Reactor Coolant Gas Vent System

High and Moderate Energy Piping Systems

System(1)(2)	High-Energy	Moderate-Energy
Reactor Coolant System	O	
~~Safety Depressurization and Vent System~~(3)	~~O~~	O
Safety Injection/Shutdown Cooling System	O	
Chemical and Volume Control System	O	
Steam Generator Blowdown System(4)	O	
Component Cooling System		O
Spent Fuel Pool Cooling and Cleanup System		O
Containment Air Monitoring/Sampling System		O
Containment Spray System		O
Essential Service Water System		O
Main Steam System	O	
~~Auxiliary Feedwater Pump Turbine System~~	~~O~~	
Main Feedwater System	O	
Auxiliary Feedwater System (6)	O	~~O~~
Auxiliary Steam System	O	
Emergency Diesel Generator System(5)	O	
Diesel Fuel Oil Transfer System		O
Fire Protection System		O
Station Heating System		O
Drain System		O
Essential/Normal Chilled Water System		O
Breathing Air System		O
Instrument Air System		O
Service Air System		O

Deleted

Compressed Air System

(1) Systems classified as high-energy are either totally or partially high-energy. If portions of system are high-energy, it is classified as high-energy system.

(2) Systems or portions of systems outside the containment building and auxiliary building are excluded from this table.

~~(3) The piping portion from 2-in piping located at downstream of POSRV to the first isolation valve is high-energy piping and the rest is moderate-energy piping.~~

(4) Wet layup recirculation system is classified as moderate-energy system.

(5) Subsystems other than an EDG engine starting air system are classified as moderate-energy systems.

(6) Subsystems other than an auxiliary feedwater pump turbine subsystem are classified as moderate-energy systems.

2.4.2 In-containment Water Storage System

2.4.2.1 Design Description

POSRVs and the reactor coolant gas vent system (RCGVS).

The in-containment water storage system (IWSS) is a safety-related system and includes the in-containment refueling water storage tank (IRWST) which is an integral part of containment building structures, the holdup volume tank (HVT) which is also an integral part of the containment building structures, and the cavity flooding system (CFS).

The IRWST provides borated water for the safety injection system (SIS) and the containment spray system (CSS). It is the primary heat sink for discharges from the ~~safety depressurization and vent system.~~ It is the source of water for the CFS, and for filling the refueling pool via the shutdown cooling system (SCS).

The HVT collects water released in containment during design basis events (DBEs) and returns water to the IRWST through spillways. It receives water discharged from the IRWST and transfers the water to the reactor cavity area by the CFS.

The CFS is used to provide water to flood the reactor cavity in response to beyond DBEs.

The IWSS is located in the containment.

1. The functional arrangement of the IWSS is as described in the Design Description of Subsection 2.4.2.1 and in Table 2.4.2-1 and as shown in Figure 2.4.2-1.

2.a The ASME Code components identified in Table 2.4.2-2 are designed and constructed in accordance with ASME Section III requirements.

2.b The ASME Code piping including supports identified in Table 2.4.2-1 is designed and constructed in accordance with ASME Section III requirements.

3.a Pressure boundary welds in ASME Code components identified in Table 2.4.2-2 meet ASME Section III requirements.

3.b Pressure boundary welds in ASME Code piping identified in Table 2.4.2-1 meet ASME Section III requirements.

20. When the Class 1E EDG is started by an ESF actuation signal, all Class 1E EDG protection systems, except for overspeed and generator differential current, are automatically bypassed.

high

21. The ~~moderate~~-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.

2.6.2.2 Inspection, Test, Analyses, and Acceptance Criteria

Table 2.6.2-3 specifies the inspections, tests, analyses, and associated acceptance criteria for the EDG system.

