB is separated from the NI common basemat structures as shown on Figure 2.1.3-1. A minimum separation distance of at least 30~~18~~ inches exists between the NAB and NI common basemat structures.

2.1.4 Radioactive Waste Processing Building

Design Description

1.0 System Description

The Radioactive Waste Processing Building (RWB) is a reinforced concrete structure that houses non-safety related liquid waste storage tanks, storage facilities, and associated support systems required for normal power operation. There are no SSC required for safe shutdown in the RWB. The RWB is located adjacent to the Nuclear Auxiliary Building (NAB) as shown on Figure 2.1.4-1. Information in tables and figures in this section are for information only with the exception of the specific features listed in the ITAAC for verification.

2.0 Arrangement

2.1 The basic configuration of the RWB is shown on Figure 2.1.4-1—Radioactive Waste Processing Building Location.

3.0 Mechanical Design Features

3.1 Separation is provided between the RWB and EPGB 3/4 as shown on Figure 2.1.4-1 to preclude interaction between the RWB and EPGB 3/4.

3.2 The RWB is a ~~Radwaste Seismic (~~RW-IIa~~)~~ structure and will withstand ~~a seismic~~ design basis loads listed in Regulatory Guide 1.143 ~~of ½ SSE~~ without loss of structural integrity.

Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.1.4-1 lists the RWB ITAAC.

Table 2.1.4-1—Radioactive Waste Processing Building ITAAC

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
2.1	The basic configuration of the RWB is shown on Figure 2.1.4-1.	An inspection of the basic configuration of the as-built RWB will be performed.	The basic configuration of the RWB is as shown on Figure 2.1.4-1.
3.1	Separation is provided between the RWB and EPGB 3/4 as shown on Figure 2.1.4-1 to preclude interaction between the RWB and EPGB 3/4.	An inspection will be performed to verify the as-built physical separation between the RWB and EPGB 3/4.	The RWB is separated from EPGB 3/4 as shown on Figure 2.1.4-1. A minimum separation distance of 53~~49.5~~ ft exists between the RWB and EPGB 3/4.
3.2	The RWB is a RW-IIa structure and will withstand ~~a seismic~~ design basis loads listed in Regulatory Guide 1.143 ~~of ½ SSE~~ without loss of structural integrity.	An inspection and analysis will be performed to verify the as-built RWB will withstand ~~the~~ design basis loads ~~of ½ SSE~~ without loss of structural integrity.	A report concludes that the RWB will withstand the design basis loads listed in Regulatory Guide 1.143 ~~of ½ SSE~~ without loss of structural integrity.

2.8.7 Steam Generator Blowdown System

Design Description

1.0 System Description

The steam generator blowdown system (SGBS) is a non-safety-related system with safety-related portions. It assists in maintaining the chemical characteristics of the secondary water within permissible limits. The SGBS is safety related from its connections to the steam generators to the outer containment isolation valves. The remaining portion of the blowdown system downstream of the outer containment isolation valves is non-safety-related.

The SGBS provides the following safety-related functions:

- Containment isolation.
- SG blowdown isolation (emergency feedwater (EFW) actuation signal, or high main steam activity signal with a partial cooldown signal, or high SG level signal with a partial cooldown signal).

The SGBS provides the following non-safety-related functions:

- SG blowdown isolation (high SGBS blowdown activity signal with a partial cooldown, or high blowdown temperature downstream of the blowdown coolers).

2.0 Arrangement

2.1 The functional arrangement of the SGBS is as described in the Design Description of Section 2.8.7, Tables 2.8.7-1— SGBS Equipment Mechanical Design and 2.8.7-2— SGBS Equipment I&C and Electrical Design, and as shown on Figure 2.8.7-1—SGBS Functional Arrangement.

2.2 Deleted.

3.0 Mechanical Design Features

3.1 Valves listed in Table 2.8.7-1 will be functionally designed and qualified such that each valve is capable of performing its intended function ~~for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable)~~ under the full range of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design basis accident conditions.

