SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.:	**83-7962**
SRP Section:	**14.03.04 – Reactor Systems – Inspections, Tests, Analyses, and Acceptance Criteria**
Application Section:	**SRP 14.03**
Date of RAI Issue:	**07/16/2015**

Question No. 14.03.04-5

Tier 1 Tables 2.4.1-4, "Reactor Coolant System ITAAC," 2.4.2-4, "In-containment Water Storage System ITAAC,"2.4.3-4, "Safety Injection System ITAAC," 2.4.4-4, "Shutdown Cooling System ITAAC," 2.4.5-4, "Reactor Coolant Gas Vent System ITAAC," and 2.4.6-4, "Chemical and Volume Control System ITAAC," each contain an ITAAC item labeled 6.c that commits to separation being provided "between Class 1E divisions, and between Class 1E division and non-Class 1E division." The Acceptance Criteria, 6.c., requires that "physical separation or electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between class 1E division and non-Class 1E division."

Contrary to the above, RG 1.75 states: "The underlying separation criteria are that (1) physical separation AND (2) electrical isolation must be provided to maintain the independence of safety-related circuits and equipment so that the safety functions required during and following any design-basis event can be accomplished."

INFORMATION NEEDED

The staff needs the applicant to justify use of the word "or" in the acceptance criteria, or re-word the acceptance criteria to accurately reflect what is required by RG 1.75. Please consider this justification or change for all ITAAC tables that include this ITAAC item, 6.c.

There are 4 instances where the word "division" is used in this ITAAC item (i.e. the last two uses of "division" in the Design Commitment and the Acceptance Criteria). The staff recommends clarifying if "division" should be plural in the Design Commitment and the Acceptance Criteria for each one of these ITAAC items. The staff also recommends the applicant to review all ITAAC items and ensure that editorial errors are fixed as appropriate.

Response

The ITAAC items that address physical separation and electrical isolation in accordance with RG 1.75 will be revised to change the word "or" in the acceptance criteria to the word "and" for all instances.

Throughout the Tier 1 document, the singular word "division" will be changed to the plural word "divisions" where needed to clarify the plurality of division.

Supplemental Response

This response is being supplemented to provide additional revised pages to Tier 1 Section 2.4.1.1 Item 6c and Table 2.4.1-4 which were not included in the original response.

Impact on DCD

The DCD Tier 1 document will be revised as indicated in the attached markup.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environmental Report.

2.b The ASME Code piping including supports identified in Table 2.4.1-1 is designed and constructed in accordance with ASME Section III requirements.

3.a Pressure boundary welds in ASME Code components identified in Table 2.4.1-2 meet ASME Section III requirements.

3.b Pressure boundary welds in ASME Code piping identified in Table 2.4.1-1 meet ASME Section III requirements.

4.a The ASME Code components identified in Table 2.4.1-2 retain their pressure boundary integrity under at their design pressure.

4.b The ASME Code piping identified in Table 2.4.1-1 retains its pressure boundary integrity under at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.4.1-2 and 2.4.1-3 withstands seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.4.1-1 withstands seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.4.1-2 and 2.4.1-3 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.4.1-2 and 2.4.1-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.

divisions

7.a MOVs and AOVs identified in Table 2.4.1-2 perform an active safety function to change position as indicated in the table.

Table 2.4.1-4 (4 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components and instruments identified in Tables 2.4.1-2 and 2.4.1-3 is powered from respective Class 1E division.	6.b Tests are performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Tables 2.4.1-2 and 2.4.1-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.	6.c Inspection of the as-built Class 1E divisions is performed.	6.c Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7.a MOVs and AOVs identified in Table 2.4.1-2 perform an active safety function to change position as indicated in the table.	7.a.i Tests or type testes of MOVs and AOVs are preformed to demonstrate the capability of the valve to operate under its design conditions.	7.a.i A test report exists and concludes that each as-built MOV or AOV changes position as indicated in Table 2.4.1-2 under design conditions.
	7.a.ii Test and/or analyses of the as-built MOVs and AOVs are performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each as-built MOV or AOV changes position as indicated in Table 2.4.1-2 under pre-operational test conditions.
7.b After loss of motive power, MOVs and AOVs identified in Table 2.4.1-2 assume the indicated loss of motive power position.	7.b Tests of the as-built MOVs and AOVs are performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built MOV or AOV identified in Table 2.4.1-2 assumes the indicated loss of motive power position.
8.a All controls required by the design exist in the MCR to start and stop the reactor coolant pumps and to open and close MOVs and AOVs listed in Table 2.4.1-2.	8.a Tests are performed using the controls in the MCR.	8.a All controls in the as-built MCR start and stop the reactor coolant pumps and open and close MOVs and AOVs identified in Table 2.4.1-2.
8.b All controls required by the design exist in the RSR to start and stop the reactor coolant pumps and to open and close MOVs and AOVs s listed in Table 2.4.1-2.	8.b Tests are performed using the controls in the RSR.	8.b All controls in the as-built RSR start and stop the reactor coolant pumps and open and close MOVs and AOVs identified in Table 2.4.1-2.

4.a The ASME Code components identified in Table 2.4.2-2 retain their pressure boundary integrity at their design pressure.

4.b The ASME Code piping identified in Table 2.4.2-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.4.2-2 and 2.4.2-3 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.4.2-1 withstands seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.4.2-2 and 2.4.2-3 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.4.2-2 and 2.4.2-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.

divisions

7.a MOVs and SOVs identified in Table 2.4.2-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, MOVs and SOVs identified in Table 2.4.2-2 assume the indicated loss of motive power position.

8.a All controls required by the design exist in the MCR to open and close MOVs and SOVs identified in Table 2.4.2-2.

8.b All controls required by the design exist in the RSR to open and close MOVs and SOVs identified in Table 2.4.2-2.

Table 2.4.2-4 (4 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.a (cont.)	6.a.ii Inspections will be performed on the as-built Class 1E components and instruments and the associated wiring, cables, and terminations located in a harsh environment.	6.a.ii A report exists and concludes that the as-built Class 1E components and instruments and the associated wiring, cables, and terminations identified in Tables 2.4.2-2 and 2.4.2-3 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.
6.b Each of the Class 1E components and instruments identified in Tables 2.4.2-2 and 2.4.2-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Tables 2.4.2-2 and 2.4.2-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~	6.c Inspection of the as-built Class 1E divisions will be performed. Physical separation and electrical isolation exist divisions	6.c ~~Physical separation or electrical isolation exists~~ in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7.a MOVs and SOVs identified in Table 2.4.2-2 perform an active safety function to change position as indicated in the table.	7.a.i Test or type tests of MOVs and SOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i A test report exists and concludes that each MOV or SOV changes position as indicated in Table 2.4.2-2 under design conditions.
	7.a.ii Test and/or analyses of the as-built MOVs and SOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each MOV or SOV changes position as indicated in Table 2.4.2-2 under pre-operational test conditions.
7.b After loss of motive power, MOVs and SOVs identified in Table 2.4.2-2 assume the indicated loss of motive power position.	7.b Test of the as-built MOVs and SOVs will be performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built MOV or SOV identified in Table 2.4.2-2 assumes the indicated loss of motive power position.

5.a The seismic Category I components and instruments identified in Tables 2.4.3-2 and 2.4.3-3 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.4.3-1 can withstand seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.4.3-2 and 2.4.3-3 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.4.3-2 and 2.4.3-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

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7.a MOVs, SOVs, AOVs and check valves identified in Table 2.4.3-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, MOVs, SOVs and AOVs identified in Table 2.4.3-2 assume the indicated loss of motive power position.

8.a All controls required by the design exist in the MCR to start and stop the SIPs, and to open and close MOVs, SOVs, and AOVs identified in Table 2.4.3-2.

8.b All controls required by the design exist in the RSR to start and stop the SIPs, and to open and close MOVs, SOVs, and AOVs identified in Table 2.4.3-2.

8.c All displays and alarms required by the design exist in the MCR as defined in Tables 2.4.3-2 and 2.4.3-3.

