ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Wednesday, August 10, 2011 4:52 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); NOXON David (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 450, FSARCh. 14, Supplement 5
Attachments: RAI 450 Supplement 5 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to the 1 question in RAI No. 450 on November 19, 2010. Supplement 1 sent on February 10, 2011, Supplement 2 sent on April 21, 2011, Supplement 3 sent on June 10, 2011, and Supplement 4 sent on August 9, 2011 provided a revised schedule for responding to Question 14.03.07-37. The attached file, "RAI 450 Supplement 5 Response US EPR DC.pdf" provides a technically correct and complete FINAL response to the one question, as committed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 450 Question 14.03.07-37.

The following table indicates the respective pages in the response document, "RAI 450 Supplement 5 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 450 — 14.03.07-37	2	6

This concludes the formal AREVA NP response to RAI 450, and there are no questions from this RAI for which AREVA NP has not provided responses.

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: Tuesday, August 09, 2011 6:46 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); NOXON David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 450, FSARCh. 14, Supplement 4

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to the 1 question in RAI No. 450 on November 19, 2010. Supplement 1 sent on February 10, 2011, Supplement 2 sent on April 21, 2011, and Supplement 3 sent on June 10, 2011, provided a revised schedule for responding to Question 14.03.07-37.

The schedule for providing a complete response to the remaining question has been revised as indicated below:

Question #	Response Date
RAI 450 — 14.03.07-37	**August 16, 2011**

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, June 10, 2011 8:24 AM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); NOXON David (RS/NB); LENTZ Tony (External RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 450, FSARCh. 14, Supplement 3

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to the 1 question in RAI No. 450 on November 19, 2010. Supplement 1 sent on February 10, 2011, and Supplement 2 sent on April 21, 2011 provided a revised schedule for responding to the single question.

The schedule for providing a complete response to the remaining question has been revised as indicated below:

Question #	Response Date
RAI 450 — 14.03.07-37	August 9, 2011

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: WELLS Russell (RS/NB)
Sent: Thursday, April 21, 2011 3:51 PM
To: 'Tesfaye, Getachew'
Cc: NOXON David (RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 450, FSARCh. 14, Supplement 2

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 8 questions in RAI No. 450 on November 19, 2010. A Supplement 1 response to RAI No. 450 was sent on February 10, 2011, and provided a revised schedule for question 14.03.07-37.

Additional time is required to interact with the NRC staff.

The schedule for providing a complete response to the remaining question has been revised as indicated below.

Question #	Response Date
RAI 450 — 14.03.07-37	June 10, 2011

Sincerely,

Russ Wells
U.S. EPR Design Certification Licensing Manager
AREVA NP, Inc.
3315 Old Forest Road, P.O. Box 10935
Mail Stop OF-57
Lynchburg, VA 24506-0935
Phone: 434-832-3884 (work)
434-942-6375 (cell)
Fax: 434-382-3884
Russell.Wells@Areva.com

From: BRYAN Martin (External RS/NB)
Sent: Thursday, February 10, 2011 10:34 AM
To: Tesfaye, Getachew
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); WELLS Russell (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 450, FSARCh. 14, Supplement 1

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for a technically correct and complete response to RAI 450 on November 19, 2010.

The schedule for a technically correct and complete response to this RAI has been changed to allow additional time to prepare the response. The revised schedule is provided below.

Question #	Response Date
RAI 450 — 14.03.07-37	April 30, 2011

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell

Martin.Bryan.ext@areva.com

From: BRYAN Martin (External RS/NB)
Sent: Friday, November 19, 2010 2:05 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); WELLS Russell (RS/NB); 'Miernicki, Michael'
Subject: Response to U.S. EPR Design Certification Application RAI No. 450, FSARCh. 14

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 450 Response US EPR DC.pdf" provides a schedule for a technically correct and complete response to the 1 question.

The following table indicates the respective pages in the response document, "RAI 450 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 450 — 14.03.07-37	2	5

A complete answer is not provided for the 1 question. The schedule for a technically correct and complete response to this question is provided below.