Table 2.6.2-3 (7 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
18. When running ina test mode, an EDG is capable of responding to an automatic start signal.	18. Tests will be performed with each EDG in a test mode configuration. An automatic start signal will be simulated.	18. When running in a test mode, each EDG resets to its automatic control mode upon receipt of a simulated automatic start signal.
19. Each Class 1E EDG is designed and sized to supply power to its train's safety-related loads after a LOOP or a LOOP concurrent with LOCA conditions.	19.a Analyses will be performed to verify that each Class 1E EDG is capable of supplying power to its train safety-related loads after a LOOP or a LOOP concurrent with LOCA conditions.	19.a A report exists and concludes that each Class 1E EDG is designed and sized to supply power to its train's safety-related loads after a LOOP or a LOOP concurrent with LOCA conditions.
	19.b Inspections will be performed to verify that the rating of each as-built Class 1E EDG is in accordance with the size requirements of the analysis.	19.b The rating of each Class 1E EDG bounds the size requirements of the analysis.
20. When the Class 1E EDG is started by an ESF actuation signal, all Class 1E EDG protection systems, except for overspeed and generator differential current, are automatically bypassed.	20. Tests will be performed to verify the as-built Class 1E EDG protection systems.	20. A report exists and concludes that the as-built Class 1E EDG protection systems, except for overspeed and generator differential current, are automatically bypassed when the Class 1E EDG is started by an ESF actuation signal.
21. The ~~moderate~~ high-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	21. Inspections and analyses of the as-built ~~moderate~~ high-energy piping and safety-related SSCs will be performed.	21. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built ~~moderate~~ high-energy piping system.

12.a Each AFW pump delivers the minimum flow to its respective steam generator for removal of core decay heat against a steam generator feedwater nozzle pressure.

12.b The cavitating flow-limiting venturis limit maximum flow to each steam generator with both AFW pumps running in the division against a steam generator pressure.

high

13. The ~~moderate~~-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.

2.7.1.5.2 Inspection, Tests, Analyses, and Acceptance Criteria

Table 2.7.1.5-4 specifies the inspections, tests, analyses, and associated acceptance criteria for the AFWS.

Table 2.7.1.5-4 (7 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
12.a Each AFW pump delivers the minimum flow to its respective steam generator for removal of core decay heat against a steam generator feedwater nozzle pressure.	12.a A test of each AFW pump will be performed to determine the system flow against steam generator pressure under preoperational condition. Analysis will be performed to convert the test results to the design conditions.	12.a A test report exists and concludes that each AFW pump delivers minimum flow of 2,461 L/min (650 gpm) to its respective steam generator against a steam generator feedwater nozzle pressure of 87.18 kg/cm^2A (1,240 psia).
12.b The cavitating flow-limiting venturis limit maximum flow to each steam generator with both AFW pumps running in the division against a steam generator pressure.	12.b A test will be performed with both pumps in a division running under preoperational condition. Analysis will be used to convert the test results to the design conditions.	12.b A test report exists and concludes that the maximum flow to each SG is less than or equal to 3,596 L/min (950 gpm) with both pumps running against a steam generator pressure of 0 kg/cm^2G (0 psig).
13. The ~~moderate~~ high-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	13. Inspections and analyses of the as-built ~~moderate~~ high-energy piping and safety-related SSCs will be performed.	13. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of as-built ~~moderate~~ high-energy piping system.

Table 2.3-3

High and Moderate Energy Piping Systems

System[(1)(2)]	High-Energy	Moderate-Energy
Reactor Coolant System	O	
Safety Depressurization and Vent System[(3)]	O	
Safety Injection/Shutdown Cooling System	O	
Chemical and Volume Control System	O	
Steam Generator Blowdown System[(4)]	O	
Component Cooling System		O
Spent Fuel Pool Cooling and Cleanup System		O
Containment Air Monitoring/Sampling System		O
Containment Spray System		O
Essential Service Water System		O
Main Steam System	O	
Auxiliary Feedwater Pump Turbine System	O	
Main Feedwater System	O	
Auxiliary Feedwater System		O
Auxiliary Steam System	O	
Emergency Diesel Generator System[(5)]	O	
Diesel Fuel Oil Transfer System		O
Fire Protection System		O
Station Heating System		O
Drain System		O
~~Essential/Normal Chilled Water System~~		~~O~~
Breathing Air System		O
Instrument Air System		O
Service Air System		O

(1) Systems classified as high-energy are either totally or partially high-energy. If portions of system are high-energy, it is classified as high-energy system.