Table 2.4.3-4 (4 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components and instruments identified in Tables 2.4.3-2 and 2.4.3-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the as-built Class 1E components and instruments identified in Tables 2.4.3-2 and 2.4.3-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	6.c Inspections of the as-built Class 1E divisions will be performed.	6.c Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E division and non-Class 1E division.
7.a MOVs, SOVs, AOVs and check valves identified in Table 2.4.3-2 perform an active safety function to change position as indicated in the table.	7.a.i Tests or type tests of MOVs, SOVs and AOVs will be performed that demonstrate the capability of the valve to operate under their design conditions.	7.a.i A test report exists and concludes that each MOV, SOV or AOV changes position as indicated in Table 2.4.3-2 under design conditions.
	7.a.ii Tests and/or analyses of the as-built MOVs, SOVs and AOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each as-built MOV, SOV or AOV changes position as indicated in Table 2.4.3-2 under pre-operational test conditions.
	7.a.iii Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7.a.iii Each as-built check valve changes position as indicated in Table 2.4.3-2 under pre-operational test conditions.
7.b After loss of motive power, MOVs, SOVs and AOVs identified in Table 2.4.3-2 assume the indicated loss of motive power position.	7.b Tests of the as-built MOVs, SOVs and AOVs will be performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built MOV, SOV or AOV identified in Table 2.4.3-2 assumes the indicated loss of motive power position.

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4.b The ASME Code piping identified in Table 2.4.4-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.4.4-2 and 2.4.4-3 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.4.4-1 can withstand seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.4.4-2 and 2.4.4-3 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.4.4-2 and 2.4.4-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E division and non- Class 1E division.

7.a MOVs and check valves identified in Table 2.4.4-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, MOVs identified in Table 2.4.4-2 assume the indicated loss of motive power position.

8.a All controls required by the design exist in the MCR to start and stop the SCPs, and to open and close MOVs identified in Table 2.4.4-2.

8.b All controls required by the design exist in the RSR to start and stop the SCPs, and to open and close MOVs identified in Table 2.4.4-2.

Table 2.4.4-4 (4 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components and instruments identified in Tables 2.4.4-2 and 2.4.4-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Tables 2.4.4-2 and 2.4.4-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	6.c Inspections of the as-built Class 1E division s will be performed.	6.c Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E division and non-Class 1E division.
7.a MOVs and check valves identified in Table 2.4.4-2 perform an active safety function to change position as indicated in the table.	7.a.i Tests or type tests of MOVs will be performed that demonstrate the capability of the valve to operate under their design conditions.	7.a.i A test report exists and concludes that each MOV changes position as indicated in Table 2.4.4-2 under design conditions.
	7.a.ii Tests and/or analyses of the as-built MOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each as-built MOV changes position as indicated in Table 2.4.4-2 under pre-operational test conditions.
	7.a.iii Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7.a.iii Each as-built check valve changes position as indicated in Table 2.4.4-2 under pre-operational test conditions.
7.b After loss of motive power, MOVs identified in Table 2.4.4-2 assume the indicated loss of motive power position.	7.b Tests of the as-built MOVs will be performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built MOV identified in Table 2.4.4-2 assumes the indicated loss of motive power position.

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3.b Pressure boundary welds in ASME Code piping identified in Table 2.4.5-1 meet ASME Section III requirements.

4.a The ASME Code components identified in Table 2.4.5-2 retain their pressure boundary integrity at their design pressure.

4.b The ASME Code piping identified in Table 2.4.5-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.4.5-2 and 2.4.5-3 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.4.5-1 withstands seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.4.5-2 and 2.4.5-3 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.4.5-2 and 2.4.5-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.

divisions

7.a SOVs identified in Table 2.4.5-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, SOVs indicated in Table 2.4.5-2 assume the indicated loss of motive power position.

8.a All controls required by the design exist in the MCR to open and close SOVs identified in Table 2.4.5-2.

Table 2.4.5-4 (4 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components and instruments identified in Tables 2.4.5-2 and 2.4.5-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Tables 2.4.5-2 and 2.4.5-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.	6.c Inspection of the as-built Class 1E divisions will be performed. Physical separation and electrical isolation exist divisions	6.c ~~Physical separation or electrical isolation exists~~ in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7.a SOVs identified in Table 2.4.5-2 perform an active safety function to change position as indicated in the table.	7.a.i Tests or type tests of SOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i A test report exists and concludes that each SOV changes position as indicated in Table 2.4.5-2 under design conditions.
	7.a.ii Test and/or analyses of the as-built SOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each as-built SOV changes position as indicated in Table 2.4.5-2 under pre-operational test conditions.
7.b After loss of motive power, SOVs identified in Table 2.4.5-2 assume the indicated loss of motive power position.	7.b Test of the as-built SOVs will be performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built SOV identified in Table 2.4.5-2 assumes the indicated loss of motive power position.

5.a The seismic Category I components and instruments identified in Tables 2.4.6-2 and 2.4.6-3 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.4.6-1 can withstand seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.4.6-2 and 2.4.6-3 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.4.6-2 and 2.4.6-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.

divisions

7.a MOVs, AOVs, and check valves identified in Table 2.4.6-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, MOVs, AOVs, and SOV identified in Table 2.4.6-2 assume the indicated loss of motive power position.

8.a All controls required by the design exist in the MCR to start and stop the charging pumps and auxiliary charging pump, and to open and close MOVs, AOVs, and SOV identified in Table 2.4.6-2.

8.b All controls required by the design exist in the RSR to start and stop the charging pumps and auxiliary charging pump, and to open and close MOVs, AOVs, and SOV identified in Table 2.4.6-2.

8.c All displays and alarms required by the design exist in the MCR as defined in Tables 2.4.6-2 and 2.4.6-3.

Table 2.4.6-4 (4 of 6)

Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria	
6.b	Each of the Class 1E components and instruments identified in Tables 2.4.6-2 and 2.4.6-3 is powered from its respective Class 1E division.	6.b	Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b	The test signal exists at the Class 1E components and instruments identified in Tables 2.4.6-2 and 2.4.6-3 powered from the Class 1E division under test.
6.c	Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~. divisions	6.c	Inspection of the as-built Class 1E divisions will be performed.	6.c	Physical separation ~~or~~ and electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~. divisions
7.a	MOVs, AOVs, and check valves identified in Table 2.4.6-2 perform an active safety function to change position as indicated in the table.	7.a.i	Tests or type tests of MOVs and AOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i	A test report exists and concludes that each MOV or AOV changes position as indicated in Table 2.4.6-2 under design conditions.
		7.a.ii	Tests and/or analyses of the as-built MOVs and AOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii	Upon receipt of the actuating signal, each MOV or AOV changes position as indicated in Table 2.4.6-2 under pre-operational test conditions.
		7.a.iii	Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7.a.iii	Each as-built check valve changes position as indicated in Table 2.4.6-2 under pre-operational test conditions.
7.b	After loss of motive power, MOVs, AOVs, and SOV identified in Table 2.4.6-2 assume the indicated loss of motive power position.	7.b	Tests of the as-built MOVs, AOVs, and SOV will be performed under the conditions of loss of motive power.	7.b	Upon loss of motive power, each as-built MOVs, AOVs, or SOV identified in Table 2.4.6-2 assumes the indicated loss of motive power position.

Table 2.6.3-3 (3 of 3)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
8. Class 1E dc power system distribution panels and dc control centers are identified according to their Class 1E trains.	8. Inspection of the as-built Class 1E dc distribution panels and dc control centers will be performed.	8. The as-built Class 1E dc power system distribution panels and dc control centers are identified according to their Class 1E trains.
9. Class 1E dc power system cables are identified according to their Class 1E trains.	9. Inspection of the as-built Class 1E dc power system cables will be performed.	9. The as-built Class 1E dc power system cables are identified according to their Class 1E trains.
10. Independence is provided between Class 1E dc system trains and between Class 1E and non-Class 1E equipment cables.	10. Inspection of the as-built Class 1E dc power system will be performed.	10. Physical separation or electrical isolation exists in accordance with RG 1.75 between Class 1E dc system trains and between Class 1E and non-Class 1E equipment cables.
11.a All displays and alarms required by the design exist in the MCR as defined in Table 2.6.3-2.	11.a Inspections will be performed on the displays and alarms in the MCR.	11.a All displays and alarms exist and can be retrieved in the MCR as defined in Table 2.6.3-2.
11.b All displays and alarms required by the design exist in the RSR as defined in Table 2.6.3-2.	11.b Inspections will be performed on the displays and alarms in the RSR.	11.b All displays and alarms exist and can be retrieved in the RSR as defined in Table 2.6.3-2.
12. Each of the four Class 1E dc power trains has a main circuit protection device which has selective coordination with downstream protective devices.	12.a Analyses will be performed to verify the main circuit protection devices have selective coordination with the downstream protective devices.	12.a A report exists and concludes that each of the four Class 1E dc power trains has a main circuit protection device which has selective coordination with the downstream protective devices.
	12.b Inspection of the as-built main circuit protection devices in the as-built dc control centers will be performed.	12.b The as-built main circuit protection device in each of the four Class 1E dc power trains is the same as that used in the coordination analysis.