Question #	Response Date
RAI 450 — 14.03.07-37	February 24, 2011

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Wednesday, October 20, 2010 4:14 PM
To: ZZ-DL-A-USEPR-DL
Cc: Dehmel, Jean-Claude; Roach, Edward; Miernicki, Michael; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 450 (5095), FSARCh. 14

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on October 8, 2010, and on October 19, 2010, you informed us that the RAI is clear and no further clarification is needed. As a result, no change is made to the draft RAI. 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/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 3317

Mail Envelope Properties (2FBE1051AEB2E748A0F98DF9EEE5A5D482D62C)

Subject: Response to U.S. EPR Design Certification Application RAI No. 450, FSARCh. 14, Supplement 5
Sent Date: 8/10/2011 4:52:23 PM
Received Date: 8/10/2011 4:53:22 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

Recipients:
"BENNETT Kathy (AREVA)" <Kathy.Bennett@areva.com>
Tracking Status: None
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
Tracking Status: None
"ROMINE Judy (AREVA)" <Judy.Romine@areva.com>
Tracking Status: None
"RYAN Tom (AREVA)" <Tom.Ryan@areva.com>
Tracking Status: None
"NOXON David (AREVA)" <David.Noxon@areva.com>
Tracking Status: None
"Tesfaye, Getachew" <Getachew.Tesfaye@nrc.gov>
Tracking Status: None

Post Office: auscharmx02.adom.ad.corp

Files	**Size**	**Date & Time**
MESSAGE	8389	8/10/2011 4:53:22 PM
RAI 450 Supplement 5 Response US EPR DC.pdf	181085	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Response to

Request for Additional Information No. 450, Supplement 5

10/20/2010

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 14.03.07 - Plant Systems - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: 14.3

QUESTIONS for Health Physics Branch (CHPB)

Question 14.03.07-37:

Follow-up to RAI 292, Question 14.03.07-33

Under RAI 292, Question 14.3.7-33, the staff noted that ITAACs were inconsistent with respect to FSAR Tier 2 design features as they do not address the automatic isolation or termination control features of the PERMSS, as described in FSAR Tier 2, Section 11.5. For example, FSAR Tier 2, Section 11.5.1 states that PERMSS subsystems are design to process liquid and gaseous effluents in accordance with 10 CFR Part 20, and the control of effluent releases depends on the automatic termination features of the radiation monitor located on the discharge line. However, the liquid effluent radiation monitor and the associated isolation valve on the LWMS discharge line are not included in FSAR Tier 1, Section 2.9. Also, the ITAAC were found to be incomplete with respect to FSAR Tier 2 design features as they do not address the initial introduction of absorbent and filtration media in systems to successfully process and treat liquid and gaseous wastes before being discharged to the environment. As a result, such effluent releases could exceed the concentration limits of 10 CFR Part 20, Appendix B, Table 2. The applicant was requested to address these aspects in the respective subsections of the FSAR, Tier 1 material and the applicant submitted a response on January 18, 2010.

Based on a review of the January 18, 2010 response, CHPB, SBPB, and CTSB staff has identified the following items for the applicant to address and resolve in FSAR Tier 1:

a. In the response to Item 8).e, p.9 of 10, 4th para., the response states that the listed ITAAC can be performed without a functional arrangement drawing shown in FSAR Tier 1, Section 2.4.22 and no functional arrangement drawing is included in the proposed revision of FSAR Tier 1, Section 2.4.22. The staff disagrees with this response because for some radiation monitoring systems, the placement and functional relationship of radiation detectors on piping or ductwork and valves and dampers that are actuated by such radiation monitors are important design considerations in controlling effluent releases. If these functional arrangements are not shown in drawings, it is questionable that the associated inspection and test can be satisfactorily completed in demonstrating compliance with the acceptance criteria assigned to that portion of the system. Accordingly, the applicant is requested to include functional arrangement drawings for all systems equipped with valves, dampers, and flow sensors that are actuated or used by radiation monitors in terminating liquid effluent releases and diverting gaseous process streams to particulate and radioiodine filtration systems before being discharged to the environment.

