ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Thursday, September 29, 2011 11:11 AM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); LENTZ Tony (EXTERNAL AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 501 (5934), FSAR Ch. 14
Attachments: RAI 501 Response US EPR DC.pdf

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 501 Response US EPR DC.pdf," provides a technically correct and complete FINAL response to the one Question.

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 the single question.

The following table indicates the respective pages in the response document, "RAI 501 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 501 — 14.03.03-53	2	4

This concludes the formal AREVA NP response to RAI 501, 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
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Tuesday, August 30, 2011 3:38 PM
To: ZZ-DL-A-USEPR-DL
Cc: Scarbrough, Thomas; Terao, David; Jaffe, David; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 501 (5934), FSAR Ch. 14

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on July 21, 2011, and on August 30, 2011, 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: 3439

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Response to

Request for Additional Information No. 501(5934), Revision 0

8/30/2011

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 14.03.03 - Piping Systems and Components - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: 14.3.3

QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects) (CIB1)

Question 14.03.03-53:

The ITAAC for the environmental qualification (EQ) of U.S. EPR components listed in Tier 1 of the U.S. EPR FSAR do not appear to be consistent with the EQ requirements specified in Tier 2 of the U.S. EPR FSAR. For example, the Commitment Wording for ITAAC 6.1 in Table 2.2.3-3, "Safety Injection System and Residual Heat Removal System ITAAC," in U.S. EPR FSAR Tier 1 states that components in Table 2.2.3-2, that are designated as harsh environment, will perform the function listed in Table 2.2.3-1 in the environments that exist during and following design basis events.

To be consistent with the EQ requirements in Section 3.11, "Environmental Qualification of Mechanical and Electrical Equipment," of U.S. EPR FSAR Tier 2, the Commitment Wording for ITAAC 6.1 of Table 2.2.3-3 in U.S. EPR FSAR Tier 1 should be revised to read as follows: "Components in Table 2.2.3-2 that are designated as harsh environment will be capable of performing design safety functions listed in Table 2.2.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions."

Similarly, item a in the Inspections, Tests, Analyses column of ITAAC 6.1 should be revised to read as follows: "Type tests or type tests and analysis are performed to demonstrate the ability of the components listed as harsh environment in Table 2.2.3-2 to perform the function listed in Table 2.2.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions."

Further, item a in the Acceptance Criteria column of ITAAC 6.1 should be revised to read as follows: "Environmental Qualification Data Packages (EQDPs) exist and conclude that the components listed as harsh environment in Table 2.2.3-2 can perform the function listed in Table 2.2.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, including the time required to perform the listed function."

The EQ ITAAC listed in U.S. EPR FSAR Tier 1 for other U.S. EPR systems should also be revised to be consistent with the EQ requirements in U.S. EPR FSAR Tier 2, Section 3.11, similar to the proposed language for ITAAC 6.1 in U.S. EPR FSAR Tier 1, Table 2.2.3-3.

Response to Question 14.03.03-53:

U.S. EPR FSAR Tier 1, Chapter 2 and Chapter 3 Environmental Qualification commitments and ITAAC will be revised. The standard Environmental Qualification format is shown in Table 14.03-03-53-1, and the ITAAC being revised are listed in Table 14.03-03-53-2.

FSAR Impact:

U.S. EPR FSAR Tier 1, Chapter 2 and Chapter 3 will be revised as described in the response and indicated on the enclosed markup.

Table 14.03.03-53-1—Revised ITAAC for Environmental Qualification

Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
Components designated as harsh environment in Table x.x.x-x will perform the function listed in Table x.x.x-x under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.	Type tests or type tests and analysis will be performed to demonstrate the ability of the components designated as harsh environment in Table x.x.x-x to perform the function listed in Table x.x.x-x under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.	Environmental Qualification Data Packages (EQDPs) exist and conclude that the components designated as harsh environment in Table x.x.x-x can perform the function listed in Table x.x.x-x under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, including the time required to perform the listed function.

Table 14.03.03-53-2—ITAAC Revised for Environmental Qualification

U.S. EPR FSAR Tier 1 Section	Design Commitment and ITAAC number
2.2.1	6.1
2.2.1	6.2
2.2.2	6.1
2.2.3	6.1
2.2.4	6.1
2.2.5	6.1
2.2.6	6.1
2.2.7	6.1
2.3.1	6.1
2.3.3	6.1
2.4.14	6.1
2.4.17	6.1
2.4.19	5.1
2.4.22	6.1
2.6.3	6.1
2.6.6	6.1
2.6.8	6.1
2.7.1	6.1
2.7.2	6.1
2.7.5	6.1
2.8.6	6.1
2.8.7	6.1
2.9.3	6.1
2.9.5	5.1
3.5	6.1
3.5	6.2

U.S. EPR Final Safety Analysis Report Markups

4.4 Instrumentation providing input to the uncertainty in power supports the power uncertainty assumed in the safety analysis.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E listed in Tables 2.2.1-2 and 2.2.1-3 are powered from the Class 1E divisions as listed in Tables 2.2.1-2 and 2.2.1-3 in a normal or alternate feed condition.

RAI 501, Question 14.03.03-53

5.2 Deleted.

5.3 The power supply arrangement is such that only two ~~emergency diesels~~EDGs are required to operate to supply power to the minimum number of PZR heaters.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.1-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

6.2 Instrumentation ~~in~~ designated as harsh environment in Table 2.2.1-3~~, that are designated as harsh environment,~~ will display as listed in Table 2.2.1-3 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 2.2.1-2 ~~can perform the~~ will function to change position as listed in Table 2.2.1-1 under system operating conditions.

7.2 The RCPs have rotational inertia to provide coastdown flow of reactor coolant on loss of power to the pump motors.

7.3 The RCPs provide flow.

7.4 RCP standstill seal system (SSSS) can be engaged when the RCP is stopped.

7.5 The PZR safety relief valves (PSRVs) open.

7.6 The PSRVs open below the maximum setpoint assumed in the safety analyses.

7.7 The PSRVs provide relief capacity.

7.8 Each RCP supply circuit breaker and switchgear feeder circuit breaker is tripped by a protection system signal.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.1-5 lists the RCS ITAAC.

RAI 501, Question 14.03.03-53

Table 2.2.1-5—Reactor Coolant System ITAAC (11 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.2.1-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.2.1-2 to perform the function listed in Table 2.2.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.1-2 can perform the function listed in Table 2.2.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.2.1-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~designated as harsh environment in Table 2.2.1-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements and deviations have been reconciled.

RAI 501, Question 14.03.03-53

Table 2.2.1-5—Reactor Coolant System ITAAC (11 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.2	Instrumentation i~~n~~ designated as harsh environment in Table 2.2.1-3~~, that are designated as harsh environment,~~ will display as listed in Table 2.2.1-3 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the instrumentation ~~listed~~ designated as harsh environment in Table 2.2.1-3 to display as listed in Table 2.2.1-3 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the instrumentation ~~listed~~ designated as harsh environment in Table 2.2.1-3 can display as listed in Table 2.2.1-3 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, including the time required to perform the listed function.~~during and following design basis events, including the time required to perform the listed function.~~
		b. Instrumentation listed as harsh environment in Table 2.2.1-3 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the instrumentation listed as harsh environment in Table 2.2.1-3 ~~as harsh environment has~~ have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

RAI 501, Question 14.03.03-53

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.2-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 2.2.2-2 ~~can perform the~~ will function to change position as listed in Table 2.2.2-1 under system operating conditions.