Table 2.6.4-3 (2 of 3)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
4. When dc input power to the Class 1E inverter power supply unit is lost, input to the Class 1E inverter power supply unit is provided by the regulating transformer without interruption of power supply to the loads.	4. Tests will be performed to verify that when dc input power to the as-built Class 1E inverter power supply unit is lost, input to the Class 1E inverter power supply unit is provided by the Class 1E regulating transformer without interruption of power supply to the loads.	4. When dc input power to the as-built Class 1E inverter power supply unit is lost, input to the Class 1E inverter power supply unit automatically transfers to regulating transformer without interruption of power supply to the loads.
5. Class 1E I&C power system equipment identified in Table 2.6.4-1 is located in their respective areas.	5. Inspection of the as-built Class 1E I&C power system equipment will be performed.	5. The as-built Class 1E I&C power system equipment identified in Table 2.6.4-1 is located in their respective areas.
6. Independence is provided among the four trains of Class 1E I&C power system equipment and circuits.	6.a Tests will be performed on the as-built Class 1E I&C power supply equipment and circuits by providing a test signal in only one Class 1E train at a time.	6.a The test signal exists in the as-built Class 1E train under test.
	6.b Inspection of the as-built Class 1E train in the Class 1E I&C power system will be performed.	6.b Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between the Class 1E trains. and
7. Independence is provided between Class 1E I&C power system equipment and circuits and non-Class 1E I&C power system equipment and circuits.	7.a Tests will be performed on the as-built Class 1E & non-Class 1E I&C power system equipment and circuits by providing a test signal in only one train for Class 1E or one division for non-Class 1E at a time.	7.a The test signal in the as-built Class 1E train or non-Class 1E division under test.
	7b. Inspection of the as-built Class 1E I&C power system train will be performed	7b. Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between the as-built Class 1E I&C power system train and non-Class 1E divisions. and

6.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

between Class 1E divisions and non-Class 1E divisions

7.a MOVs, AOVs, and electro-hydraulic valves identified in Table 2.7.1.2-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, MOVs, AOVs and electro-hydraulic valves identified in Table 2.7.1.2-2, assume the indicated loss of motive power position.

8.a All controls required by the design exist in the MCR to open and close MOVs, AOVs and electro-hydraulic valves listed in Table 2.7.1.2-2.

8.b All controls required by the design exist in the RSR to open and close MOVs, AOVs and electro-hydraulic valves listed in Table 2.7.1.2-2.

8.c All displays and alarms required by the design exist in the MCR as defined in Tables 2.7.1.2-2 and 2.7.1.2-3.

8.d All displays and alarms required by the design exist in the RSR as defined in Tables 2.7.1.2-2 and 2.7.1.2-3.

9. Each mechanical division of the MSS is physically separated from the other divisions.

10. The MSSVs, identified in the Table 2.7.1.2-2, provide overpressure protection for the secondary side of the steam generators and for pressure boundary components in the MSS.

11. The MSIVs and MSIV bypass valves identified in Table 2.7.1.2-2 close on receipt of an MSIS within the required response time.

12. The high-energy piping systems, including the protective features are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the dynamic effects associated with postulate failures of these piping systems.

Table 2.7.1.2-4 (4 of 6)

Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria	
6.b	Each of the Class 1E components and instruments identified in Table 2.7.1.2-2 and 2.7.1.2-3 is powered from its respective Class 1E division.	6.b	Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b	The test signal exists at the Class 1E components and instruments identified in Table 2.7.1.2-2 and 2.7.1.2-3 powered from the Class 1E division under test.
6.c	Separation is provided between Class 1E divisions , and between Class 1E division and non-Class 1E division.	6.c	Inspection of the as-built Class 1E divisions will be performed.	6.c	Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E division and non-Class 1E division.
7.a	MOVs, AOVs, and electro-hydraulic valves identified in table 2.7.1.2-2 perform an active safety function to change position as indicated in the table.	7.a.i	Tests or type tests of MOVs, AOVs, and electro-hydraulic valves will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i	A test report exists and concludes that each MOV, AOV, or electro-hydraulic valve changes position as indicated in Table 2.7.1.2-2 under design conditions.
		7.a.ii	Tests and/or analyses of the as-built MOVs, AOVs and electro-hydraulic valves will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii	Upon receipt of the actuating signal, each MOV, AOV, or elector-hydraulic valve changes position as indicated in Table 2.7.1.2-2 under pre-operational test conditions.
7.b	After loss of motive power, the MOVs, AOVs and electro-hydraulic valves, identified in Table 2.7.1.2-2, assume the indicated loss of motive power position.	7.b	Tests of the as-built MOVs, AOVs and electro-hydraulic valves will be performed under the conditions of loss of motive power.	7.b	Upon loss of motive power, each as-built MOV, AOV, or electro-hydraulic valve identified in Table 2.7.1.2-2 assumes the indicated loss of motive power position.

and

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

5.a The seismic Category I components and instruments identified in Tables 2.7.1.4-2 and 2.7.1.4-3 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.7.1.4-1 withstands seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.7.1.4-2 and 2.7.1.4-3 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.7.1.4-2 and 2.7.1.4-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

7.a AOVs, electro- hydraulic valves and check valves identified in Table 2.7.1.4-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, AOVs and electro-hydraulic valves identified in Table 2.7.1.4-2 assume the indicated loss of motive power position.

8.a All controls required by the design exist in the MCR to open and close AOVs and electro-hydraulic valves identified in Table 2.7.1.4-2.

8.b All controls required by the design exist in the RSR to open and close AOVs and electro-hydraulic valves identified in Table 2.7.1.4-2.

8.c All displays and alarms required by the design exist in the MCR as defined in Tables 2.7.1.4-2 and 2.7.1.4-3.

between Class 1E divisions and non-Class 1E divisions

Table 2.7.1.4-4 (4 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components and instruments identified in Tables 2.7.1.4-2 and 2.7.1.4-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Table 2.7.1.4-2 and 2.7.1.4-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	6.c Inspection of the as-built Class 1E divisions will be performed.	6.c Physical separation ~~or~~ and electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E division and non-Class 1E division.
7.a AOVs, electro- hydraulic valves and check valves identified in Table 2.7.1.4-2 perform an active safety function to change position as indicated in the table.	7.a.i Tests or type tests of AOVs, electro-hydraulic valves and check valves will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i A test report exists and concludes that each AOV, electro-hydraulic valve or check valve changes position as indicated in Table 2.7.1.4-2 under design conditions.
	7.a.ii Test and/or analyses of the as-built AOVs and electro- hydraulic valves will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each AOV or electro-hydraulic valves changes position as indicated in Table 2.7.1.4-2 under pre-operational test conditions.
	7.a.iii Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7.a.iii Each check valve changes position as indicated in Table 2.7.1.4-2 under pre-operational test conditions.
7.b After loss of motive power, AOVs and electro-hydraulic valves identified in Table 2.7.1.4-2 assume the indicated loss of motive power position.	7.b Test of the as-built AOVs and electro-hydraulic valves will be performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built AOV or electro-hydraulic valve identified in Table 2.7.1.4-2 assumes the indicated loss of motive power position.

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

3.a Pressure boundary welds in ASME Code components identified in Table 2.7.1.5-2 meet ASME Section III requirements.

3.b Pressure boundary welds in ASME Code piping identified in Table 2.7.1.5-1 meet ASME Section III requirements.

4.a The ASME Code components identified in Table 2.7.1.5-2 retain their pressure boundary integrity at their design pressure.