3.2 Equipment identified as RW-IIc in Table 2.8.7-1 can withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.~~Deleted.~~

3.3 Equipment identified as Seismic Category I in Table 2.8.7-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.8.7-1.

Table 2.8.7-1—SGBS Equipment Mechanical Design
Sheet 3 of 3

Description	Tag Number(1)	Location	ASME Code Section III	Function	Seismic Category
Check Valve	30LCQ52AA003	Safeguard Building 2	no	N/A	RW-IIc
Bypass Valve	30LCQ52AA013	Safeguard Building 2	no	N/A	RW-IIc
Control Valve	30LCQ52AA104	Safeguard Building 2	no	N/A	RW-IIc

1. Equipment tag numbers are provided for information only and are not part of the certified design.

Table 2.8.7-3—Steam Generator Blowdown System ITAAC
Sheet 1 of 6

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	The functional arrangement of the SGBS is as described in the Design Description of Section 2.8.7, Tables 2.8.7-1 and 2.8.7-2, and as shown on Figure 2.8.7-1.	An inspection of the as-built SGBS functional arrangement will be performed.	The SGBS conforms to the functional arrangement as described in the Design Description of Section 2.8.7, Tables 2.8.7-1 and 2.8.7-2, and as shown on Figure 2.8.7-1.
2.2	Deleted.	Deleted.	Deleted.
3.1	Valves listed in Table 2.8.7-1 will be functionally designed and qualified such that each valve is capable of performing its intended function ~~for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable)~~ under the full range of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design basis accident conditions.	Tests or type tests of valves will be performed to demonstrate that the ~~pumps and~~ valves function under the full range of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design basis accident conditions.	A report concludes that the valves listed in Table 2.8.7-1 are capable of performing their intended function ~~for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable)~~ under the full range of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design basis accident conditions.
3.2	Equipment identified as RW-IIc in Table 2.8.7-1 can withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.~~Deleted.~~	An inspection and analysis will be performed to verify the as-built equipment identified as RW-IIc in Table 2.8.7-1 will withstand design basis loads.~~Deleted.~~	A report concludes that the identified as RW-IIc in Table 2.8.7-1 will withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.~~Deleted.~~

2.9 Radioactive Waste Management

2.9.1 Liquid Waste Management System

Design Description

1.0 System Description

The liquid waste management system (LWMS) collects and treats radioactive liquid effluents from several systems throughout the plant. If the total activity indicated by activity sensors exceeds predetermined limits, the LWMS discharge valves automatically close.

2.0 Arrangement

2.1 The functional arrangement of the LWMS is as described in the Design Description of Section 2.9.1, Tables 2.9.1-1—LWMS Equipment Mechanical Design and 2.9.1-2—LWMS Equipment I&C and Electrical Design.

3.0 I&C Design Features, Displays, and Controls

3.1 Displays listed in Table 2.9.1-2 are indicated on the PICS operator workstations in the MCR.

3.2 Controls on the PICS operator workstations in the MCR perform the function listed in Table 2.9.1-2.

4.0 Equipment and System Performance

4.1 The LWMS processing equipment contains the proper types and amounts of filter media or treatment media.

4.2 The LWMS discharge valves close upon receipt of a high radiation signal from the activity monitors.

4.3 Equipment identified as RW-IIa in Table 2.9.1-1 can withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.

Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.9.1-3 lists the liquid waste management system ITAAC.