7.2 Containment isolation valves listed in Table 2.2.2-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.3 The IRWST provides a required water volume.

7.4 Post-LOCA pH control is provided for the IRWST with trisodium phosphate (TSP).

7.5 The IRWST suction inlet line for each safety injection system division has a debris screen.

7.6 Deleted.

7.7 The IRWST provides water to flood the spreading area.

7.8 The IRWST has a retaining basket located directly below each heavy floor opening.

7.9 The IRWST has a trash rack located over each heavy floor opening.

7.10 The IRWST has a weir located around each trash rack at the heavy floor opening.

7.11 The IRWST has a weir located at the annular space wall openings.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.2-3 lists the IRWSTS ITAAC.

RAI 501, Question 14.03.03-53

Table 2.2.2-3—In-Containment Refueling Water Storage Tank System ITAAC (9 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.2.2-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.2.2-2 to perform the function listed in Table 2.2.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.2-2 can perform the function listed in Table 2.2.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events,~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.2.2-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.2-2 ~~as harsh environment has~~ have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

- Opening of the accumulator injection path.
- Opening authorization of the residual heat removal system suction path from the reactor coolant system.
- Opening authorization of the hot-leg safety injection path.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.2.3-2 are powered from the Class 1E division as listed in Table 2.2.3-2 in a normal or alternate feed condition.

5.2 Deleted.

RAI 501, Question 14.03.03-53

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.3-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The SIS/RHRS heat exchangers listed in Table 2.2.3-1 have the capacity to transfer the design heat load to the component cooling water system.

7.2 The accumulators listed in Table 2.2.3-1 provide a storage volume.

7.3 Each accumulator line has a minimum head loss coefficient (fL/D + K).

7.4 The pumps listed in Table 2.2.3-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.5 The SIS/RHRS delivers water to the reactor coolant system for core cooling.

7.6 The SIS/RHRS delivers water to the reactor coolant system within the system run-out flow rate and pump shutoff head for core cooling due to design basis events.

7.7 Class 1E valves listed in Table 2.2.3-2 ~~can perform the~~ will function to change position as listed in Table 2.2.3-1 under system operating conditions.

7.8 The SIS/RHRS provides for flow testing of the SIS/RHRS pumps during plant operation.

7.9 Safety injection pumped flow will be delivered to the RCS before the maximum elapsed time.

7.10 Each LHSI pump delivers water at the required flow rate to its respective hot leg of the reactor coolant system.

7.11 LHSI pump and MHSI pump provide safety injection flow to the RCS during post-LOCA operation.

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Table 2.2.3-3—Safety Injection System and Residual Heat Removal System ITAAC (10 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.2.3-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.2.3-2 to perform the function listed in Table 2.2.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.3-2 can perform the function listed in Table 2.2.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions,~~during and following design basis events,~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.2.3-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components listed as harsh environment in Table 2.2.3-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

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5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.4-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.4-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The pumps listed in Table 2.2.4-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.2 The EFWS delivers water to the SG at the required flow rate to restore and maintain SG water level and remove decay heat following the loss of normal feedwater supply.

7.3 The EFWS combined storage pool available volume supports cooldown.

7.4 The EFWS limits the maximum flow rate to a depressurized steam generator.

7.5 EFWS cross-connections allow alignment of EFWS pump suction on all EFWS storage pools and pump discharge alignment with any SG.

7.6 Deleted.

7.7 Class 1E valves listed in Table 2.2.4-2 ~~perform the~~ will function~~s~~ to change position as listed in Table 2.2.4-1 under system operating conditions.

7.8 The EFWS provides for flow testing of the EFW pumps during plant operation.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.4-3 lists the EFWS ITAAC.

Table 2.2.4-3—Emergency Feedwater System ITAAC
(7 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	The components designated as Class 1E in Table 2.2.4-2 are powered from the Class 1E division as listed in Table 2.2.4-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.2.4-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 2.2.4-2~~ 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 components identified in Table 2.2.4-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.2.4-2.
5.2	Deleted.	Deleted.	Deleted.
6.1	Components designated as harsh environment in Table 2.2.4-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.4-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.2.4-2 to perform the function listed in Table 2.2.4-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.4-2 can perform the function listed in Table 2.2.4-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events.~~ including the time required to perform the listed function.

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Table 2.2.4-3—Emergency Feedwater System ITAAC
(7 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Components ~~listed~~ designated as harsh environment in Table 2.2.4-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.4-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	The pumps listed in Table 2.2.4-1 have NPSHA that is greater than NPSHR at system run-out flow.	~~Testing~~ Tests and analyses will be performed ~~to verify NPSHA for pumps listed in Table 2.2.4-1.~~	The pumps listed in Table 2.2.4-1 have NPSHA that is greater than NPSHR at system run-out flow.
7.2	The EFWS delivers water to the steam generators at the required flowrate to restore and maintain SG water level and remove decay heat following the loss of normal feedwater supply.	Tests ~~and analysis~~ will be performed ~~to verify the EFWS delivery flowrate to the steam generators~~.	The EFWS delivers ~~the following flowrate:~~ a ~~M~~minimum flow of 198,416 lb_m/hr (or 399.4 gpm at 122°F) at a pressure~~s up to~~ of 1426.1 psia.
7.3	The EFWS combined storage pool available volume supports cooldown.	Inspection and analysis will be performed ~~to verify the EFWS storage pool volume~~.	The ~~following~~ EFWS combined storage pool minimum~~available~~ volume is ~~provided:~~ ~~Minimum~~ 365,000 gallons (total for 4 pools).
7.4	The EFWS limits the maximum flow rate to a depressurized steam generator.	Tests will be performed. ~~to verify the maximum EFWS flow rate to a depressurized steam generator.~~	The EFWS ~~limits the following maximum~~ delivers a maximum flow of 490 gpm ~~rate~~ to a depressurized steam generator.~~:~~ ~~Maximum 490 gpm.~~

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.2.5-2 are powered from the Class 1E division as listed in Table 2.2.5-2 in a normal or alternate feed condition.

5.2 Deleted.

RAI 501, Question 14.03.03-53

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.5-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The fuel pool cooling system heat exchangers listed in Table 2.2.5-1 each have the capacity to transfer the design heat load to the component cooling water system.

7.2 The pumps listed in Table 2.2.5-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.3 Class 1E valves listed in Table 2.2.5-2 ~~can perform the~~ will function to change position as listed in Table 2.2.5-1 under system operating conditions.

7.4 The pumps listed in Table 2.2.5-1 each have the capacity to provide flow to the FPCS heat exchangers.

7.5 Containment isolation valves listed in Table 2.2.5-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.6 The FPCS design provides for maintaining the spent fuel pool water level above the spent fuel.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.5-3 lists the FPCPS ITAAC.