(2) Systems or portions of systems outside the containment building and auxiliary building are excluded from this table.

(3) The piping portion from 2-in piping located at downstream of POSRV to the first isolation valve is high-energy piping and the rest is moderate-energy piping.

(4) Wet layup recirculation system is classified as moderate-energy system.

(5) Subsystems other than an EDG engine starting air system are classified as moderate-energy systems.

Essential Chilled Water System		O
Plant Chilled Water System		O

Table 2.4.3-4 (8 of 8)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
9.f The SIS can be manually realigned for simultaneous hot leg injection and direct vessel injection (DVI).	9.f Testing will be performed with the system manually aligned for simultaneous DVI and hot leg injection.	9.f Each as-built SI pump injects no less than or equal to 3,195 L/min (1,034 gpm) and no more than or equal to 4,201 L/min (1,100 gpm) through each hot leg and DVI line with the RCS at atmospheric pressure.
9.g The pumps identified in Table 2.4.3-2 start after receiving an ESF-SIAS or DPS-SIAS.	9.g Tests will be performed on the as-built pumps in Table 2.4.3-2 using simulated signals.	9.g The as-built pumps in Table 2.4.3-2 start after receiving a simulated ESF-SIAS or DPS-SIAS.
9.h A confirmatory-open interlock is provided to automatically open the SIT discharge valve upon receipt of an ESF-SIAS or DPS-SIAS.	9.h Tests will be performed using simulated signals.	9.h The as-built SIT discharge valves in Table 2.4.3-2 automatically opens upon receipt of simulated ESF-SIAS or DPS-SIAS.
10. The piping system qualified for LBB identified in Table 2.4.3-1 meets the LBB criteria, or protection of dynamic effect from high energy line break is performed.	10. Inspections and analyses of the as-built piping system qualified for LBB identified in Table 2.4.3-1 will be performed, or inspections and analyses of the as-built high-energy piping including the protective features and safety-related SSCs will be performed.	10. For piping system qualified for LBB identified in Table 2.4.3-1, an LBB evaluation report exists which documents that the LBB acceptance criteria are met by the as-built piping system including the final detailed design parameters. For the piping not applied LBB, pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built high-energy piping system.

Table 2.4.4-4 (7 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
9.e Each SCP has a full flow test capability during a normal plant operating condition when the pump suction is aligned to the IRWST and the discharge is aligned to the IRWST.	9.e Testing of SCP will be performed when the pump suction is aligned to the IRWST and the discharge is aligned to the IRWST.	9.e SCP delivers flow to IRWST of 18,927 L/min (5,000 gpm) when it takes suction from the IRWST.
9.f A containment spray actuation signal (CSAS) or engineered safety features-safety injection actuation signal (ESF-SIAS) starts SCP only when SCP is aligned for containment spray pump (CSP) function.	9.f Testing of simulated CSAS or ESF-SIAS when SCP is aligned for CSP function will be performed.	9.f SCP starts when receiving CSAS or ESF-SIAS when SCP is aligned for CSP function.
10. The piping system qualified for LBB identified in Table 2.4.4-1 meets the LBB criteria, or protection of dynamic effect from high energy line break is performed.	10. Inspections and analyses of the as-built piping system qualified for LBB identified in Table 2.4.4-1 will be performed, or inspections and analyses of the as-built high-energy piping including the protective features and safety-related SSCs will be performed.	10. For piping system qualified for LBB identified in Table 2.4.4-1, an LBB evaluation report exists which documents that the LBB acceptance criteria are met by the as-built piping system including the final detailed design parameters. For the piping not applied LBB, pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built high-energy piping system.