Table 2.9.1-1—LWMS Equipment Mechanical Design

Description	Tag Number(1)	Location	~~ASME Code Section III~~	~~Function~~	Seismic Category~~I~~
Discharge valves	30KPK29AA001 30KPK29AA002	Radioactive Waste Processing Building	~~No~~	~~Close~~	RW-IIa~~No~~
Radiation monitors	30KPK29CR001 30KPK29CR002	Radioactive Waste Processing Building	~~No~~	~~Measure activity levels~~	RW-IIa~~No~~
Monitoring Tanks	30KPK21/22 BB001	Radioactive Waste Processing Building			RW-IIa
Recirculation and Discharge Pumps	30KPK26/27 AP001	Radioactive Waste Processing Building			RW-IIa
Chemical Tank Agitators	30KPK41/42/43/44 AM001	Radioactive Waste Processing Building			RW-IIa
Concentrate Tank Agitators	30KPK31/32/33 AM001	Radioactive Waste Processing Building			RW-IIa
Decanter with Agitator	30KPF5 AT001	Radioactive Waste Processing Building			RW-IIa
Filling Station (Centrifuge Plant) Evaporator	30KPF11 AC002	Radioactive Waste Processing Building			RW-IIa
Evaporator Column	30KPF11 AT001	Radioactive Waste Processing Building			RW-IIa
Separator (Centrifuge Plant)	30KPF52 AT001	Radioactive Waste Processing Building			RW-IIa
Sludge Tank Agitator	30KPF53 AM001	Radioactive Waste Processing Building			RW-IIa
Storage Tank Agitators	30KPK11/12/13/14/15 AM001	Radioactive Waste Processing Building			RW-IIa
Vapor Compressor	30KPF11 AN001	Radioactive Waste Processing Building			RW-IIa

Table 2.9.1-3—Liquid Waste Management System ITAAC

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	The functional arrangement of the LWMS is as described in the Design Description of Section 2.9.1, Tables 2.9.1-1 and 2.9.1-2.	An inspection of the as-built LWMS functional arrangement will be performed.	The LWMS conforms to the functional arrangement as described in the Design Description of Section 2.9.1, Tables 2.9.1-1 and 2.9.1-2.
3.1	Displays listed in Table 2.9.1-2 are indicated on the PICS operator workstations in the MCR and the RSS.	Tests will be performed to verify that the displays listed in Table 2.9.1-2 are indicated on the PICS operator workstations in the MCR by using test input signals to PICS.	Displays listed in Table 2.9.1-2 are indicated on the PICS operator workstations in the MCR.
3.2	Controls on the PICS operator workstations in the MCR perform the function listed in the MCR as listed in Table 2.9.1-2.	Tests will be performed using controls on the PICS operator workstations in the MCR.	Controls on the PICS operator workstations in the MCR perform the function listed in Table 2.9.1-2.
4.1	The LWMS processing equipment contains the proper types and amounts of filter media or treatment media.	An inspection and analysis will be performed to verify the as-built LWMS processing equipment contains filter/ treatment media capable of maintaining offsite doses to members of the public within 10 CFR 20 limits and effluent concentrations below the annual average concentration limits of 10 CFR 20.	A report concludes that the LWMS processing equipment contains filter/treatment media capable of maintaining offsite doses to members of the public within 10 CFR 20 limits and effluent concentrations below the annual average concentration limits of 10 CFR 20.
4.2	The LWMS discharge valves close upon receipt of a high-radiation signal from the activity monitors.	Tests will be performed to verify that the LWMS discharge valves close upon receipt of a high-radiation test input signal from the activity monitors.	The LWMS discharge valves close upon receipt of a high radiation test input signal from the PACS module.
4.3	Equipment identified as RW-IIa in Table 2.9.1-1 can withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.	An inspection and analysis will be performed to verify the as-built equipment identified as RW-IIa in Table 2.9.1-1 will withstand design basis loads.	A report concludes that the identified as RW-IIa in Table 2.9.1-1 will withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.

2.9.2 Solid Waste Management System

Design Description

1.0 System Description

The solid waste management system (SWMS) is a non-safety-related system. The SWMS is located in the ~~Radwaste~~Radioactive Waste Processing Building. The SWMS design contains components and subsystems that account for the following during normal plant operations and anticipated operational occurrences including startup, shutdown, and refueling operations:

- Collection of wet and dry solid radioactive waste.
- Processing of solid radioactive waste.
- Packaging of solid radioactive waste.
- Storage of solid radioactive waste.