Table 2.2.5-3—Fuel Pool Cooling and Purification System ITAAC (7 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	The components designated as Class 1E in Table 2.2.5-2 are powered from the Class 1E division as listed in Table 2.2.5-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.2.5-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 2.2.5-2~~ 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 components identified in Table 2.2.5-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.2.5-2.
~~5.2~~	~~Deleted.~~	~~Deleted.~~	~~Deleted.~~
6.1	Components designated as harsh environment in Table 2.2.5-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.2.5-2 to perform the function listed in Table 2.2.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages~~ (EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.5-2 can perform the function listed in Table 2.2.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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Table 2.2.5-3—Fuel Pool Cooling and Purification System ITAAC (7 Sheets)

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Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Components listed as harsh environment in Table 2.2.5-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.5-2 ~~as harsh environment~~ have~~s~~ been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	The FPCPS heat exchangers listed in Table 2.2.5-1 each have the capacity to transfer the design heat load to the component cooling water system.	~~Vendor t~~Tests and analyses will be performed ~~to demonstrate the capability of each FPCS heat exchanger as listed in Table 2.2.5-1 to transfer the design heat load to the component cooling water system~~.	Each FPCPS heat exchanger ~~train~~ has the capacity to ~~remove~~ transfer a heat load of at least 19.8 MW to the component cooling water system and maintain the SFP temperature below 140°F via ~~one~~ the heat exchangers listed in Table 2.2.5-1.
7.2	The pumps listed in Table 2.2.-5-1 have NPSHA that is greater than NPSHR at system run-out flow.	~~Testing~~ Tests and analyses will be performed. ~~to verify NPSHA for pumps listed in Table 2.2.5-1.~~	The pumps listed in Table 2.2.5-1 have NPSHA that is greater than NPSHR at system run-out flow.
7.3	Class 1E valves listed in Table 2.2.5-2 ~~perform the~~ will function to change position as listed in Table 2.2.5-1 under system operating conditions.	~~Tests and analyses or a combination of tests and analyses will be performed to demonstrate the ability of the valves listed in Table 2.2.5-2 to change position as listed in Table 2.2.5-1 under system operating conditions.~~Tests will be performed for the operation of the valves listed in Table 2.2.5-2.	The valves change position as listed in Table 2.2.5-1 under system operating conditions.
7.4	The pumps listed in Table 2.2.5-1 each have the capacity to provide flow to the FPCS heat exchangers.	Tests will be performed.	Each train of the FPCS provides at least 3576 gpm to the FPCS heat exchanger with one pump in operation.

4.4 ~~The~~ Interlocks for the CVCS initiate ~~has~~ the following ~~system interlocks~~:

- Isolation of the charging pump suction from the volume control tank and normal letdown path during a boron dilution event by closure of valves 30KBA21AA001, 30KBA21AA009, and 30KBA25AA017.
- Isolation of the charging line by closure of valves 30KBA34AA002, 30KBA34AA012, and 30KBA35AA001.
- Isolation of the letdown line on a safety injection actuation signal by closure of valves 30KBA10AA001 and 30KBA10AA002.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.2.6-2 are powered from the Class 1E division as listed in Table 2.2.6-2 in a normal or alternate feed condition.

5.2 Deleted.

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6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.6-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Deleted.

7.2 Class 1E valves listed in Table 2.2.6-2 ~~can perform the~~ will function to change position as listed in Table 2.2.6-1 under system operating conditions.

7.3 Containment isolation valves listed in Table 2.2.6-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.4 The system run-out flow does not exceed the design maximum allowable.

7.5 The CVCS charging pumps listed in Table 2.2.6-1 provide the required seal water flow for operation of the reactor coolant pumps.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.6-3 lists the CVCS ITAAC.

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Table 2.2.6-3—Chemical and Volume Control System ITAAC
(7 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.2.6-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.2.6-2 to perform the function listed in Table 2.2.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Package (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.6-2 can perform the function listed in Table 2.2.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.2.6-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.6-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	Deleted.	Deleted.	Deleted.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.2.7-2 are powered from the Class 1E division as listed in Table 2.2.7-2 in a normal or alternate feed condition.

5.2 Deleted.

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6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.2.7-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The pumps listed in Table 2.2.7-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.2 Class 1E valves listed in Table -2.2.7-2 ~~can perform the~~ will function to change position as listed in Table 2.2.7-1 under system operating conditions.

7.3 The EBS provides for flow testing of the EBS pumps during plant operation.

7.4 Containment isolation valves listed in Table 2.2.7-1 close within the containment isolation response time following initiation of a containment isolation signal.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.2.7-3 lists the EBS ITAAC.

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Table 2.2.7-3—Extra Borating System ITAAC (7 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.2.7-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.2.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.2.7-2 to perform the function listed in Table 2.2.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.7-2 can perform the function listed in Table 2.2.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.2.7-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.2.7-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	The pumps listed in Table 2.2.7-1 have NPSHA that is greater than NPSHR at system run-out flow.	Testing will be performed to verify NPSHA for pumps listed in Table 2.2.7-1.	The pumps listed in Table 2.2.7-1 have NPSHA that is greater than NPSHR at system run-out flow.

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6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.3.1-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.3.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The hydrogen mixing dampers listed in Table 2.3.1-1 provide pressure relief for design basis events.

7.2 The convection foils listed in Table 2.3.1-1 provide pressure relief for design basis events.

7.3 The rupture foils listed in Table 2.3.1-1 provide pressure relief for design basis events.

7.4 The fusible link of the convection foils listed in Table 2.3.1-1 fails at the designed temperature.

7.5 The burst element of the convection foils listed in Table 2.3.1-1 opens at the designed pressure.

7.6 The burst element of the rupture foils listed in Table 2.3.1-1 opens at the designed pressure.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

8.1 Table 2.3.1-3 lists the Combustible Gas Control System ITAAC.

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Table 2.3.1-3—Combustible Gas Control System ITAAC
(3 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.3.1-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.3.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.3.1-2 to perform the function listed in Table 2.3.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.3.1-2 can perform the function listed in Table 2.3.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.3.1-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.3.1-2 ~~as harsh environment~~ have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	The hydrogen mixing dampers listed in Table 2.3.1-1 provide pressure relief for design basis events.	An inspection will be performed to verify that the hydrogen mixing dampers listed in Table 2.3.1-1 provide sufficient area for pressure relief.	The hydrogen mixing dampers listed in Table 2.3.1-1 provide a minimum combined total open area of 64 ft^2.

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5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.3.3-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.3.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Deleted.

7.2 Class 1E valves listed in Table 2.3.3-2 ~~perform the~~ will function~~s~~ to change position as listed in Table 2.3.3-1 under system operating conditions.

7.3 Containment isolation valves listed in Table 2.3.3-1 close within the containment isolation response time following initiation of a containment isolation signal.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.3.3-3 lists the SAHRS ITAAC.