b. In the proposed revision to FSAR Tier 1, Section 2.8.7, Item 4.4, the applicant identifies that the SGBS is isolated upon receipt of a high radioactivity signal from the main steam lines or SG blowdown radiation monitors, both coinciding with partial cooldown signals. While conceptually acceptable, it is not clear as to how the associated ITAAC commitments, listed in FSAR Tier 1, Table 2.8.7-3, Item 4.4, will be met given that FSAR Tier 1, Table 2.8.7-2 does not identified the associated radiation monitoring systems for the SGBS or main steam lines. A review of FSAR Tier 1, Table 2.8.7-3, Item 4.4 and FSAR Tier 1, Section 2.8.2, Item 4.0 and Table 2.8.2-2 indicates that the required radiation monitors are not included consistently and their functional arrangements are not identified in completing the tests. For example, if the ITAAC for the SGBS invokes a test for radiation monitors associated with main steam lines, FSAR Tier 1, Table 2.8.7-3, Item 4.4, does not state how this is going to be achieved and does not point to any ITAAC for details, e.g., Tier 1, Table 2.8.7-2. As noted above, FSAR Tier 1, Section

2.8.2, Item 4.0 and Tier 1, Table 2.8.2-3 do not identify how these interdependent functional arrangements will be confirmed through the appropriate ITAACs in Tier 1, FSAR Section 2.8.7 with an interface described in FSAR Tier 1, Section 2.8.2. The applicant is requested to revise the ITAAC commitments and describe the logic interface for the isolation functions of the SGBS in light of the interdependent operational arrangements of radiation monitoring equipment and simultaneous receipts of high radioactivity signals from main steam line or SG blowdown radiation monitors coinciding with partial cooldown signals.

c. A comparison of the proposed revision to FSAR Tier 1, Section 2.8.7, Item 4.4; FSAR Tier 1, Section 2.8.8; and FSAR Tier 2, Section 10.4.8.3.2 indicates that there are no ITAAC commitments to include tests confirming the isolation of SGBS valves protecting SG blowdown demineralizer resins if the temperature of the blowdown exceeds 131 degree F. It should be noted that if the SG blowdown demineralizer resins were damaged (i.e., melted by high temperatures), any radioactivity accumulated in resins at that time would be readily dispersed in the secondary side and result in the radioactive contamination of the secondary system. The resulting contamination of the secondary side would be contrary to the requirements of Part 20.1406(b) and possibly result in uncontrolled and unmonitored releases of radioactivity in the environment above effluent concentration limits of Table 2 in Appendix B to Part 20. Accordingly, the applicant is requested to add an ITAAC in Tier 1, FSAR Section 2.8.7 or 2.8.8 that confirms the full isolation or bypassing of the blowdown to the SG blowdown demineralizer resin beds upon detecting SG blowdown temperatures exceeding 131 degree F.

d. In the proposed revision to FSAR Tier 1, Section 2.9.1, Item 4.1, the applicant is requested to consider a revision that would read: “The LWMS processing equipment contains the proper types and amounts of filter media or treatment media.” Without this distinction, there is no assurance that the LWMS would meet the design performance characteristics described in FSAR Tier 2, Rev. 1, Section 11.2, Table 11.2-3, expressed as decontamination factors. These design performance characteristics form the basis in demonstrating compliance with Part 20, Appendix B, liquid effluent concentration limits and offsite doses to members of the public, as shown in FSAR Tier 2, Tables 11.2-7 and 11.2-6. Note that a parallel revision is required in all commitments stated in FSAR Tier 1, Table 2.9.1-3, Item 4.1.