Table 2.4.6-4 (6 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
9.a The CVCS provides makeup capability to maintain the RCS volume.	9.a A test of as-built CVCS will be performed to measure the makeup flow rate.	9.a Each as-built CVCS charging pump delivers a flow rate to the RCS of greater than or equal to 586.7 L/min (155 gpm) at normal operating pressure of RCS.
9.b The CVCS supplies seal water to the RCP seals.	9.b A test of as-built CVCS will be performed by aligning a flow path to each RCP.	9.b Each as-built CVCS charging pump provides a flow rate of greater than or equal to 99.9 L/min (26.4 gpm) to four RCPs.
9.c The CVCS provides pressurizer auxiliary spray water for depressurization.	9.c A test of the as-built CVCS will be performed by aligning a flow path to the pressurizer auxiliary spray.	9.c The as-built CVCS charging pump provides spray flow to the pressurizer.
10. 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.	10. Inspections and analyses of the as-built high-energy piping including the protective features and safety-related SSCs will be performed.	10. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built high-energy piping system.

Table 2.6.2-3 (7 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
18. When running ina test mode, an EDG is capable of responding to an automatic start signal.	18. Tests will be performed with each EDG in a test mode configuration. An automatic start signal will be simulated.	18. When running in a test mode, each EDG resets to its automatic control mode upon receipt of a simulated automatic start signal.
19. Each Class 1E EDG is designed and sized to supply power to its train's safety-related loads after a LOOP or a LOOP concurrent with LOCA conditions.	19.a Analyses will be performed to verify that each Class 1E EDG is capable of supplying power to its train safety-related loads after a LOOP or a LOOP concurrent with LOCA conditions.	19.a A report exists and concludes that each Class 1E EDG is designed and sized to supply power to its train's safety-related loads after a LOOP or a LOOP concurrent with LOCA conditions.
	19.b Inspections will be performed to verify that the rating of each as-built Class 1E EDG is in accordance with the size requirements of the analysis.	19.b The rating of each Class 1E EDG bounds the size requirements of the analysis.
20. When the Class 1E EDG is started by an ESF actuation signal, all Class 1E EDG protection systems, except for overspeed and generator differential current, are automatically bypassed.	20. Tests will be performed to verify the as-built Class 1E EDG protection systems.	20. A report exists and concludes that the as-built Class 1E EDG protection systems, except for overspeed and generator differential current, are automatically bypassed when the Class 1E EDG is started by an ESF actuation signal.
21. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	21. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	21. Pipe rupture hazard analyses report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.7.1.2-4 (6 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
10. (cont.)	10.c Testing and analysis of the MSSVs, identified in Table 2.7.1.2-2, will be performed to confirm each MSSV lift setpoint and MSSV relief capacity in accordance with ASME Section III.	10.c A report exists and concludes the lift settings of the MSSVs, identified in Table 2.7.1.2-2, are as follows: - First stage : 82.54 kg/cm^2 G (1,174 psig)±1% - Second stage: 84.72 kg/cm^2 G (1,205 psig)±1% - Third stage: 86.48 kg/cm^2 G (1,230 psig)±1%
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.	11. Test will be performed using a simulated actuation signal an MSIS under preoperational test conditions.	11. A report exists and concludes the as-built MSIVs and MSIV bypass valves close within the required response time under preoperational test conditions.
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.	12. Inspections and analyses of the as-built high-energy piping including the protective features and safety-related SSCs will be performed.	12. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built high-energy piping system.

Table 2.7.1.4-4 (5 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
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.a Tests will be performed using the controls in the MCR.	8.a All controls in the as-built MCR 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.b Tests will be performed using the controls in the RSR.	8.b All controls in the as-built RSR 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.	8.c Inspections will be performed on the displays and alarms in the MCR.	8.c All displays and alarms exist and are retrieved in the as-built MCR as defined in Tables 2.7.1.4-2 and 2.7.1.4-3.
8.d All displays and alarms required by the design exist in the RSR as defined in Tables 2.7.1.4-2 and 2.7.1.4-3.	8.d Inspections will be performed on the displays and alarms in the RSR.	8.d All displays and alarms exist and are retrieved in the as-built RSR as defined in Tables 2.7.1.4-2 and 2.7.1.4-3.
9. The main feedwater isolation valves close on receipt of an MSIS within the required response time.	9. Test will be performed using a simulated actuation signal of an MSIS.	9. A report exists and concludes the as-built MFIVs close within the required response time after receipt of an MSIS simulated actuation signal.
10. 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.	10. Inspections and analyses of the as-built high-energy piping including the protective features and safety-related SSCs will be performed.	10. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built high-energy piping system.