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Table 2.3.3-3—Severe Accident Heat Removal System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.3.3-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.3.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.3.3-2 to perform the function listed in Table 2.3.3-1 f under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~or the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.3.3-2 can perform the function listed in Table 2.3.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.3.3-2 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 requirements, and deviations will be reconciled..	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.3.3-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	Deleted.	Deleted.	Deleted.

2.4.14 Hydrogen Monitoring System

1.0 Description

The hydrogen monitoring system (HMS) provides for the monitoring of hydrogen concentration in the containment atmosphere.

The HMS has the following safety-related function:

- Measures the hydrogen concentration in containment.

2.0 Arrangement

2.1 The location of the HMS system equipment is ~~located~~ as listed in Table 2.4.14-1—Hydrogen Monitoring System Equipment.

3.0 Mechanical Design Features

3.1 Equipment identified as Seismic Category I in Table 2.4.14-1 can withstand seismic design basis loads without loss of safety function.

4.0 I&C Design Features, Displays and Controls

4.1 The HMS equipment classified as Class 1E listed in Table 2.4.14-1 can ~~perform its safety~~ function when subjected to electromagnetic interference (EMI), radio-frequency interference (RFI), electrostatic discharges (ESD), and power surges.

5.0 Electrical Power Design Features

5.1 The components designated ~~identified~~ as Class 1E in Table 2.4.14-1 are powered from the Class 1E division as listed in Table 2.4.14-1 in a normal or alternate feed condition.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.14-1 ~~that are designated as harsh environment,~~ will perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 System Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.14-2 lists the HMS ITAAC.

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Table 2.4.14-~~2~~3—Hydrogen Monitoring System ITAAC
(~~2~~ 3 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
5.1	The components designated ~~identified~~ as Class 1E in Table 2.4.14-1 are powered from the Class 1E division as listed in Table 2.4.14-1 in a normal or alternate feed condition.	a. Testing will be performed ~~for components identified as Class 1E in Table 2.4.14-1~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components identified as Class 1E in Table 2.4.14-1~~ 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 components identified in Table 2.4.14-1. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.4.14-1.
6.1	Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.14-1 ~~that are designated as harsh environment,~~ will perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.14-1 to perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.14-1 can perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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Table 2.4.14-~~2~~3—Hydrogen Monitoring System ITAAC
(~~2~~ 3 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.14-1 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.4.14-1 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

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2.4.17 Excore Instrumentation System

1.0 Description

The excore instrumentation system (EIS) provides signals indicative of neutron flux level conditions to other I&C systems.

The EIS has the following safety related function:

- Provides neutron flux level signals to the signal conditioning and distribution system (SCDS).

2.0 Arrangement

2.1 The location of the EIS equipment is ~~located~~ as listed in Table 2.4.17-1—Excore Instrumentation System Equipment.

3.0 Mechanical Design Features

3.1 Equipment identified as Seismic Category I in Table 2.4.17-1 can withstand seismic design basis loads without loss of safety function.

4.0 I&C Design Features, Displays and Controls

4.1 The EIS equipment classified as Class 1E listed in Table 2.4.17-1 can ~~perform its safety~~ function when subjected to electromagnetic interference (EMI), radio-frequency interference (RFI), electrostatic discharges (ESD), and power surges.

4.2 The EIS provides output signals to the recipients listed in Table 2.4.17-2.

5.0 Electrical Power Design Features

5.1 The components designated ~~identified~~ as Class 1E in Table 2.4.17-1 are powered from the Class 1E division as listed in Table 2.4.17-1 in a normal or alternate feed condition.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.17-1 ~~that are designated as harsh environment,~~ will perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 System Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.17-3 lists the EIS ITAAC.

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Table 2.4.17-3—Excore Instrumentation System ITAAC
(2 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		c. A test will be performed	c. Opened EIS cabinet doors are indicated in the MCR when a BCMS cabinet door is in the open position.
5.1	The components designated ~~identified~~ as Class 1E in Table 2.4.17-1 are powered from the Class 1E division as listed in Table 2.4.17-1 in a normal or alternate feed condition.	a. Testing will be performed ~~for components identified as Class 1E in Table 2.4.17-1~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components identified as Class 1E in Table 2.4.17-1~~ 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 components identified in Table 2.4.17-1. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.4.17-1.
6.1	Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.17-1 ~~that are designated as harsh environment,~~ will perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.17-1 to perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.17-1 can perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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Table 2.4.17-3—Excore Instrumentation System ITAAC
(2 Sheets)

Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
	b. Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.17-1 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.4.17-1 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

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2.4.19 Incore Instrumentation System

1.0 Description

The incore instrumentation system (ICIS) provides information about the conditions inside the reactor core.

The ICIS has the following safety related functions:

- Provides self powered neutron detector (SPND) output signals to signal conditioning and distribution system (SCDS).
- Provides a measurement of core outlet temperatures.

2.0 Arrangement

2.1 The location of the ICIS equipment is ~~located~~ as listed in Table 2.4.19-1—Incore Instrumentation System Equipment.

3.0 Mechanical Design Features

3.1 Equipment identified as Seismic Category I in Table 2.4.19-1 can withstand seismic design basis loads without loss of safety function.

4.0 I&C Design Features, Displays and Controls

4.1 The ICIS equipment classified as Class 1E listed in Table 2.4.19-1 can ~~perform its safety~~ function when subjected to electromagnetic interference (EMI), radio-frequency interference (RFI), electrostatic discharges (ESD), and power surges.

4.2 The ICIS provides output signals to the recipients listed in Table 2.4.19-2.

5.0 Environmental Qualifications

5.1 Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.19-1 ~~that are designated as harsh environment,~~ will perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

6.0 System Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.4.19-3 lists the ICIS ITAAC.

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Table 2.4.19-3—Incore Instrumentation System ITAAC
(2 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.19-1 ~~that are designated as harsh environment,~~ will perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.19-1 to perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.19-1 can perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.19-1 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 requirements, and deviations will be reconciled.	b. Inspection reports exists and conclude that the components designated as harsh environment ~~listed as Class 1E~~ in Table 2.4.19-1 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

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2.4.22 Radiation Monitoring System

1.0 Description

The radiation monitoring system (RMS) provides surveillance of ionizing radiation comprising all provisions dealing with the occurrence of ionizing radiation within the plant and measures related to the health control of personnel who could be exposed to radiation.

The radiation monitoring system provides the following safety-related function:

- Provides safety-related signals to the SCDS.

The radiation monitoring system provides the following non-safety related function:

- Provides non-safety-related signals to the SCDS.

2.0 Arrangement

2.1 The location of the RMS equipment is ~~located~~ as listed in Table 2.4.22-1—Radiation Monitoring System Equipment.

3.0 Mechanical Design Features

3.1 Components identified as Seismic Category I in Table 2.4.22-1 can withstand seismic design basis loads without a loss of safety function.

4.0 I&C Design Features, Displays and Controls

4.1 The RMS provides the output signals to the recipients listed in Table 2.4.22-2.

4.2 Deleted.

5.0 Electrical Power Design Features

5.1 The components designated ~~identified~~ as Class 1E in Table 2.4.22-1 are powered from the Class 1E division as listed in Table 2.4.22-1 in a normal or alternate feed condition.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.4.22-1~~, that are designated as harsh environment,~~ will perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Deleted.