e. In the proposed revision to FSAR Tier 1, Section 2.9.1, Item 2.0, the applicant has not included a figure describing the functional arrangement and locations of LWMS components subject to ITAAC commitments, as listed in FSAR Tier 1, Table 2.9.1-3. Note that such a figure was provided for the GWMS (FSAR Tier 1, Figure 2.9.3-1) and it is not clear as to why the LWMS should be treated differently for similar types of ITAAC. Accordingly, the applicant is requested to add a figure describing the functional arrangement and locations of LWMS components subjected to the stated ITAAC commitments.

f. In the proposed revision to FSAR Tier 1, Table 2.9.1-3, Item 4.2, the applicant is requested to revise the description of inspections, tests and analyses for the LWMS. The description incorrectly refers “… to downstream of the delay beds,” when in fact it should be downstream of the demineralizer beds. The “delay beds” are part of the GWMS and not part of the LWMS.

g. In the proposed revision to FSAR Tier 1, Table 2.9.1-3, Item 4.2, the applicant is requested to revise the description of inspections, tests and analyses for some portions

of the PERMSS. The description refers to the use of simulated high radiation signals in verifying the closure of isolation valves upon detecting elevated levels of radioactivity above an established alarm set-point. A review of FSAR Tier 1, Rev. 1, Sections 1.1, 2.4, and 2.9, and FSAR Tier 2, Sections 11.5 and 14.3 indicates that the descriptions and scope of operational tests do not define "simulated high radiation signal" used in confirming the operational functions of a radiation monitoring channel. There are many ways in generating a simulated radiation signal, such as using jumper leads or using a electronic pulse or trip signal. In both instances, the simulated signal does not include a functional test of the radiation detector, which is the essential component of the radiation monitoring channel. In the context of completing the ITAAC, the commitment described in FSAR Tier 1, Section 2.9.1, Item 4.2, should use same the type of radioactive calibration sources as are called for in FASR Tier 2, Rev. 1, Section 14.2.12.11.20 (Test #144) in demonstrating the operational function of this channel. This approach would confirm that the radiation monitoring channel operates in accordance with design commitments and would terminate radioactive releases. Finally, note that credit for the ODCM in setting alarm set-points for all effluent discharge monitors (FSAR Tier 2, Section 11.5) cannot be used as a mean to avoid ITAAC (see NRC position in SECY 05-0197 and Regulatory Guide 1.206) and, consequently, the ODCM cannot be claimed as the last line of defense in protecting the public and environment. Accordingly, the applicant is requested to update the commitments described FSAR Tier 1, Section 2.9.1 and Table 2.9.1-3 to confirm the successful implementation of this ITAAC and ensure compliance with NRC requirements under Part 52.47(b)(1); Part 20, Appendix B, Table 2 effluent concentrations limits; Part 20.1301 and 20.1302 dose limits to members of the public; and limiting conditions for operation of Section IV of Appendix I to Part 50.

h. In the proposed revision to FSAR Tier 1, Table 2.9.1-3, Item 4.2, the description refers to the use of high radiation signals in verifying the closures of the isolation valves upon detecting levels of radioactivity above an established alarm set-point. A review of FSAR Tier 2, Section 11.5.3.2 indicates that there are two radiation detectors and two isolation valves that work in tandem in isolating releases. In addition, FSAR Tier 2, Section 11.2.1.2.3 indicates that the two radiation detectors and effluent flow sensors work together and upon detecting discrepancies in radiation levels and flows, the system will terminate releases by closing a pair of isolation valves. However, the ITAAC does not describe this operational arrangement of radiation monitors and flow sensors valves and whether the tests will confirm these interdependent functions. The applicant is requested to revise the description of inspections and tests and specify how the ITAAC will confirm the functional operation and logic of the interdependent dual radiation monitors, dual isolation valves, and dual flow sensors, and modify the acceptance criteria accordingly. Finally, given the importance of the flow sensors in terminating releases, their descriptions and instrumentation tag numbers should be included as a new ITAAC commitment items in FSAR Tier 1, Table 2.9.1-3.