Table 2.7.1.5-4 (7 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
12.a Each AFW pump delivers the minimum flow to its respective steam generator for removal of core decay heat against a steam generator feedwater nozzle pressure.	12.a A test of each AFW pump will be performed to determine the system flow against steam generator pressure under preoperational condition. Analysis will be performed to convert the test results to the design conditions.	12.a A test report exists and concludes that each AFW pump delivers minimum flow of 2,461 L/min (650 gpm) to its respective steam generator against a steam generator feedwater nozzle pressure of 87.18 kg/cm^{2}A (1,240 psia).
12.b The cavitating flow-limiting venturis limit maximum flow to each steam generator with both AFW pumps running in the division against a steam generator pressure.	12.b A test will be performed with both pumps in a division running under preoperational condition. Analysis will be used to convert the test results to the design conditions.	12.b A test report exists and concludes that the maximum flow to each SG is less than or equal to 3,596 L/min (950 gpm) with both pumps running against a steam generator pressure of 0 kg/cm^{2}G (0 psig).
13. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	13. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	13. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.7.1.8-3 (5 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
9. Each mechanical division of the SGBS (Divisions I, II) is physically separated from the other division	9. Inspection of the as-built mechanical divisions of SGBS will be performed.	9. Each mechanical division of the SGBS is physically separated by a divisional wall or a fire barriers.
10. The SGBS components are classified as RW-IIc in accordance with NRC RG 1.143 and designed to the corresponding requirements in order to maintain structural integrity under the design basis loads. Component Radiation Safety Classification is summarized in Table 2.7.1.8-2.	10. Inspection will be performed for the as-built equipment per design specifications to verify that as-built equipment construction (thicknesses and supports) and anchor bolt sizes meet design specifications and Owner Engineer approved fabrication drawings.	10. A report concludes that the equipment classified as RW-IIc in Table 2.7.1.8-2 maintains structural integrity under the design basis loads.
11. 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.	11. Inspections and analyses of the as-built high-energy piping including the protective features and safety-related SSCs will be performed.	11. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built high-energy piping system.