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Table 2.4.22-3—Radiation Monitoring System ITAAC
(2 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	The components designated ~~identified~~ as Class 1E in Table 2.4.22-1 are powered from the Class 1E division as listed in Table 2.4.22-1 in a normal or alternate feed condition.	a. Testing will be performed ~~for components identified as Class 1E in Table 2.4.22-1~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components identified as Class 1E in Table 2.4.22-1~~ 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 components identified in Table 2.4.22-1. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.4.22-1.
6.1	Components designated as harsh environment in Table 2.4.22-1~~, that are designated as harsh environment,~~ will perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.4.22-1 to perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.4.22-1 can perform their function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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Table 2.4.22-3—Radiation Monitoring System ITAAC
(2 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Components ~~listed~~ designated as harsh environment in Table 2.4.22-1 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.4.22-1 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	Deleted.	Deleted.	Deleted.

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3.3 Components identified as Seismic Category I in Table 2.6.3-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.3-1.

3.4 Components listed in Table 2.6.3-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.

3.5 Components listed in Table 2.6.3-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.6 Components listed in Table 2.6.3-1 as ASME AG-1 Code are installed, inspected and tested in accordance with ASME AG-1 Code requirements.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.3-2—Annulus Ventilation System Equipment I&C and Electrical Design, are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.3-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed in Table 2.6.3-2. ~~The AVS equipment controls exist in the MCR and RSS as listed in Table 2.6.3-2.~~

4.3 Deleted. ~~Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.3-2 responds to the state requested by a test signal.~~

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.3-2 are powered from the Class 1E division as listed in Table 2.6.3-2 in a normal or alternate feed condition.

5.2 Deleted.

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6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.6.3-2 ~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.6.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The AVS provides a negative pressure between the inner and outer containment shells during postulated accidents.

7.2 Upon receipt of containment isolation signal, the following actions occur automatically:

- Isolation of the normal operation train by closing the isolation dampers listed in Table 2.6.3-1 for Normal Operation Train.
- Start of the accident filtration trains and opening of the dampers listed in Table 2.6.3-1 for Accident Filtration Train.

Table 2.6.3-3—Annulus Ventilation System ITAAC
(4 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
	condition.	b. Testing will be performed ~~for the equipment designated as Class 1E in Table 2.6.3-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E equipment identified in Table 2.6.3-2.
5.2	Deleted.	Deleted.	Deleted.
6.1	Components designated as harsh environment in Table 2.6.3-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.6.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.6.3-2 to perform the function listed in Table 2.6.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.6.3-2 can perform the function listed in Table 2.6.3-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.6.3-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.6.3-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

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5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.6-2 are powered from the Class 1E division as listed in Table 2.6.6-2 in a normal or alternate feed condition.

5.2 Deleted.

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6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.6.6-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.6.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

6.2 Deleted.

7.0 Equipment and System Performance

7.1 Upon receipt of a containment isolation signal, the SBVS maintains a negative pressure in the hot mechanical rooms of the Safeguard Buildings relative to the adjacent areas.

7.2 Deleted.

7.3 Upon receipt of a high radiation signal in the FB, both SBVS iodine filtration trains start automatically, the isolation dampers open, and the accident air is directed through the SBVS iodine filtration trains.

7.4 Upon receipt of a containment isolation signal, the SBVS is isolated from the SBVSE and NAVBS by automatically closing the air supply and exhaust isolation dampers, both SBVS iodine filtration trains start automatically, and the FB and SB exhaust air is directed through the iodine filtration trains to maintain a negative pressure inside the FB and hot mechanical area of the SB.

7.5 The SBVS provides recirculation cooling to maintain design temperatures in the hot mechanical rooms in the Safeguard Buildings, while operating in a design basis accident alignment.

8.0 Inspections, Tests, Analyses and Acceptance Criteria

Table 2.6.6-3 lists the SBVS ITAAC.

Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (7 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	The components designated as Class 1E in Table 2.6.6-2 are powered from the Class 1E division as listed in Table 2.6.6-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for the components designated as Class 1E in Table 2.6.6-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for the components designated as Class 1E in Table 2.6.6-2~~ 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 components identified in Table 2.6.6-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.6.6-2.
5.2	Deleted.	Deleted.	Deleted.
6.1	Components designated as harsh environment in Table 2.6.6-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.6.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.6.6-2 to perform the function listed in Table 2.6.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events..~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.6.6-2 can perform the function listed in Table 2.6.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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Table 2.6.6-3—Safeguard Building Controlled-Area Ventilation System ITAAC (7 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Components ~~listed~~ designated as harsh environment in Table 2.6.6-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.6.6-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
6.2	Deleted.	Deleted.	Deleted.
7.1	Upon receipt of a containment isolation signal, the SBVS maintains a negative pressure in the hot mechanical rooms of the Safeguard Buildings relative to the adjacent areas.	A test will be performed to verify upon receipt of a containment isolation test signal, that the SBVS maintains a negative pressure in the hot mechanical rooms of the Safeguard Buildings relative to the adjacent areas.	The test confirms, upon receipt of a containment isolation test signal, that the SBVS maintains the pressure less than or equal to -0.25 inches water gauge in the hot mechanical rooms of the Safeguard Buildings relative to the adjacent areas.
7.2	Deleted.	Deleted.	Deleted.

3.14 CBVS piping between containment isolation valves is reconciled in accordance with an ASME Code Section III Design Report.

3.15 CBVS piping between containment isolation valves is fabricated, installed and inspected in accordance with ASME Code Section III requirements.

3.16 Pressure boundary welds in CBVS piping between containment isolation valves meet ASME Code Section III non-destructive examination requirements.

3.17 CBVS piping between containment isolation valves retains pressure boundary integrity at design pressure.

4.0 Displays and Controls

4.1 Displays listed in Table 2.6.8-3—Containment Ventilation System Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS) ~~as listed in Table 2.6.8-3~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function listed in ~~The CBVS equipment controls that are provided in the MCR and RSS are as listed in~~ Table 2.6.8-3.