2.0 Mechanical Design Features

2.1 The SWMS provides the non-safety related function of storing radioactive solids prior to shipment.

2.2 Equipment identified as RW-IIa in Table 2.9.2-1 can withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.

Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.9.2-2 lists the solid waste management system ITAAC.

Table 2.9.2-1—SWMS Equipment Mechanical Design

Description	Tag Number(1)	Location	~~Nominal Capacity (gallons)~~Seismic Category
Resin Proportioning Tank	30KPC10BB001	~~Radwaste~~ Radioactive Waste Processing Building	~~150~~RW-IIa
Concentrate Buffer Tank	30KPC20BB001	~~Radwaste~~Radioactive Waste Processing Building	~~3000~~RW-IIa
Condensate Collection Tank	30KPC50BB001	~~Radwaste~~Radioactive Waste Processing Building	~~150~~RW-IIa
Concentrate Recirculation Pump	30KPC20AP001	Radioactive Waste Processing Building	RW-IIa
Condensate Collection Pump	30KPC50AP001	Radioactive Waste Processing Building	RW-IIa
Drum Drying Stations	30KPC30/40/50 BB001	Radioactive Waste Processing Building	RW-IIa
High Pressure Cleaning Device	30KPC60AP001	Radioactive Waste Processing Building	RW-IIa
Scrubber Tank	30KPC50BB002	Radioactive Waste Processing Building	RW-IIa
Vacuum Unit	30KPC60BZ001	Radioactive Waste Processing Building	RW-IIa

1. Equipment tag numbers are provided for information only and are not part of the certified design.

Table 2.9.2-2—Solid Waste Management System ITAAC

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
2.1	The SWMS provides the non-safety related function of storing radioactive solids prior to shipment.	An inspection and analysis will be performed of the as-built SWMS tanks to verify the nominal volumes of each of the SWMS tanks.	The nominal volume of each of the SWMS tanks is as follows: • Resin proportioning tank: 150 gal. • Concentrate buffer tank: 3000 gal. • Condensate collection tank: 150 gal. • Scrubber tank: 53 gal. ~~the nominal value as listed in Table 2.9.2-1.~~
2.2	Equipment identified as RW-IIa in Table 2.9.2-1 can withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.	An inspection and analysis will be performed to verify the as-built equipment identified as RW-IIa in Table 2.9.2-1 will withstand design basis loads.	A report concludes that the identified as RW-IIa in Table 2.9.2-1 will withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.

2.9.3 Gaseous Waste Processing System

Design Description

1.0 System Description

The gaseous waste processing system (GWPS) is a non-safety system that utilizes delay beds containing activated carbon to reduce the activity of the waste gas before release to the Nuclear Auxiliary Building for additional processing and release through the vent stack. A high-radiation signal from the activity monitor downstream of the delay beds activates an alarm in the main control room (MCR) and terminates gaseous waste releases.

2.0 Arrangement

2.1 The functional arrangement of the GWPS is as described in the Design Description of Section 2.9.3, Tables 2.9.3-1— GWPS Equipment Mechanical Design and 2.9.3-2— GWPS Equipment I&C and Electrical Design, and as shown on Figure 2.9.3-1— Gaseous Waste Processing System Functional Arrangement.

2.2 Deleted.

3.0 Mechanical Design Features

3.1 Equipment identified as RW-IIa in Table 2.9.3-1 can withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity. ~~Deleted.~~

3.2 Deleted.

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3.12 Deleted.