4.b The ASME Code piping identified in Table 2.7.1.5-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.7.1.5-2 and 2.7.1.5-3 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.7.1.5-1 withstand seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.7.1.5-2 and 2.7.1.5-3 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.7.1.5-2 and 2.7.1.5-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

7.a MOVs, AOVs, and check valves identified in Table 2.7.1.5-2 perform an active safety function to change position as indicated in the table.

between Class 1E divisions and non-Class 1E divisions

Table 2.7.1.5-4 (4 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components and instruments identified in Tables 2.7.1.5-2 and 2.7.1.5-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Tables 2.7.1.5-2 and 2.7.1.5-3 are powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	6.c Inspection of the as-built Class 1E divisions will be performed.	6.c Physical separation ~~or~~ and electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E division and non-Class 1E division.
7.a MOVs, AOVs, and check valves identified in Table 2.7.1.5-2 perform an active safety function to change position as indicated in the table.	7.a.i Tests or type tests of MOVs and AOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i A test report exists and concludes that each MOV or AOV changes position as indicated in Table 2.7.1.5-2 under design conditions.
	7.a.ii Tests and/or analyses of the as-built MOVs and AOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each MOV or AOV changes position as indicated in Table 2.7.1.5-2 under pre-operational test conditions.
	7.a.iii Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7.a.iii Each check valve changes position as indicated in Table 2.7.1.5-2 under pre-operational test conditions.
7.b AFW modulating valves (SOVs) identified in Table 2.7.1.5-2 perform an active safety function to control the SG water level as indicated in the table.	7.b.i Tests or type testes of SOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.b.i A test report exists and concludes that each SOV controls the SG water level as indicated in Table 2.7.1.5-2 under design conditions.

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

Table 2.7.1.8-3 (4 of 5)

	Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria
6.c	Separation is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E divisions.	6.c	Inspection of the as-built Class 1E divisions will be performed. Physical separation and electrical isolation exist divisions	6.c	~~Physical separation or electrical isolation exists~~ in accordance with NRC RG 1.75 between these Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7.a	MOVs and AOVs identified in Table 2.7.1.8-2 perform an active safety function to change position as indicated in the table.	7.a.i	Tests or type tests of MOVs and AOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i	A test report exists and concludes that each MOV or AOV changes position as indicated in Table 2.7.1.8-2 under design conditions.
		7.a.ii	Tests and/or analyses of as-built MOVs and AOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii	Upon receipt of the actuating signal, each as-built MOV or AOV changes position as indicated in Table 2.7.1.8-2 under pre-operational test conditions.
7.b	After loss of motive power, MOVs and AOVs identified in Table 2.7.1.8-2 assume the indicated loss of motive power position.	7.b	Test of the as-built MOVs and AOVs will be performed under the conditions of loss of motive power.	7.b	Upon loss of motive power, each as-built MOV or AOV identified in Table 2.7.1.8-2 assumes the indicated loss of motive power position.
8.a	All controls required by the design exist in the MCR to open and close the MOVs and AOVs identified in Table 2.7.1.8-2.	8.a	Tests will be performed using the controls in the MCR.	8.a	All controls in the as-built MCR to open and close the MOVs and AOVs identified in Table 2.7.1.8-2.
8.b	All controls required by the design exist in the RSR to open and close the MOVs and AOVs identified in Table 2.7.1.8-2.	8.b	Tests will be performed using the controls in the RSR.	8.b	All controls in the RSR to open and close the MOVs and AOVs identified in Table 2.7.1.8-2.
8.c	All displays and alarms required by the design exist in the MCR as defined in Tables 2.7.1.8-2.	8.c	Inspections will be performed on the displays and alarms in the MCR for the SGBS.	8.c	All displays and alarms exist and are retrieved in the as-built MCR as defined in Tables 2.7.1.8-2.
8.d	All displays and alarms required by the design exist in the RSR as defined in Table 2.7.1.8-2.	8.d	Inspections will be performed on the displays and alarms in the RSR for the SGBS.	8.d	All displays and alarms exist and are retrieved in the as-built RSR as defined in Table 2.7.1.8-2.

4.a The ASME Code components identified in Table 2.7.2.1-2 retain their pressure boundary integrity at their design pressure.

4.b The ASME Code piping identified in Table 2.7.2.1-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.7.2.1-2 and 2.7.2.1-3 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.7.2.1-1 withstand seismic design basis loads without loss of safety function.

6.a Each of the Class 1E components and instruments identified in Tables 2.7.2.1-2 and 2.7.2.1-3 is powered from its respective Class 1E division.

6.b Separation is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E ~~division~~.

divisions

7.a MOVs and check valves identified in Table 2.7.2.1-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, MOVs identified in Table 2.7.2.1-2 assume the indicated loss of motive power position.

8.a All controls exist in the MCR to start and stop the ESW pumps, and to open and close MOVs identified in Table 2.7.2.1-2.

8.b All controls exist in the RSR to start and stop the ESW pumps, and to open and close MOVs identified in Table 2.7.2.1-2.

8.c All displays and alarms exist in the MCR as defined in Tables 2.7.2.1-2 and 2.7.2.1-3.

Table 2.7.2.1-4 (3 of 6)

Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria	
5.a	(cont.)	5.a.iii	Inspections will be performed to verify that the as-built seismic Category I components and instruments including anchorage are seismically bounded by the tested or analyzed conditions.	5.a.iii	A report exists and concludes that the as-built seismic Category I components and instruments identified in Tables 2.7.2.1-2 and 2.7.2.1-3 including anchorage are seismically bounded by the tested or analyzed conditions.
5.b	The seismic Category I piping including supports identified in Table 2.7.2.1-1 withstand seismic design basis loads without loss of safety function.	5.b.i	Inspections will be performed to verify that the as-built seismic Category I piping including supports is located in the seismic Category I structure(s).	5.b.i	The as-built seismic Category I piping including supports identified in Table 2.7.2.1-1 is located in the seismic Category I structure(s).
		5.b.ii	Inspections and analyses of the as-built seismic Category I piping including supports will be performed.	5.b.ii	A report exists and concludes that the as-built seismic Category I piping including supports identified in Table 2.7.2.1-1 withstand seismic design basis loads without loss of safety function.
6.a	Each of the Class 1E components and instruments identified in Tables 2.7.2.1-2 and 2.7.2.1-3 is powered from its respective Class 1E division.	6.a	Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.a	The test signal exists at the Class 1E components and instruments identified in Tables 2.7.2.1-2 and 2.7.2.1-3 powered from the Class 1E division under test.
6.b	Separation is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E ~~division~~.	6.b	Inspection of the as-built Class 1E divisions will be performed. Physical separation and electrical isolation exist divisions	6.b	~~Physical separation or electrical isolation exists~~ in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.

3.a Pressure boundary welds in ASME Code components identified in Table 2.7.2.2-2 meet ASME Section III requirements.

3.b Pressure boundary welds in ASME Code piping identified in Table 2.7.2.2-1 meet ASME Section III requirements.

4.a The ASME Code components identified in Table 2.7.2.2-2 retain their pressure boundary integrity at their design pressure.

4.b The ASME Code piping identified in Table 2.7.2.2-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.7.2.2-2 and 2.7.2.2-3 can withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.7.2.2-1 can withstand seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.7.2.2-2 and 2.7.2.2-3 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.7.2.2-2 and 2.7.2.2-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.

divisions

7.a MOVs, AOVs, and check valves identified in Table 2.7.2.2-2 perform an active safety function to change position as indicated in the table.

Table 2.7.2.2-4 (4 of 7)

Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria	
6.a	(cont.)	6.a.ii	Inspections will be performed on the as-built Class 1E components and instruments and the associated wiring, cables, and terminations located in a harsh environment.	6.a.ii	A report exists and concludes that the as-built Class 1E components and instruments and the associated wiring, cables, and terminations identified in Tables 2.7.2.2-2 and 2.7.2.2-3 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.
6.b	Each of the Class 1E components and instruments identified in Tables 2.7.2.2-2 and 2.7.2.2-3 is powered from its respective Class 1E division.	6.b	Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b	The test signal exists at the Class 1E components and instruments identified in Tables 2.7.2.2-2 and 2.7.2.2-3 powered from the Class 1E division under test.
6.c	Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.	6.c	Inspection of the as-built Class 1E divisions will be performed. Physical separation and electrical isolation exist divisions	6.c	~~Physical separation or electrical isolation exists~~ in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7.a	MOVs, AOVs and check valves identified in Table 2.7.2.2-2 perform an active safety function to change position as indicated in the table.	7.a.i	Tests or type tests of MOVs and AOVs will be performed that demonstrate the capability of the valve to operate under its design conditions	7.a.i	A test report exists and concludes that each MOV or AOV changes position as indicated in Table 2.7.2.2-2 under design conditions.
		7.a.ii	Test and/or analyses of the as-built MOVs and AOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii	Upon receipt of the actuating signal, each MOV or AOV changes position as indicated in Table 2.7.2.2-2 under pre-operational test conditions.