4.3 Deleted. ~~Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.6.8-3 responds to the state requested by a test signal.~~

4.4 Deleted. ~~The CBVS provides containment pressure indication.~~

5.0 Electrical Power Design Features

5.1 The equipment designated as Class 1E in Table 2.6.8-3 are powered from the Class 1E division as listed in Table 2.6.8-3 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.6.8-3 ~~, that are designated as harsh environment,~~ will perform the function listed in Tables 2.6.8-1 and 2.6.8-2 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~in the environments that exist during and following design basis events.~~

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Table 2.6.8-4—Containment Building Ventilation System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	The components designated as Class 1E in Table 2.6.8-3 are powered from the Class 1E division as listed in Table 2.6.8-3 in a normal or alternate feed condition.	a. Tests will be performed ~~for the components designated as Class 1E in Table 2.6.8-3~~ by providing a test signal in each normally aligned division. b. Tests will be performed ~~for the components designated as Class 1E in Table 2.6.8-3~~ 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 components identified in Table 2.6.8-3. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.6.8-3.
5.2	Deleted.	Deleted.	Deleted.
6.1	Components designated as harsh environment in Table 2.6.8-3~~, that are designated as harsh environment,~~ will perform the function listed in Tables 2.6.8-1 and 2.6.8-2 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.6.8-3 to perform the function listed in Tables 2.6.8-1 and 2.6.8-2 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.6.8-3 can perform the function listed in Tables 2.6.8-1 and 2.6.8-2 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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Table 2.6.8-4—Containment Building Ventilation System ITAAC (6 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
		b. Components ~~listed~~ designated as harsh environment in Table 2.6.8-3 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.6.8-3 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	The CBVS low flow purge exhaust subsystem exhausts through a CBVS iodine filtration train.	Tests will be performed on the capability of the low flow purge exhaust subsystem to exhaust through a CBVS iodine filtration train.	The CBVS exhausts through a CBVS iodine filtration train when the CBVS low flow purge exhaust subsystem is operating.
7.2	Containment isolation valves listed in Table 2.6.8-1 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 2.6.8 1 to close within the containment isolation response time following initiation of a containment isolation signal.	Containment isolation valves listed in Table 2.6.8-1 close within 10 seconds following initiation of a containment isolation signal.

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- Start operable CCWS pumps (30KAA10/20/30/40 AP001), if not previously running.
- Open LHSI HX isolation valves (30KAA 12/22/32/43 AA005).
- Open LHSI pump seal cooler isolation valves (30KAA22/32 AA013).
- Close isolation valves for non-safety-related users outside of the Reactor Building (30KAB50 AA001/004/0006 and 30KAB80 AA015/016/019).

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.7.1-2 are powered from the Class 1E division as listed in Table 2.7.1-2 in a normal or alternate feed condition.

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5.2 Valves listed in Table 2.7.1-2 fail as-is on loss of power.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.7.1-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.7.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The CCWS heat exchangers as listed in Table 2.7.1-1 have the capacity to transfer the design heat load to the ESWS.

7.2 The pumps listed in Table 2.7.1-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.3 The CCWS delivers water to the LHSI/RHRS heat exchangers to provide cooling.

7.4 The CCWS delivers water to the RCP thermal barrier coolers at the required flow from Common 1.b header and also from Common 2.b header.

7.5 The CCWS delivers water to Divisions 2 and 3 of the SCWS chiller heat exchangers.

7.6 The CCWS delivers water to the spent fuel pool cooling heat exchangers.

7.7 Class 1E valves listed in Table 2.7.1-2 ~~can perform the~~ will function to change position as listed in Table 2.7.1-1 under system operating conditions.

7.8 The CCWS provides for flow testing of CCWS pumps during plant operation.

7.9 Containment isolation valves listed in Table 2.7.1-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.10 The CCWS surge tanks provide adequate capacity for system operation.

Table 2.7.1-3—Component Cooling Water System ITAAC
(10 Sheets)

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	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.7.1-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.7.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.7.1-2 to perform the function listed in Table 2.7.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.7.1-2 can perform the function listed in Table 2.7.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.7.1-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.7.1-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to the~~ EQDP requirements, and deviations have been reconciled.
7.1	The CCWS heat exchanger as listed in Table 2.7.1-1 has the capacity to transfer the design heat load to the ESWS system.	Tests and analyses will be performed to demonstrate the capability of the CCWS heat exchanger as listed in Table 2.7.1-1 to transfer the heat load to the ESWS.	A report exists and concludes that the CCWS heat exchanger is capable of removing the DBA heat load of 293.35 E+06 BTU/hr with a minimum additional margin of 10% above the specified 10% tube plugging allowance.

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5.2 Valves listed in Table 2.7.2-2 fail as-is on loss of power.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.7.2-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.7.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The SCWS chiller refrigerating units shown on Figure 2.7.2-1 have the capacity to provide chilled water at the temperature to support the heat removal requirements of each user.

7.2 The pumps listed in Table 2.7.2-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.3 The SCWS delivers water to the equipment listed in Table 2.7.2-1.

7.4 Class 1E valves listed in Table 2.7.2-2 ~~can perform the~~ will function to change position as listed in Table 2.7.2-1 under system operating conditions.

7.5 The SCWS provides for flow testing of the chilled water circulation pumps during plant operation.

7.6 The SCWS expansion tank maintains a reserve volume to accommodate system leakage for seven days

8.0 System Inspections, Tests, Analysis, and Acceptance Criteria

Table 2.7.2-3 lists the SCWS ITAAC.

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Table 2.7.2-3—Safety Chilled Water System ITAAC
(7 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.7.2-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.7.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.7.2-2 to perform the function listed in Table 2.7.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.7.2-2 can perform the function listed in Table 2.7.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.7.2-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.7.2-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	The SCWS chiller refrigerating units shown on Figure 2.7.2-1, have the capacity to provide chilled water at the temperature to support the heat removal requirements of each user.	Tests and analyses will be performed to demonstrate the capability of the SCWS chiller refrigerating units to provide chilled water at a temperature to support the heat removal requirements of all users.	The SCWS chiller refrigerating units have the capacity to provide chilled water at the required temperature of 41°F.

3.5 Pressure boundary welds on components listed in Table 2.7.5-1 as ASME Code Section III ~~are in accordance with~~meet ASME Code Section III non-destructive examination requirements.

3.6 Components listed in Table 2.7.5-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure.

3.7 Components listed in Table 2.7.5-1 as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.8 Containment isolation valves are located close to containment penetrations.

3.9 FWDS piping between containment isolation valves is reconciled in accordance with an ASME Code Section III Design Report.

3.10 FWDS piping between containment isolation valves is fabricated, installed and inspected in accordance with ASME Code Section III requirements.

3.11 Pressure boundary welds in FWDS piping between containment isolation valves meet ASME Code Section III non-destructive examination requirements.

3.12 FWDS piping between containment isolation valves retains pressure boundary integrity at design pressure.

4.0 I&C Design Features, Displays and Controls

4.1 Displays listed in Table 2.7.5-2—Fire Water Distribution System Equipment I&C and Electrical Design are ~~retrievable~~ indicated in the main control room (MCR) and the remote shutdown station (RSS)~~ as listed in Table 2.7.5-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The FWDS equipment controls are provided in the MCR and the RSS as~~ listed in Table 2.7.5-2.

4.3 Deleted.~~Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.7.5-2 responds to the state requested by a test signal.~~

4.4 The ~~as-built~~location of the fire water distribution system equipment is consistent with the post-fire safe shutdown analysis.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.7.5-2 are powered from the Class 1E division as listed in Table 2.7.5-2 in a normal or alternate feed condition.

5.2 Valves listed in Table 2.7.5-2 fail as-is on loss of power.

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6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.7.5-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.7.5-1 under normal environmental conditions, containment test conditions, anticipated operational

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occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 The FWDS includes two separate fresh water storage tanks.