Table 2.9.3-1—GWPS Equipment Mechanical Design

Description	Tag Number(1)	Location	~~Function~~	Seismic Category~~I~~
GWPS delay beds	30KPL50AT001 30KPL50AT002 30KPL50AT003	Nuclear Auxiliary Building	~~Delay radioactive gas release to atmosphere~~	RW-IIa~~No~~
GWPS Discharge valve	30KPL83AA005	~~Downstream of GWPS delay beds~~Nuclear Auxiliary Building	~~Close~~	RW-IIa~~No~~
Condensate Collecting Tank	30KPL30BB001	Nuclear Auxiliary Building		RW-IIa
Gas Cooler	30KPL11AC001	Nuclear Auxiliary Building		RW-IIa
Gas Drier	30KPL01AC001	Nuclear Auxiliary Building		RW-IIa
Gas Filter	30KPL70AT001	Nuclear Auxiliary Building		RW-IIa
Gel Drier	30KPL40AT001	Nuclear Auxiliary Building		RW-IIa
Measuring Gas Compressors	30KPL05 AN001/ AN002/AN003	Nuclear Auxiliary Building		RW-IIa
Measuring Gas Driers	30KPL05/06AC001	Nuclear Auxiliary Building		RW-IIa
Pre-drier	30KPL30AC001	Nuclear Auxiliary Building		RW-IIa
Recombiner	30KPL11AT001	Nuclear Auxiliary Building		RW-IIa
Sealing Liquid Coolers	30KPL21/22AC001	Nuclear Auxiliary Building		RW-IIa
Sealing Liquid Tanks	30KPL21/22BB001	Nuclear Auxiliary Building		RW-IIa
Waste Gas Compressors	30KPL21/22AN001	Nuclear Auxiliary Building		RW-IIa

1. Equipment tag numbers are provided for information only and are not part of the certified design.

Table 2.9.3-3—Gaseous Waste Processing System ITAAC
Sheet 1 of 2

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	The functional arrangement of the GWPS is as described in the Design Description of Section 2.9.3, Tables 2.9.3-1 and 2.9.3-2, and as shown on Figure 2.9.3-1.	An inspection of the as-built GWPS functional arrangement will be performed.	The GWPS conforms to the functional arrangement as described in the Design Description of Section 2.9.3, Tables 2.9.3-1 and 2.9.3-2, and as shown on Figure 2.9.3-1.
2.2	Deleted.	Deleted.	Deleted.
3.1	Equipment identified as RW-IIa in Table 2.9.3-1 can withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.~~Deleted.~~	An inspection and analysis will be performed to verify the as-built equipment identified as RW-IIa in Table 2.9.3-1 will withstand design basis loads.~~Deleted.~~	A report concludes that the identified as RW-IIa in Table 2.9.3-1 will withstand design basis loads listed in Regulatory Guide 1.143 without a loss of structural integrity.~~Deleted.~~
3.2	Deleted.	Deleted.	Deleted.
3.3	Deleted.	Deleted.	Deleted.
3.4	Deleted.	Deleted.	Deleted.
3.5	Deleted.	Deleted.	Deleted.
3.6	Deleted.	Deleted.	Deleted.
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3.8	Deleted.	Deleted.	Deleted.
3.9	Deleted.	Deleted.	Deleted.
3.10	Deleted.	Deleted.	Deleted.
3.11	Deleted.	Deleted.	Deleted.
3.12	Deleted.	Deleted.	Deleted.
4.1	Displays listed in Table 2.9.3-2 are indicated on the PICS operator workstations in the MCR.	Tests will be performed to verify that the displays listed in Table 2.9.3-2 are indicated on the PICS operator workstations in the MCR by using test input signals to PICS.	Displays listed in Table 2.9.3-2 are indicated on the PICS operator workstations in the MCR.
4.2	Controls on the PICS operator workstations in the MCR perform the function listed in Table 2.9.3-2.	Tests will be performed using controls on the PICS operator workstations in the MCR.	Controls on the PICS operator workstations in the MCR perform the function listed in Table 2.9.3-2.
5.1	Deleted.	Deleted.	Deleted.
6.1	Deleted.	Deleted.	Deleted.