i. In the proposed revision to FSAR Tier 1, Section 2.9.3, Item 7.1, the applicant is requested to consider a revision that would read: "The GWPS processing equipment contains delay beds filled with the proper types and amounts of activated charcoal." Without this distinction, there is no assurance that the GWMS would meet the design descriptions and parameters described in FSAR Tier 2, Rev. 1, Section 11.3, Table 11.3-1, expressed as retention times for noble gases, in demonstrating compliance with Part 20 Appendix B, gaseous effluent concentration limits, and offsite doses to members of

the public, as shown in FSAR Tier 2, Tables 11.3-5 and 11.3-6. Note that a parallel revision is required in all commitments stated in FSAR Tier 1, Table 2.9.3-3, Item 7.1.

j. In the proposed revision to FSAR Tier 1, Table 2.9.3-3, Item 7.2, the applicant is requested to revise the description of inspections, tests and analyses for the GWPS. The description refers to the use of simulated high radiation signals in verifying that closure of the isolation valves upon detecting levels of radioactivity above an established alarm set-point. See above item g. discussion and staff concerns to commitments described in FSAR Tier 1, Section 2.9.1 and Table 2.9.1-3 for the LWMS as they apply to the GWPS. Accordingly, the applicant is requested to update the commitments described FSAR Tier 1, Section 2.9.3 and Table 2.9.3-3 using a parallel approach as that applied for the LWMS.

Response to Question 14.03.07-37:

Part a:

The radiation monitors listed in U.S. EPR FSAR Tier 1, Section 2.4.22 are called out by monitor ID in U.S. EPR FSAR Tier 2 Table 11.5-1 (see the Response to RAI 273, Question 11.05-2). U.S. EPR FSAR Tier 2, Table 11.5-1 provides cross references to functional arrangement drawings and text descriptions of the functions of the radiation monitors. The cross referenced information is sufficient to satisfactorily complete the tests and demonstrate compliance with the acceptance criteria assigned to that portion of the system.

Part b:

U.S. EPR FSAR Tier 1, Table 2.8.7-3, Item 4.4, will be revised to include the radiation monitor IDs that can then be referenced back to U.S. EPR FSAR Tier 2, Table 11.5-1 (see the Response to RAI 273, Question 11.05-2).

Part c:

Higher temperatures in the steam generator (SG) blowdown demineralizers lead to reduced life of the resins. The resins are not subject to melting, as described in the question. Isolation of the steam generator blowdown system (SGBS) valves that protect SG blowdown demineralizer resins if the temperature of the blowdown exceeds 131° F is not a safety significant function. Additional ITAAC are not required to test for compliance with 10 CFR Part 20 requirements.

Part d:

U.S. EPR FSAR Tier 1, Section 2.9.1 and Table 2.9.1-3, Item 4.1 will be revised as requested.

Part e:

The radiation monitors listed in U.S. EPR FSAR Tier 1, Section 2.9.1 are called out by monitor ID in U.S. EPR FSAR Tier 2 Table 11.5-1 (see the Response to RAI 273, Question 11.05-2). U.S. EPR FSAR Tier 2, Table 11.5-1 provides cross references to functional arrangement drawings and text descriptions of the functions of the radiation monitors. The cross referenced information is sufficient to satisfactorily complete the tests and demonstrate compliance with the acceptance criteria without the need for an additional functional arrangement drawing in Tier 1.

Part f:

U.S. EPR FSAR Tier 1, Table 2.9.1-3, Item 4.2 will be revised to correctly indicate that the liquid waste monitoring system (LWMS) monitors are located on the liquid radwaste release line .

Part g:

U.S. FSAR Tier 1, Table 2.9.1-3 will be revised to include the verification of the radiation monitor operation as part of the test for Item 4.2.

Part h:

See responses to parts e and f.

Part i:

U.S. EPR FSAR Tier 1, Section 2.9.3 and Table 2.9.3-3, Item 7.1 will be revised as requested.

Part j:

U.S. FSAR Tier 1, Table 2.9.3-3 will be revised to include the verification of the radiation monitor operation as part of the test for Item 7.2.