7.2 The FWDS pumps consist of at least one electric motor-driven pump and one diesel engine-driven pump.

7.3 FWDS pumps have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow.

7.4 Class 1E valves listed in Table 2.7.5-2 ~~can perform the~~ will function to change position as listed in Table 2.7.5-1 under system operating conditions.

7.5 The FWDS provides for flow testing of FWDS pumps during plant operation.

7.6 Containment isolation valves listed in Table 2.7.5-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.7 The standpipe and hose systems in areas containing systems and components required for safe plant shutdown in the event of a safe shutdown earthquake (SSE), including the water supply to these standpipes, are capable of remaining functional and supplying two hose stations following an SSE.

8.0 Interface Requirements

8.1 The raw water supply system (RWSS) delivers makeup water to the FWDS fire water storage tanks.

9.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.5-3 lists the FWDS ITAAC.

Table 2.7.5-3—Fire Water Distribution System ITAAC
(5 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	The components designated as Class 1E in Table 2.7.5-2 are powered from the Class 1E division as listed in Table 2.7.5-2 in a normal or alternate feed condition.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.7.5-2~~ by providing a test signal in each normally aligned division. b. Testing will be performed ~~for components designated as Class 1E in Table 2.7.5-2~~ 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 components identified in Table 2.7.5-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.7.5-2.
5.2	Valves listed in Table 2.7.5-2 fail as-is on loss of power.	Testing will be performed for the valves listed in Table 2.7.5-2 to fail as-is on loss of power.	Following loss of power, the valves listed in Table 2.7.5-2 fail as-is.
6.1	Components designated as harsh environment in Table 2.7.5-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.7.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.7.5-2 to perform the function listed in Table 2.7.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.7.5-2 can perform the function listed in Table 2.7.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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Table 2.7.5-3—Fire Water Distribution System ITAAC
(5 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Components ~~listed~~ designated as harsh environment in Table 2.7.5-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.7.5-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	The FWDS includes two separate fresh water storage tanks.	An inspection and analysis will be performed. ~~An inspection of the as-built capacity of the fire water storage tanks will be performed.~~	The capacity of e~~E~~ach of the two fire water storage tanks is ~~of~~ greater than or equal to 300,000 gallons ~~capacity~~.
7.2	The FWDS pumps consist of at least one electric motor-driven pump and one diesel engine-driven pump that provide 100% capacity assuming failure of the largest pump or loss of offsite power.	a. An inspection will be performed ~~to verify that at least one electric motor-driven pump and one diesel engine-driven pump exists~~. b. An analysis will be performed.	a. At least one electric motor-driven pump and one diesel engine-driven pump exists. b. Analysis ~~reports exist and~~ concludes that one diesel and one electric pump provide 100% capacity assuming failure of the largest pump or loss of offsite power.
7.3	FWDS pumps have NPSHA that is greater than NPSHR at system run-out flow.	~~Testing~~ Tests and analyses will be performed to verify NPSHA for FWDS pumps.	The FWDS pumps have NPSHA that is greater than NPSHR at system run-out flow.

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5.4 Each turbine bypass valve fails closed on loss of power to the valve actuator.

5.5 Each main steam relief control valve, main steam warming isolation valve, and main steam warming control valve fails as-is on loss of electric power to the valve actuator.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.8.2-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.8.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 2.8.2-~~2 can perform the~~will ~~-~~function to change position as listed in Table 2.8.2-1 under system operating conditions.

7.2 Each of the two MSSVs per main steam line provide relief capacity for the main steam system.

7.3 MSRTs provide relief capacity.

7.4 Each MSRIV per main steam line opens upon receipt of a signal.

7.5 Each MSIV per main steam line closes upon receipt of a signal.

7.6 Deleted.

7.7 Upon safety injection actuation, the MSRT controls secondary system cooldown at a pre-defined rate.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.8.2-3 lists the MSS ITAAC.

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Table 2.8.2-3—Main Steam System ITAAC (7 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.8.2-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.8.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.8.2-2 to perform the function listed in Table 2.8.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.8.2-2 can perform the function listed in Table 2.8.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. b. Components ~~listed~~ designated as harsh environment in Table 2.8.2-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.8.2-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

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6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.8.6-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.8.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 2.8.6-2 ~~can perform the~~ will function to change position as listed in Table 2.8.6-1 under system operating conditions.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.8.6-3 lists the MFWS ITAAC.

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Table 2.8.6-3— Main Feedwater System ITAAC (5 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 2.8.6-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.8.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.8.6-2 to perform the function listed in Table 2.8.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.8.6-2 can perform the function listed in Table 2.8.6-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.8.6-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.8.6-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

5.0 Electrical Power Design Features

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.

5.2 Valves listed in Table 2.8.7-2 fail as-is on loss of power.

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6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 2.8.7-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.8.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 2.8.7-2 ~~can perform the~~ will function to change position as listed in Table 2.8.7-1 under system operating conditions.

7.2 Containment isolation valves listed in Table 2.8.7-1 close within the containment isolation response time following initiation of a containment isolation signal.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.8.7-3 lists the SGBS ITAAC.

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

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
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 components 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 components identified in Table 2.8.7-2.
5.2	Valves listed in Table 2.8.7-2 fail as-is on loss of power.	Testing will be performed for the valves listed in Table 2.8.7-2 to fail as-is on loss of power.	Following loss of power, the valves listed in Table 2.8.7-2 fail as-is.
6.1	Components designated as harsh environment in Table 2.8.7-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.8.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.8.7-2 to perform the function listed in Table 2.8.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.8.7-2 can perform the function listed in Table 2.8.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Components ~~listed~~ designated as harsh environment in Table 2.8.7-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.8.7-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	Class 1E valves listed in Table 2.8.7-2 ~~perform the~~ will function to change position as listed in Table 2.8.7-1 under system operating conditions.	~~Tests and analyses or a combination of tests and analyses will be performed to demonstrate the ability of the valves listed in Table 2.8.7-2 to change position as listed in Table 2.8.7-1 under system operating conditions.~~ Tests will be performed for the operation of the valves listed in Table 2.8.7-2.	The valve~~s~~ change~~s~~ position as listed Table 2.8.7-1 under system operating conditions.
7.2	Containment isolation valves listed in Table 2.8.7-1 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 2.8.7-1 to close within the containment isolation response time following initiation of a containment isolation signal.	The containment isolation valves listed in Table 2.8.7-1 close within 60 seconds following initiation of a containment isolation signal.

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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 fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.12 Valves listed in Table 2.9.3-1 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 conditions ranging from normal operating to design-basis accident conditions.

3.13 Containment isolation valves are located close to containment penetrations.

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~~ indicated in the main control room (MCR) ~~as listed in Table 2.9.3-2~~.

4.2 Controls on the PICS in the MCR and the RSS perform the function ~~The GWPS equipment controls are provided in the MCR as~~ listed in Table 2.9.3-2.