4.b The ASME Code piping identified in Table 2.7.2.3-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.7.2.3-2 and 2.7.2.3-3 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Tables 2.7.2.3-1 withstand seismic design basis loads without loss of safety function.

6.a Each of the Class 1E components and instruments identified in Tables 2.7.2.3-2 and 2.7.2.3-3 is powered from its respective Class 1E division.

6.b Separation is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E division.

7.a AOVs and check valves identified in Table 2.7.2.3-2 perform an active safety function to change position as indicated in the table.

between Class 1E divisions and non-Class 1E divisions

7.b After loss of motive power, AOVs identified in Table 2.7.2.3-2 assume the indicated loss of motive power position.

8.a All controls required by the design exist in the MCR to start and stop the essential chillers and pumps identified in Table 2.7.2.3-2.

8.b All controls required by the design exist in the RSR to start and stop the essential chillers and pumps identified in Table 2.7.2.3-2.

8.c All displays and alarms required by the design exist in the MCR as defined in Tables 2.7.2.3-2 and 2.7.2.3-3.

8.d All displays and alarms required by the design exist in the RSR as defined in Tables 2.7.2.3-2 and 2.7.2.3-3.

9. The two mechanical divisions of the ECWS are physically separated.

Table 2.7.2.3-4 (3 of 5)

Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria	
5.b	The seismic Category I piping including supports identified in Table 2.7.2.3-1 withstand seismic design basis loads without loss of safety function.	5.b.i	Inspections will be performed to verify that the as-built seismic Category I piping including supports is located in the seismic Category I structure.	5.b.i	The as-built seismic Category I piping including supports identified in Table 2.7.2.3-1 is located in the seismic Category I structure.
		5.b.ii	Inspections and analyses of the as-built seismic Category I piping including supports will be performed.	5.b.ii	A report exists and concludes that the as-built seismic Category I piping including supports identified in Table 2.7.2.3-1 withstand seismic design basis loads without loss of safety function.
6.a	Each of the Class 1E components and instruments identified in Tables 2.7.2.3-2 and 2.7.2.3-3 is powered from its respective Class 1E division.	6.a	Test will be performed by providing a test signal in only one Class 1E division at a time.	6.a	The test signal exists at the Class 1E components and instruments identified in Tables 2.7.2.3-2 and 2.7.2.3-3 powered from the Class 1E division under test.
6.b	Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	6.b	Inspection of the as-built Class 1E divisions will be performed.	6.b	Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E division and non-Class 1E division.
7.a	AOVs and check valves identified in Table 2.7.2.3-2 perform an active safety function to change position as indicated in the table.	7.a.i	Test or type test of AOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i	A report exists and concludes that each AOV changes position as indicated in Table 2.7.2.3-2 under design conditions.
		7.a.ii	Test and/or analyses of the as-built AOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii	Upon receipt of the actuating signal, each AOV changes position as indicated in Table 2.7.2.3-2 under pre-operational test conditions.

and

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

3.a The seismic Category I components and instruments identified in Tables 2.7.2.5-2 and 2.7.2.5-3 can withstand seismic design basis loads without loss of safety function.

3.b The seismic Category I piping including supports identified in Table 2.7.2.5-1 can withstand seismic design basis load without loss of safety function.

4. Floor drains in the auxiliary building (AB) are physically separated into quadrants (two in each division) and there are no common floor drain lines among quadrants.

5.a The Class 1E components and instruments identified in Tables 2.7.2.5-2 and 2.7.2.5-3 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

5.b Each of the Class lE components and instruments identified in Tables 2.7.2.5-2 and 2.7.2.5-3 is powered from its respective Class lE division.

5.c Separation is provided between Class lE divisions, and between Class lE ~~division~~ and non-Class 1E ~~division~~.

divisions

6.a MOV and AOV identified in Table 2.7.2.5-2 perform an active safety function to change position as indicated in the table.

6.b After loss of motive power, MOV and AOV identified in Table 2.7.2.5-2 assume the indicated loss of motive power position.

7.a All controls and alarms required by the design exist in the MCR to open and close MOV and AOV identified in Table 2.7.2.5-2.

7.b All controls and alarms required by the design exist in the RSR to open and close MOV and AOV identified in Table 2.7.2.5-2.

Table 2.7.2.5-4 (3 of 4)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
5.a The Class 1E components and instruments identified in Tables 2.7.2.5-2 and 2.7.2.5-3 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	5.a.i Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E components and instruments located in a harsh environment.	5.a.i A report exists and concludes that the Class 1E components and instruments identified in Tables 2.7.2.5-2 and 2.7.2.5-3 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.
	5.a.ii Inspections will be performed on the as-built Class 1E components and instruments and the associated wiring, cables, and terminations located in a harsh environment.	5.a.ii A report exists and concludes that the as-built Class 1E components and instruments and the associated wiring, cables, and terminations identified in Tables 2.7.2.5-2 and 2.7.2.5-3 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.
5.b Each of the Class 1E components and instruments identified in Tables 2.7.2.5-2 and 2.7.2.5-3 is powered from its respective Class 1E division.	5.b Test will be performed by providing a test signal in only one Class 1E division at a time.	5.b The test signal exists at the Class 1E components and instruments identified in Tables 2.7.2.5-2 and 2.7.2.5-3 powered from the Class 1E division under test.
5.c Separation is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E ~~division~~.	5.c Inspection of the as-built Class 1E divisions will be performed.	5.c ~~Physical separation or electrical isolation exists~~ in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.

Physical separation and electrical isolation exist

divisions

5.a The seismic Category I components and instruments identified in Table 2.7.2.6-1 and Table 2.7.2.6-2 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.7.2.6-1 withstands seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.7.2.6-2 and 2.7.2.6-3 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.7.2.6-2 and 2.7.2.6-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division.~~ divisions

7.a MOVs, SOVs and check valves identified in Table 2.7.2.6-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, MOVs and SOVs identified in Table 2.7.2.6-2 assume the indicated loss of motive power position.

8.a All controls exist in the MCR to open and close MOVs and SOVs identified in Table 2.7.2.6-2.

8.b All controls exist in the RSR to open and close MOVs and SOVs identified in Table 2.7.2.6-2.

8.c All displays and alarms exist in the MCR as defined in Tables 2.7.2.6-2 and 2.7.2.6-3.

Table 2.7.2.6-4 (4 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components and instruments identified in Tables 2.7.2.6-2 and 2.7.2.6-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Tables 2.7.2.6-2 and 2.7.2.6-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.	6.c Inspections of the as-built Class 1E divisions will be performed. Physical separation and electrical isolation exist divisions	6.c ~~Physical separation or electrical isolation exists~~ in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7.a MOVs, SOVs and check valves identified in Table 2.7.2.6-2 perform an active safety function to change position as indicated in the table.	7.a.i Tests or type tests of MOVs and SOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i A test report exists and concludes that each MOV or SOV changes position as indicated in Table 2.7.2.6-2 under design conditions.
	7.a.ii Test and/or analyses of the as-built MOVs and SOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each MOV or SOV changes position as indicated in Table 2.7.2.6-2 under pre-operational test conditions.
	7.a.iii Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7.a.iii Each check valve changes position as indicated in Table 2.7.2.6-2 under pre-operational test conditions.
7.b After loss of motive power, MOVs and SOVs identified in Table 2.7.2.6-2 assume the indicated loss of motive power position.	7.b Tests of the as-built MOVs and SOVs will be performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built MOV or SOV identified in Table 2.7.2.6-2 assumes the indicated loss of motive power position.

2.7.3 HVAC Systems

2.7.3.1 Control Room HVAC System

2.7.3.1.1 Design Description

The control room HVAC system is a sefety-related except a kitchen and toilet exhaust fan and a smoke removal fan, and maintains environmental conditions for personnel comfort, health, safety, and proper functions of equipment and controls within the control room envelope (CRE) during normal operations, abnormal and accident conditions of the plant. The control room HVAC system is located in auxiliary building.

The CRE is maintained at a positive pressure with respect to adjacent areas to prevent unfiltered in-leakage.