FSAR Impact:

The following U.S. EPR FSAR Tier 1 sections and tables will be revised as described in the response and indicated on the enclosed markup:

- Table 2.8.7-3, Item 4.4
- Section 2.9.1 and Table 2.9.1-3, Item 4.1
- Table 2.9.1-3, Item 4.2
- Section 2.9.3 and Table 2.9.3-3, Items 7.1 and 7.2.

U.S. EPR Final Safety Analysis Report Markups

Table 2.8.7-3—Steam Generator Blowdown System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.3	Equipment listed as being controlled by a PACS module in Table 2.8.7-2 responds to the state requested by a test signal.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.8.7-2 responds to the state requested by the test signal.
4.4	SGBS blowdown isolation valves listed in Table 2.8.7-2 close for the affected SG under the following signals: • EFW actuation signal, or • High main steam activity signal with a partial cooldown signal, or, • High SG level signal with a partial cooldown signal, or • High SGBS blowdown activity signal with a partial cooldown signal.	Tests will be performed to verify SGBS blowdown isolation. 14.03.07-37	Test results confirm that SGBS blowdown isolation valves listed in Table 2.8.7-2 close for the affected SG under the following signals: • EFW actuation signal, or • High main steam activity signal (main steam activity sensors Table 2.8.2-2) with a partial cooldown signal, or, • High SG level signal with a partial cooldown signal, or • High SGBS blowdown activity signal (QUC11CR001, QUC12CR001, QUC13CR001, QUC14CR001) with a partial cooldown signal.
5.1	The components designated as Class 1E in Table 2.8.7-2 are powered from the Class 1E division as listed in Table 2.8.7-2 in a normal or alternate feed condition.	a. Testing will be performed for components designated as Class 1E in Table 2.8.7-2 by providing a test signal in each normally aligned division. b. Testing will be performed for components designated as Class 1E in Table 2.8.7-2 by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E component identified in Table 2.8.7-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E component identified in Table 2.8.7-2.

2.9 Radioactive Waste Management

2.9.1 Liquid Waste Management System

1.0 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 location of LWMS equipment is as listed in Table 2.9.1-1—LWMS Equipment Mechanical Design.

3.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

3.1 LWMS displays listed in Table 2.9.1-2—LWMS Equipment I&C and Electrical Design are retrievable in the main control room (MCR) as listed in Table 2.9.1-2.

3.2 The LWMS equipment controls are provided in the MCR as listed in Table 2.9.1-2.

4.0 Equipment and System Performance

14.03.07-37

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

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

5.0 Inspections, Tests, Analyses, and Acceptance Criteria

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

Table 2.9.1-3— Liquid Waste Management System ITAAC

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	The location of LWMS equipment is as listed in Table 2.9.1-1.	Inspections will be performed to verify equipment locations.	The equipment listed in Table 2.9.1-1 is located as listed in Table 2.9.1-1.
3.1	LWMS displays listed in Table 2.9.1-2 are retrievable in the MCR as listed in Table 2.9.1-2.	Tests will be performed for the retrievability of the displays in the MCR as listed in Table 2.9.1-2.	The displays listed in Table 2.9.1-2 as being retrieved in the MCR can be retrieved in the MCR.
3.2	The LWMS equipment controls are provided in the MCR as listed in Table 2.9.1-2.	Tests will be performed for the existence of control signals from the MCR to the equipment listed in Table 2.9.1-2.	The controls listed in Table 2.9.1-2 as being in the MCR exist in the MCR.
4.1	The LWMS processing equipment contains the proper types and amounts of filter media or treatment media. ~~The LWMS processing equipment contains filter media or treatment media.~~	Analyses and inspections will be performed to verify 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.	Analyses and inspection reports indicate 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 of the discharge valves closure will be performed by verifying radiation monitor operation and simulating a high-radiation signal at each activity monitor (tag numbers ~~30~~KPK29CR001 and ~~30~~KPK29CR002) downstream on the liquid radwaste release line. ~~of the delay beds.~~	The LWMS discharge valves (tag numbers 30KPK29AA001 and 30KPK29AA002) close upon receipt of a high-radiation signal from the activity monitors (tag number ~~30~~KPK29CR001 and ~~30~~KPK29CR002).