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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 designated as harsh environment in Table 2.8.7-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.8.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

7.0 Equipment and System Performance

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

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
(6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
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.	a. Testing will be performed ~~for components designated as Class 1E in Table 2.9.3-2~~ by providing a test signal in each normally aligned division.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table 2.9.3-2.
		b. Testing will be performed ~~for components designated as Class 1E in Table 2.9.3-2~~ by providing a test signal in each division with the alternate feed aligned to the divisional pair.	b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table 2.9.3-2.
6.1	Components designated as harsh environment in Table 2.8.7-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 2.8.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 2.8.7-2 to perform the function listed in Table 2.8.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.8.7-2 can perform the function listed in Table 2.8.7-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 2.8.7-2 will be inspected to verify installation in accordance with ~~the construction drawings including the associated wiring, cables and terminations.~~	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 2.8.7-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have~~

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Table 2.9.3-3—Gaseous Waste Processing System ITAAC (6 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		~~Deviations to the construction drawings will be reconciled to~~ the EQDP requirements, and deviations will be reconciled.	~~been reconciled to~~ the EQDP requirements, and deviations have been reconciled.
7.1	The GWPS processing equipment contains delay beds filled with the proper types and amounts of 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 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 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.

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2.9.5 Nuclear Island Drain and Vent System

1.0 Description

The nuclear island drain and vent system (NIDVS) collects, temporarily stores, and transfers radioactive fluids from the nuclear island area to other plant systems in a controlled manner. Portions of the NIDVS are classified as safety-related. The NIDVS operates during normal power, start-up, and shutdown conditions.

The NIDVS provides the following safety-related functions:

- Provides alarms in the main control room (MCR) to indicate a flooding event.
- Trips the essential service water system (ESWS) pump and closes the ESWS pump discharge valve in a Safeguard Building (SB) flooding event.
- Supports reactor coolant pressure boundary (RCPB) leakage detection.

2.0 Arrangement

2.1 The location of the sump level sensors is as listed in Table 2.9.5-1—NIDVS Equipment I&C and Electrical Design.

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

3.1 Displays listed in Table 2.9.5-1 are ~~retrievable~~ indicated in the main control room (MCR).

3.2 ~~The~~ An interlock for the sump level sensors in a Safeguard Buildings as listed in Table 2.9.5-1 trips the ESWS pump and closes the pump discharge valve in response to a flooding signal in the respective Safeguard Building.

3.3 Containment sump level sensors support RCS leakage detection. ~~The sump has level sensors that can be used to monitor system leakage.~~

4.0 Electrical Power Design Features

4.1 The sump level sensors designated as Class 1E in Table 2.9.5-1 are powered from the Class 1E division listed in Table 2.9.5-1 in a normal feed condition.

5.0 Environmental Qualifications

5.1 The sump level sensors listed in Table 2.9.5-1 designated as ~~for EQ~~ harsh environment can initiate an alarm in the MCR under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~following exposure to the environments that exist during and following design basis events.~~

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Table 2.9.5-2—Nuclear Island Drain and Vent System ITAAC
(2 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
3.3	Containment sump level sensors support RCS leakage detection. ~~The sump has level sensors that can be used to monitor system leakage.~~	Tests will be performed using test signals. ~~to verify RB sump level change capability.~~	Containment sump level sensors can detect a level increase of 0.5 gpm within one hour. ~~Sump level change of 24 gallons is indicated in the MCR.~~
4.1	The sump level sensors designated as Class 1E in Table 2.9.5-1 are powered from the Class 1E division listed in Table 2.9.5-1 in a normal feed condition.	Tests will be performed ~~for sump level sensors designated as Class 1E in Table 2.9.5-1~~ by providing a test signal to the aligned Class 1E division.	The test signal provided in the normally aligned ~~Class 1E~~ division is present at the sump level sensors identified in Table 2.9.5-1.
5.1	The sump level sensors listed in Table 2.9.5-1 designated as ~~for EQ~~ harsh environment can initiate an alarm in the MCR under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~following exposure to the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as ~~EQ~~ harsh environment in Table 2.9.5-1 to initiate an alarm in the MCR under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. ~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.9.5-1 can initiate an alarm in the MCR under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.

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Table 2.9.5-2—Nuclear Island Drain and Vent System ITAAC
(2 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
		b. Components ~~listed~~ designated as EQ-harsh environment in Table 2.9.5-1 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 requirements, and deviations will be reconciled.	b. Inspection reports exist and conclude that the components ~~listed~~ designated as harsh environment in Table 2.9.5-1 ~~as harsh environment has~~have been installed per ~~the construction drawings and deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

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5.5 Containment electrical penetrations are protected from fault currents that are greater than continuous current rating.

6.0 Environmental Qualifications

6.1 Components designated as harsh environment in Table 3.5-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 3.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~

6.2 Containment electrical penetration~~s~~ assemblies designated as ~~are qualified for~~ harsh environment ~~and~~ will perform the required safety function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~following exposure to the operational and design basis environments.~~

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 3.5-2 ~~can perform the~~ will function to change position as listed in Table 3.5-1 under system operating conditions.

7.2 Containment isolation valves listed in Table 3.5-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.3 Deleted.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 3.5-3 lists the containment isolation ITAAC.

Table 3.5-3—Containment Isolation ITAAC (8 Sheets)

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components designated as harsh environment in Table 3.5-2~~, that are designated as harsh environment,~~ will perform the function listed in Table 3.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~in the environments that exist during and following design basis events.~~	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components ~~listed~~ designated as harsh environment in Table 3.5-2 to perform the function listed in Table 3.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur during and following design basis events.~~	a. ~~Environmental Qualification Data Packages (~~EQDPs~~)~~ exist and conclude that the components ~~listed~~ designated as harsh environment in Table 3.5-2 can perform the function listed in Table 3.5-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, ~~during and following design basis events~~ including the time required to perform the listed function.
		b. Components ~~listed~~ designated as harsh environment in Table 3.5-2 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 requirements, and deviations will be reconciled.	b. Inspection reports exist~~s~~ and conclude that the components ~~listed~~ designated as harsh environment in Table 3.5-2 ~~as harsh environment has~~have been installed per ~~the construction drawings and any deviations have been reconciled to~~ the EQDP requirements, and deviations have been reconciled.

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Table 3.5-3—Containment Isolation ITAAC (8 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
6.2	Containment electrical penetrations assemblies designated as ~~are qualified for~~ harsh environment ~~and~~ will perform the required safety function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~following exposure to the operational and design basis environments.~~	a. Type tests or type tests and analysis of tests and analyses will be performed to demonstrate the ability of the ~~equipment~~ containment electrical penetration assemblies designated as ~~for~~ harsh environment to perform the required safety function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.~~for the environmental conditions that could occur before and during and following design basis events.~~	a. EQDPs exist and conclude that ~~C~~containment electrical penetrations assemblies designated as ~~are qualified for~~ harsh environment ~~and~~ can perform the required safety function under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, including the time required to perform the listed function.~~during and following exposure to the operational and design basis environments.~~
		b. ~~Equipment listed for harsh environment~~ Containment electrical penetration assemblies 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 requirements, and deviations will be reconciled.	b. Inspection reports exists and conclude that ~~the~~ containment electrical penetrations assemblies have been installed per the EQDP requirements, and ~~construction drawings and any~~ deviations have been reconciled~~ to the EQDP~~.

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