This system consists of two divisions. Each division has an outside air intake, louver, dampers, two air handling units (AHUs), an air cleaning unit (ACU), ductwork, instrumentation and controls.

Each outside air intake has two redundant isolation dampers, a smoke detector, and two radiation detection monitors.

The control room HVAC system is designed as follows:

1. The functional arrangement of the control room HVAC system is as described in the Design Description of Subsection 2.7.3.1.1 and as shown in Figure 2.7.3.1-1.

2. The seismic Category I components and instruments identified in Tables 2.7.3.1-1 and 2.7.3.1-2 withstand seismic design basis loads without loss of safety function.

3.a Each of the Class 1E components and instruments identified in Tables 2.7.3.1-1 and 2.7.3.1-2 is powered from its respective Class 1E division.

3.b Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

between Class 1E divisions and non-Class 1E divisions

Table 2.7.3.1-3 (1 of 5)

Control Room HVAC System ITAAC

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The functional arrangement of the control room HVAC system is as described in the Design Description of Subsection 2.7.3.1.1 and as shown in Figure 2.7.3.1-1.	1. Inspection of the as-built control room HVAC system will be conducted.	1. The as-built control room HVAC system conforms with the functional arrangement as described in the Design Description of Subsection 2.7.3.1.1 and as shown in Figure 2.7.3.1-1.
2. The seismic Category I components and instruments identified in Tables 2.7.3.1-1 and 2.7.3.1-2 withstand seismic design basis loads without loss of safety function.	2.a Inspections will be performed to verify that the as-built seismic Category I components and instruments are located in the seismic Category I structure.	2.a The as-built seismic Category I components and instruments identified in Tables 2.7.3.1-1 and 2.7.3.1-2 are located in the seismic Category I structure.
	2.b Type tests, analyses or a combination of type tests and analyses of seismic Category I components and instruments will be performed.	2.b A report exists and concludes that the seismic Category I components and instruments identified in Tables 2.7.3.1-1 and 2.7.3.1-2 withstand seismic design basis loads without loss of safety function.
	2.c Inspections will be performed to verify that the as-built seismic Category I components and instruments including anchorage are seismically bounded by the tested or analyzed conditions.	2.c A report exists and concludes that the as-built seismic Category I components and instruments identified in Tables 2.7.3.1-1 and 2.7.3.1-2 including anchorage are seismically bounded by the tested or analyzed conditions.
3.a Each of the Class 1E components and instruments identified in Tables 2.7.3.1-1 and 2.7.3.1-2 is powered from its respective Class 1E division.	3.a Tests will be performed by providing a test signal in only one Class 1E division at a time.	3.a The test signal exists at the Class 1E components and instruments identified in Tables 2.7.3.1-1 and 2.7.3.1-2 powered from the Class 1E division under test. and
3.b Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division. between Class 1E divisions and non-Class 1E divisions	3.b Inspection of the as-built Class 1E divisions will be performed.	3.b Physical separation ~~or~~ electrical isolation exists in accordance with NRC RG 1.75 between Class 1E divisions, and also between Class 1E division and non-Class 1E division. between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

3.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

4.a ESR dampers, PSR dampers and tornado dampers identified in Table 2.7.3.2-1 perform an active safety function to change position as identified in the table.

4.b After loss of motive power, ESR dampers and PSR dampers identified in Table 2.7.3.2-1 assume the indicated loss of motive power position.

5.a All controls required by the design exist in the MCR to start and stop the emergency exhaust ACUs and safety-related cubicle coolers, and to open and close ESR dampers and PSR dampers identified in Table 2.7.3.2-1.

5.b All controls required by the design exist in the RSR to start and stop the emergency exhaust ACUs and safety-related cubicle coolers, and to open and close ESR dampers and PSR dampers identified in Table 2.7.3.2-1.

5.c All displays and alarms required by the design exist in the MCR as defined in Table 2.7.3.2-2.

5.d All displays and alarms required by the design exist in the RSR as defined in Table 2.7.3.2-2.

6. The two mechanical divisions of the fuel handling area emergency HVAC subsystem (A/C & B/D) are physically separated.

7. The safety-related cubicle coolers identified in Table 2.7.3.2-1 provide conditioned air that is required to maintain the room temperature within the design limits for the spent fuel pool cooling heat exchanger rooms during plant normal, abnormal and accident conditions.

8. The fuel handling area HVAC system cubicle cooler fans identified in Table 2.7.3.2-1 operate automatically according to room temperature signal.

Table 2.7.3.2-3 (2 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3.a The Class 1E components and instruments identified in Tables 2.7.3.2-1 and 2.7.3.2-2 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	3.a Type tests, analyses, or a combination of type tests and analyses will be performed on Class 1E components and instruments located in a harsh environment.	3.a A report exists and concludes that the Class 1E components and instruments identified in Tables 2.7.3.2-1 and 2.7.3.2-2 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.
3.b Each of the Class 1E components and instruments identified in Tables 2.7.3.2-1 and 2.7.3.2-2 is powered from its respective Class 1E division.	3.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	3.b The test signal exists at the Class 1E components and instruments identified in Tables 2.7.3.2-1 and 2.7.3.2-2 powered from the Class 1E division under test.
3.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	3.c Inspection of the as-built Class1E divisions will be performed.	3.c Physical separation ~~or~~ electrical isolation exists in accordance with NRC RG 1.75 between Class 1E divisions, and also between Class 1E division and non-Class 1E division.

and

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

2.7.3.3 Auxiliary Building Clean Area HVAC System

2.7.3.3.1 Design Description

The auxiliary building clean area HVAC system provides ventilation, cooling and heating to the auxiliary building clean area and is located inside the auxiliary building clean area. The auxiliary building smoke removal fans are used for smoke removal.

The auxiliary building clean area HVAC system is a non safety-related system except for safety-related cubicle coolers.

The safety-related cubicle coolers for motor-driven auxiliary feedwater (AFW) pump rooms and essential chiller rooms are cooled by the essential chilled water system.

The auxiliary building clean area HVAC system is designed as follows:

1. The functional arrangement of the auxiliary building clean area HVAC system is as described in the Design Description of Subsection 2.7.3.3.1 and as shown in Figure 2.7.3.3-1.

2. The seismic Category I components and instruments identified in Tables 2.7.3.3-1 and 2.7.3.3-2 withstand seismic design basis loads without loss of safety function.

3.a Each of the Class 1E components and instruments identified in Tables 2.7.3.3-1 and 2.7.3.3-2 is powered from its respective Class 1E division.

3.b Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

4.a All controls required by the design exist in the MCR to start and stop the safety-related cubicle coolers identified in Table 2.7.3.3-1.

4.b All controls required by the design exist in the RSR to start and stop the safety-related cubicle coolers identified in Table 2.7.3.3-1.

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non- Class 1E divisions

and

Table 2.7.3.3-3 (2 of 3)

	Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria
3.b	Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	3.b	Inspection of the as-built Class1E divisions will be performed.	3.b	Physical separation ~~or~~ electrical isolation exists in accordance with NRC RG 1.75 between Class 1E divisions, and also between Class 1E division and non-Class 1E division.
4.a	All controls required by the design exist in the MCR to start and stop the safety-related cubicle coolers identified in Table 2.7.3.3-1.	4.a	Tests of the safety-related cubicle coolers will be performed using the controls in the MCR.	4.a	All controls in the as-built MCR start and stop the safety-related cubicle coolers identified in Table 2.7.3.3-1.
4.b	All controls required by the design exist in the RSR to start and stop the safety-related cubicle coolers identified in Table 2.7.3.3-1.	4.b	Tests of the safety-related cubicle coolers will be performed using the controls in the RSR.	4.b	All controls in the as-built RSR start and stop the safety-related cubicle coolers identified in Table 2.7.3.3-1.
4.c	All displays and alarms required by the design exist in the MCR as defined in Table 2.7.3.3-2.	4.c	Inspection will be performed on the displays and alarms in the MCR.	4.c	All displays and alarms exist and are retrieved in the as-built MCR as defined in Table 2.7.3.3-2.
4.d	All displays and alarms required by the design exist in the RSR as defined in Table 2.7.3.3-2.	4.d	Inspection will be performed on the displays and alarms in the RSR.	4.d	All displays and alarms exist and are retrieved in the as-built RSR as defined in Table 2.7.3.3-2.
5.	The two mechanical divisions of the safety-related cubicle coolers are physically separated.	5.	Inspection of the as-built mechanical divisions will be performed.	5.	The two mechanical divisions of the safety-related cubicle coolers are separated by a divisional wall or a fire barrier.
6.	The auxiliary building clean area HVAC system provides conditioned air that is required to maintain the room temperature within the design limits for the auxiliary building clean area during plant normal condition.	6.	Tests and analyses of the as-built auxiliary building clean area HVAC system will be performed.	6.	A report exists and concludes that the as-built auxiliary building clean area HVAC system is capable of providing conditioned air to maintain the room temperature within the design limits for the auxiliary building clean area during plant normal condition.

without loss of safety function for the time required to perform the safety function.