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3.10 Components listed in Table 2.9.3-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.11 Components listed in Table 2.9.3-1 as ASME Code Section III are installed in accordance with ASME Code Section III requirements.

4.0 Instrumentation and Controls (I&C) Design Features, Displays, and Controls

4.1 Displays listed in Table 2.9.3-2—GWPS Equipment I&C and Electrical Design are retrievable in the main control room (MCR) as listed in Table 2.9.3-2.

4.2 The GWPS equipment controls are provided in the MCR as listed in Table 2.9.3-2.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.9.3-2 are powered from the Class 1E division as listed in Table 2.9.3-2 in a normal or alternate feed condition.

6.0 Environmental Qualifications

6.1 Components in Table 2.9.3-2, that are designated as harsh environment, will perform the function listed in Table 2.9.3-1 in the environments that exist during and following design basis events.

7.0 Equipment and System Performance

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7.1 The GWPS processing equipment contains delay beds filled with the proper types and amounts of activated charcoal. ~~The GWPS contains delay beds with activated charcoal.~~

7.2 The GWPS discharge valve closes upon receipt of a high-radiation signal from the activity monitor downstream of the delay beds.

7.3 Containment isolation valves listed in Table 2.9.3-1 close within the containment isolation response time following initiation of a containment isolation signal.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.9.3-3 lists the gaseous waste processing system ITAAC.

Table 2.9.3-3—Gaseous Waste Processing System ITAAC (5 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
	in Table 2.9.3-1 in the environments that exist during and following design basis events.	harsh environment in Table 2.9.3-2 to perform the function listed in Table 2.9.3-1 for the environmental conditions that could occur during and following design basis events.	components listed as harsh environment in Table 2.9.3-2 can perform the function listed in Table 2.9.3-1 during and following design basis events including the time required to perform the listed function.
	14.03.07-37	b. Components listed as harsh environment in Table 2.9.3-2 will be inspected to verify installation in accordance with the construction drawings including the associated wiring, cables and terminations. Deviations to the construction drawings will be reconciled to the EQDP.	b. Inspection reports exists and conclude that the components listed in Table 2.9.3-2 as harsh environment has been installed per the construction drawings and any deviations have been reconciled to the EQDP.
7.1	The GWPS processing equipment contains delay beds filled with the proper types and amounts of activated charcoal. ~~The GWPS contains delay beds with activated charcoal.~~	Inspections will be performed to verify the mass of activated charcoal loaded in each delay bed (tag numbers 30KPL50AT001, 30KPL50AT002, and 30KPL50AT003.)	Each delay bed (tag numbers 30KPL50AT001, 30KPL50AT002, and 30KPL50AT003) contains a minimum of 5,440 lb_m of activated charcoal.
7.2	The GWPS discharge valve closes upon receipt of a high-radiation signal from the activity monitor downstream of the delay beds.	Tests of the discharge valve closure will be performed by verifying radiation monitor operation and simulating a high-radiation signal at the activity monitor (tag number ~~30~~KPL83CR001) downstream of the delay beds.	Discharge valve (tag number 30KPL83AA005) closes upon receipt of a high-radiation signal from the activity monitor (tag number ~~30~~KPL83CR001) downstream of the delay beds.
7.3	Containment isolation valves listed in Table 2.9.3-1 close within the containment isolation response time following initiation of a containment isolation signal.	Tests will be performed to demonstrate the ability of the containment isolation valves listed in Table 2.9.3-1 to close within the containment isolation response time following initiation of a containment isolation signal.	Containment isolation valves listed in Table 2.9.3-1 close within 60 seconds following initiation of a containment isolation signal.