Table 2.7.2.1-4 (6 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11. The ESW pumps have net positive suction head (NPSH).	11. Test to measure the as-built ESW pump suction pressure will be performed. Inspection and analyses to determine NPSH available to each pump will be performed based on test data and as-built data.	11. A report exists and concludes that the as-built calculated available NPSH available exceeds each ESW pump's NPSH required.
12. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	12. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	12. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.7.2.2-4 (7 of 7)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11. (cont.)	11.e Tests will be performed to determine the flow rate to the SC heat exchanger.	11.e The as-built CCW pump delivers at least 41,640 L/min (11,000 gpm) of CCW to the as-built SC heat exchanger.
	11.f Tests will be performed to determine the flow rate to each essential chiller condenser.	11.f The as-built CCW pump delivers at least 7,874 L/min (2,800 gpm) of CCW to one of two as-built essential chiller condensers.
	11.g Tests will be performed to determine the flow rate to the SFPC heat exchanger.	11.g The as-built CCW pump delivers at least 13,249 L/min (3,500 gpm) of CCW to the as-built SFPC heat exchanger.
	11.h Tests will be performed to determine the flow rate to each emergency diesel generator.	11.h The as-built CCW pump delivers at least 18,170 L/min (2,400 gpm) and 14,612 L/min (1,930 gpm) of CCW to the as-built emergency diesel generator A/B and C/D respectively.
	11.i Tests will be performed to determine the flow rate to each RCP coolers.	11.i The as-built CCW pump delivers at least 1,675 L/min (442.5 gpm) of CCW to each as-built RCP coolers.
12. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	12. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	12. Pipe rupture hazard exists analysis report ~~exits~~ and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.7.2.5-4 (4 of 4)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
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.a.i MOV and AOV will be performed that demonstrate the capability of the valve to operate under its design conditions.	6.a.i A test report exists and concludes that each MOV or AOV changes position as indicated in Table 2.7.2.5-2 under design conditions.
	6.a.ii Test and/or analyses of the as-built MOV and AOV will be performed under pre-operational flow, differential pressure, and temperature conditions.	6.a.ii Upon receipt of the actuating signal, each MOV or AOV changes position as indicated in Table 2.7.2.5-2 under pre-operational test conditions.
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.	6.b Test of the as-built MOV and AOV will be performed under the conditions of loss of motive power.	6.b Upon loss of motive power, each as-built MOV or AOV identified in Table 2.7.2.5-2 assumes the indicated loss of motive power position.
7.a All controls required by the design exist in the MCR to open and close MOV and AOV identified in Table 2.7.2.5-2.	7.a Tests will be performed using the controls in the MCR.	7.a All controls in the as-built MCR open and close the MOV and AOV identified in Table 2.7.2.5-2.
7.b All controls required by the design exist in the RSR to open and close MOV and AOV identified in Table 2.7.2.5-2.	7.b Tests will be performed using the controls in the RSR.	7.b All controls in the as-built RSR open and close the MOV and AOV identified in Table 2.7.2.5-2.
7.c All displays and alarms required by the design exist in the MCR as defined in Table 2.7.2.5-3.	7.c Inspections will be performed on the displays and alarms in the MCR.	7.c All displays and alarms exist and can be retrieved in the MCR as defined in Table 2.7.2.5-3.
7.d All displays and alarms required by the design exist in the RSR as defined in Table 2.7.2.5-3.	7.d Inspections will be performed on the displays and alarms in the RSR.	7.d All displays and alarms exist and can be retrieved in the RSR as defined in Table 2.7.2.5-3.
8. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	8. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	8. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.7.2.6-4 (5 of 5)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
8.a All controls exist in the MCR to open and close the MOVs and SOVs identified in Table 2.7.2.6-2.	8.a Tests will be performed using the controls in the MCR.	8.a All controls in the as-built MCR open and close the 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.b Tests will be performed using the controls in the RSR.	8.b All controls in the as-built RSR open and close the 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.	8.c Inspections will be performed on the displays and alarms in the MCR.	8.c All displays and alarms exist and are retrieved in the as-built MCR as defined in Tables 2.7.2.6-2 and 2.7.2.6-3.
8.d All displays and alarms exist in the RSR as defined in Tables 2.7.2.6-2 and 2.7.2.6-3.	8.d Inspections will be performed on the displays and alarms in the RSR.	8.d All displays and alarms exist and are retrieved in the as-built RSR as defined in Tables 2.7.2.6-2 and 2.7.2.6-3.
9. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	9. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	9. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.7.4.3-4 (6 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11. The SFP cooling pumps have sufficient net positive suction head (NPSH).	11. Test to measure the as-built SFP cooling pump suction pressure will be performed. Inspection and analysis to determine NPSH available to each pump will be performed based on test data and as-built data.	11. A report exists and concludes that the as-built calculated NPSH available exceeds each SFP cooling pump's required NPSH.
12. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	12. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	12. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.7.5.2-3 (2 of 2)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
5. During and after safe shutdown earthquake loading, the stand pipe system remains functional in areas containing equipment required for safe shut down.	5. An inspection and analysis will be performed of the as-built stand pipe system as documented in a seismic design report.	5. The seismic design report exists and concludes that the as-built stand pipe system remains functional in areas containing equipment required for safe shutdown during and after safe shutdown earthquake loading.
6. The fuel tank for the diesel-driven fire pump is capable of holding at least equal to 5.07 L per kW (1 gal per hp) plus 10 % volume.	6. Inspection of the diesel-driven fire tank will be performed	6. The volume of the as-built diesel fire pump fuel tank is at least equal to 5.07 L per kW (1 gal per hp) plus 10 % volume.
7. Manual pull stations or individual fire detectors provide fire detection capability and are used to initiate fire alarms.	7. Inspection and testing of the as-built manual pull stations and individual fire detectors will be performed using simulated fire conditions.	7. The as-built manual pull stations initiate fire alarms when pulled, and individual fire detectors initiate fire alarms in response to simulated fire conditions.
8.a All displays and alarms required by the design exist in the MCR as defined in Table 2.7.5.2-2.	8.a Inspections will be performed on the displays and alarms in the MCR.	8.a All displays and alarms exist and are retrieved in the as-built MCR as defined in Table 2.7.5.2-2.
8.b All displays and alarms required by the design exist in the RSR as defined in Table 2.7.5.2-2.	8.b Inspections will be performed on the displays and alarms in the RSR.	8.b All displays and alarms exist and are retrieved in the as-built RSR as defined in Table 2.7.5.2-2.
9. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	9. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	9. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.11.2-4 (6 of 6)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11. The CSS has heat removal capacity to control the containment atmosphere temperature and pressure.	11.a Analyses will be performed to determine the heat removal capacities of the as-built CS heat exchanger.	11.a A report exists and concludes that the product of the overall heat transfer coefficient and the effective heat transfer area, UA, of each CS heat exchanger identified in Table 2.11.2-2 is greater than or equal to 7.793 × 105 cal/hr-°C (1.718 × 106 Btu/hr-°F).
	11.b A test of the as-built CS pump will be performed to measure the flow rate to the CS heat exchanger.	11.b The as-built CS pump identified in Table 2.11.2-2 delivers at least 18,927 L/min (5,000 gpm) to the CS heat exchanger.
12. The moderate-energy piping systems are reconciled with pipe rupture hazards analyses report to ensure that the safety-related SSCs are protected against or are qualified to withstand the environmental effects associated with postulate failures of these piping systems.	12. Inspections and analyses of the as-built moderate-energy piping and safety-related SSCs will be performed.	12. Pipe rupture hazard analysis report ~~exits~~ exists and concludes that the as-built safety-related SSCs are protected against or are qualified to withstand the effects of postulated pipe failures of the as-built moderate-energy piping system.