3.b Each of the Class 1E components and instruments identified in Tables 2.7.3.5-1 and 2.7.3.5-2 is powered from its respective Class 1E division.

3.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

4.a ESR dampers, PSR dampers and tornado dampers identified in Table 2.7.3.5-1 perform an active safety function to change position as indicated in the table.

4.b After loss of motive power, ESR dampers and PSR dampers identified in Table 2.7.3.5-1 assume the indicated loss of motive power position.

5.a All controls required by the design exist in the MCR to start and stop the ACUs, AHUs and cubicle coolers, and to open and close ESR dampers and PSR dampers identified in Table 2.7.3.5-1.

5.b All controls required by the design exist in the RSR to start and stop the ACUs, AHUs and cubicle coolers, and to open and close ESR dampers and PSR dampers identified in Table 2.7.3.5-1.

5.c All displays and alarms required by the design exist in the MCR as defined in Table 2.7.3.5-2.

5.d All displays and alarms required by the design exist in the RSR as defined in Table 2.7.3.5-2.

6.a Each mechanical division of the emergency diesel generator area HVAC system (A, B, C & D) is physically separated from the other divisions.

6.b The two mechanical divisions of the electrical and I&C equipment areas HVAC system (A/C & B/D) are physically separated.

between Class 1E divisions and non-Class 1E divisions

Table 2.7.3.5-3 (3 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3.a (cont.)	3.a.ii Inspections will be performed on the as-built Class 1E components and instruments and the associated wiring, cables, and terminations located in a harsh environment.	3.a.ii A report exists and concludes that the as-built Class 1E components and instruments and the associated wiring, cables, and terminations identified in Tables 2.7.3.5-1 and 2.7.3.5-2 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.
3.b Each of the Class 1E components and instruments identified in Tables 2.7.3.5-1 and 2.7.3.5-2 is powered from its respective Class 1E division.	3.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	3.b The test signal exists at the Class 1E components and instruments identified in Tables 2.7.3.5-1 and 2.7.3.5-2 powered from the Class 1E division under test.
3.c Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	3.c Inspection of the as-built Class 1E divisions will be performed.	3.c Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E division and non-Class 1E division.
4.a ESR dampers, PSR dampers and tornado dampers identified in Table 2.7.3.5-1 perform an active safety function to change position as indicated in the table.	4.a.i Tests or type tests of ESR dampers and PSR dampers will be performed that demonstrate the capability of the damper to operate under its design conditions.	4.a.i A report exists and concludes that each ESR damper or PSR damper changes position as indicated in Table 2.7.3.5-1 under design conditions.
	4.a.ii Test and/or analyses of the as-built ESR dampers and PSR dampers will be performed under pre-operational test conditions.	4.a.ii Upon receipt of the actuating signal, each ESR damper or PSR damper changes positions as indicated in Table 2.7.3.5-1 under pre-operation test conditions.

and

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

4.b The ASME Code piping identified in Table 2.7.4.3-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components and instruments identified in Tables 2.7.4.3-2 and 2.7.4.3-3 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports identified in Table 2.7.4.3-1 withstands seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.7.4.3-2 and 2.7.4.3-3 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.7.4.3-2 and 2.7.4.3-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.

divisions

7. Check valves identified in Table 2.7.4.3-2 perform an active safety function to change position as indicated in the table.

8.a All controls exist in the MCR to start and stop the SFP cooling pumps identified in Table 2.7.4.3-2.

8.b All controls exist in the RSR to start and stop the SFP cooling pumps identified in Table 2.7.4.3-2.

8.c All displays and alarms exist in the MCR as defined in Tables 2.7.4.3-2 and 2.7.4.3-3.

Table 2.7.4.3-4 (4 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.a (cont.)	6.a.ii Inspections will be performed on the as-built Class 1E components and instruments and the associated wiring, cables, and terminations located in a harsh environment.	6.a.ii A report exists and concludes that the as-built Class 1E components and instruments and the associated wiring, cables, and terminations identified in Tables 2.7.4.3-2 and 2.7.4.3-3 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.
6.b Each of the Class 1E components and instruments identified in Tables 2.7.4.3-2 and 2.7.4.3-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Tables 2.7.4.3-2 and 2.7.4.3-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.	6.c Inspection of the as-built Class 1E divisions will be performed. Physical separation and electrical isolation exist divisions	6.c ~~Physical separation or electrical isolation exists~~ in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7. Check valves identified in Table 2.7.4.3-2 perform an active safety function to change position as indicated in the table.	7. Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7. Each check valve changes position as indicated in Table 2.7.4.3-2 under pre-operational test conditions.
8.a All controls exist in the MCR to start and stop the SFP cooling pumps identified in Table 2.7.4.3-2.	8.a Tests will be performed using the controls in the MCR.	8.a All controls in the as-built MCR start and stop the SFP cooling pumps identified in Table 2.7.4.3-2.

5. The safety-related divisional cabinet (SRDC) of the PERMSS provides an automatic ESF initiation signals, as shown on Table 2.7.6.4-2.

6. The seismic category I monitors identified in Table 2.7.6.4-1 can withstand seismic design basis loads without loss of safety function.

7. Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.

2.7.6.4.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.6.4-3 specifies the inspections, tests, analyses, and associated acceptance criteria for the process and effluent radiation monitoring and sampling system.

between Class 1E divisions and non-Class 1E divisions

Table 2.7.6.4-3 (2 of 2)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6. The seismic Category I monitors identified in Table 2.7.6.4-1 can withstand seismic design basis loads without loss of safety function.	6.a. Inspections will be performed to verify that the as-built seismic Category I monitor identified in Table 2.7.6.4-1 is located in seismic Category I structure	6.a. The as-built seismic Category I monitor identified in Table 2.7.6.4-1 is located in a seismic Category I structure.
	6.b. Type test, analyses, or a combination of type tests and analyses of seismic Category I monitor identified in Table 2.7.6.4-1 will be performed.	6.b. A report exists and concludes that the seismic Category I monitor identified in Table 2.7.6.4-1 withstands seismic design basis loads without loss of safety function.
	6.c. Inspections and analyses will be performed to verify that the as-built seismic Category I monitor identified in Table 2.7.6.4-1 including anchorages is seismically bounded by the tested or analyzed conditions.	6.c. A report exists and concludes that the seismic Category I monitor identified in Table 2.7.6.4-1 including anchorages is seismically bounded by the tested or analyzed conditions.
7. Separation is provided between Class 1E divisions, and between Class 1E division and non-Class 1E division.	7. Inspection of the as-built Class 1E divisions will be performed.	7. Physical separation ~~or~~ electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between class 1E division and non-class 1E division.

and

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

2.7.6.5 Area Radiation Monitoring System

2.7.6.5.1 Design Description

The area radiation monitoring system (ARMS) monitors the radiation levels in selected areas throughout the plant. The area monitors warn operators and station personnel of the visible and audible alarm when unusual radiological events occur.

Components of the ARMS are located in the containment building, the auxiliary building, and the compound building.

1. The functional arrangement of the ARMS is described in the Design Description of Subsection 2.7.6.5.1 and in Table 2.7.6.5-1.

2. The ARMS provides operating personnel with an indication and record of radiation levels in the MCR.

3. The monitors provide local readout and alarm units at the detector locations.

4. Separation is provided between Class 1E channels, and between Class 1E division and non-Class 1E division.

5. The seismic Category I monitors of the ARMS identified in Table 2.7.6.5-1 can withstand seismic design basis loads without loss of safety function.

6. The safety-related divisional cabinet (SRDC) of the ARMS provides an automatic ESF initiation signals, as shown in Table 2.7.6.5-2.

between Class 1E divisions and non-Class 1E divisions

2.7.6.5.2 Inspections, Tests, Analyses, and Acceptance Criteria

The ITAAC for the area radiation monitoring system is described on Table 2.7.6.5-3.

Table 2.7.6.5-3 (1 of 2)

Area Radiation Monitoring System ITAAC

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The functional arrangement of the ARMS is as described in the Design Description of Subsection 2.7.6.5.1 and in Table 2.7.6.5-1.	1. Inspection of the as-built ARMS will be conducted.	1. The as-built ARMS conforms with the functional arrangement as described in the Design Description of Subsection 2.7.6.5.1 and in Table 2.7.6.5-1.
2. The ARMS provides operating personnel with an indication and record of radiation levels in the MCR.	2. Inspection of the ARMS components will be performed.	2. It provides operating personnel with an indication and record of radiation levels at selected locations within the various plant buildings to warn of excessive gamma radiation levels in areas where nuclear fuel is stored or handled.
3. The monitors provide local readout and alarm units at the detector locations.	3. Testing of local readout and alarm units at the detectors will be conducted.	3. Local alarms are initiated when the radiation level of integral activated check source reaches a preset limit. Both audible and visual alarms are included for each local readout/alarm unit.
4. Separation is provided between Class 1E division, and between Class 1E division and non-Class 1E division.	4. Inspection of the as-built Class 1E divisions will be performed.	4. Physical separation or electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E division and non-Class 1E division.

and

between Class 1E divisions and non-Class 1E divisions

between Class 1E divisions and non-Class 1E divisions

5.b The seismic Category I piping including supports identified in Table 2.11.2-1 withstand seismic design basis loads without loss of safety function.

6.a The Class 1E components and instruments identified in Tables 2.11.2-2 and 2.11.2-3 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components and instruments identified in Tables 2.11.2-2 and 2.11.2-3 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.

divisions

7.a MOVs and check valves identified in Table 2.11.2-2 perform an active safety function to change position as indicated in the table.

7.b After loss of motive power, MOVs identified in Table 2.11.2-2 assume the indicated loss of motive power position.

8.a All controls exist in the MCR to start and stop the CSS pumps, and to open and close MOVs identified in Table 2.11.2-2.

8.b All controls exist in the RSR to start and stop the CSS pumps, and to open and close MOVs identified in Table 2.11.2-2.

8.c All displays and alarms exist in the MCR as defined in Tables 2.11.2-2 and 2.11.2-3.

8.d All displays and alarms exist in the RSR as defined in Tables 2.11.2-2 and 2.11.2-3.

9. Two mechanical divisions of the CSS (A & B) are physically separated.

Table 2.11.2-4 (4 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components and instruments identified in Tables 2.11.2-2 and 2.11.2-3 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal in only one Class 1E division at a time.	6.b The test signal exists at the Class 1E components and instruments identified in Table 2.11.2-2and 2.11.2-3 powered from the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~	6.c Inspection of the as-built Class 1E divisions will be performed. Physical separation and electrical isolation exist divisions	6.c ~~Physical separation or electrical isolation exists~~ in accordance with RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7.a MOVs and check valves identified in Table 2.11.2-2 perform an active safety function to change position as indicated in the table.	7.a.i Tests or type tests of MOVs will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i A test report exists and concludes that each MOV changes position as indicated in Table 2.11.2-2 under design conditions.
	7.a.ii Tests and/or analyses of the as-built MOVs will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each MOV changes position as indicated in Table 2.11.2-2 under pre-operational test conditions.
	7.a.iii Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7.a.iii Each check valve changes position as indicated in Table 2.11.2-2 under pre-operational test conditions.
7.b After loss of motive power, MOVs identified in Table 2.11.2-2 assume the indicated loss of motive power position.	7.b Tests of the as-built MOVs will be performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built MOV operated valve identified in Table 2.11.2-2 assumes the indicated loss of motive power position.

4.b The ASME Code piping identified in Table 2.11.3-1 retains its pressure boundary integrity at its design pressure.

5.a The seismic Category I components identified in Table 2.11.3-1 withstand seismic design basis loads without loss of safety function.

5.b The seismic Category I piping including supports in Table 2.11.3-1 withstand seismic design basis loads without loss of safety function.

6.a The Class 1E components identified in Table 2.11.3-1 as being qualified for a harsh environment withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

6.b Each of the Class 1E components identified in Table 2.11.3-1 is powered from its respective Class 1E division.

6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.

divisions

7. MOVs, AOVs, SOVs, E/H Valves, and check valves identified in Table 2.11.3-1 perform an active safety function to change assume position as indicated in the table.

7.b After loss of motive power, MOVs, AOVs, SOVs, and E/H Valves identified in Table 2.11.3-1 assume the indicated loss of motive power position.

8.a All controls exist in the MCR to open and close MOVs, AOVs, SOVs, and E/H Valves identified in Table 2.11.3-1.

8.b All controls exist in the RSR to open and close MOVs, AOVs, SOVs, and E/H Valves identified in Table 2.11.3-1.

8.c All displays exist in the MCR as defined in Table 2.11.3-1.

Table 2.11.3-2 (4 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.b Each of the Class 1E components identified in Table 2.11.3-1 is powered from its respective Class 1E division.	6.b Tests will be performed by providing a test signal only one Class 1E division at a time.	6.b The test signal exists at the at the Class 1E components identified in Table 2.11.3-1 powered form the Class 1E division under test.
6.c Separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~.	6.c Inspection of the as-built Class 1E divisions will be performed.	6.c Physical separation ~~or~~ electrical isolation exists in accordance with NRC RG 1.75 between these Class 1E divisions, and also between Class 1E ~~division~~ and non-Class 1E ~~division~~.
7.a MOVs, AOVs, SOVs, E/H valves, and check valves identified in Table 2.11.3-1 perform an active safety function to change assume position as indicated in the table.	7.a.i Tests or type tests of MOVs, AOVs, SOVs, and E/H valves will be performed that demonstrate the capability of the valve to operate under its design conditions.	7.a.i A test report exists and concludes that each MOV, AOV, SOV, or E/H valve changes position as indicated in Table 2.11.3-1 under design conditions.
	7.a.ii Tests and/or analyses of the as-built MOVs, AOVs, SOVs, and E/H valves will be performed under pre-operational flow, differential pressure, and temperature conditions.	7.a.ii Upon receipt of the actuating signal, each MOV, AOV, SOV, or E/H valve changes position as indicated in Table 2.11.3-1 under preoperational test conditions.
	7.a.iii Tests of the as-built check valves will be performed under pre-operational test pressure, temperature, and fluid flow conditions.	7.a.iii Each check valve changes position as indicated in Table 2.11.3-1 under pre-operational test conditions.
7.b After loss of motive power, MOVs, AOVs, SOVs, and E/H valves identified in Table 2.11.3-1 assume the indicated loss of motive power position.	7.b Tests of the as-built MOVs, AOVs, SOVs, and E/H valves will be performed under the conditions of loss of motive power.	7.b Upon loss of motive power, each as-built MOV, AOV, SOV, or E/H valve identified in Table 2.11.3-1 assumes the indicated loss of motive power position.
8.a All controls exist in the MCR to open and close MOVs, AOVs, SOVs, and E/H valves identified in Table 2.11.3-1.	8.a Tests will be performed using the controls in the MCR.	8.a All controls in the as-built MCR open and close MOVs, AOVs, SOVs, and E/H valves identified in Table 2.11.3-1.

and

divisions

j. Pressure boundary welds in ASME Code components and piping of UHS meet ASME Section III requirements if applicable to the site-specific design.

k. The ASME Code components and piping of UHS maintain their pressure boundary integrity as its design pressure if applicable to the site-specific design.

l. The Seismic Category I structure, components, piping including supports, and instruments of the UHS can withstand seismic design basis loads without loss of safety function if applicable to the site-specific design.

m. The Class 1E components and instruments can withstand the harsh environmental conditions during design basis accident without loss of safety function if applicable to the site-specific design.

n. Each of Class 1E components and instruments is powered from its respective Class 1E division, and separation is provided between Class 1E divisions, and between Class 1E ~~division~~ and non-Class 1E ~~division~~ if applicable to the site-specific design.

divisions

o. Alarms and indications for the UHS water temperature and level are provided in the MCR and RSR.

p. Controls required for the safety-related functions of the UHS are provided in the MCR and RSR if applicable to the site-specific design.