Table 2.3-1

Systems with ASME Section III Class 1, 2, and 3 Piping Systems and Components

Tier 1 Section	System Name	ASME Section III			LBB
		1	2	3	
2.4.1	Reactor Coolant System	V			V
2.4.2	In-containment Water Storage System	-	V	-	-
2.4.3/ 2.4.4	Safety Injection/Shutdown Cooling System	V	V	-	V
2.4.5	Reactor Coolant Gas Vent System	V	V	V	-
2.4.6	Chemical and Volume Control System	V	V	V	
2.6.2	Emergency Diesel Generator System	-	-	V	-
2.7.1.2	Main Steam System	-	V	V	-
2.7.1.4	Condensate and Feedwater System	-	V	-	-
2.7.1.5	Auxiliary Feedwater System	-	V	V	-
2.7.1.8	Steam Generator Blowdown System	-	V	-	-
2.7.2.1	Essential Service Water System	-	-	V	-
2.7.2.2	Component Cooling Water System	-	V	V	-
2.7.2.3	Essential Chilled Water System	-	-	V	-
2.7.2.5	~~Radioactive Drain System~~ Equipment and Floor Drainage System	-	V	V	-
2.7.2.6	Process and Post-Accident Sampling System	-	V	V	-
2.7.4.3	Spent Fuel pool Cooling and Cleanup System	-	V	V	-
2.7.6.2	Gaseous Waste Management System	-	V	-	-
2.11.2	Containment Spray System	-	V	-	-

Table 2.3-3

High and Moderate Energy Piping Systems

System[(1)(2)]	High-Energy	Moderate-Energy
Reactor Coolant System	O	
Safety Depressurization and Vent System[(3)]	O	
Safety Injection/Shutdown Cooling System	O	
Chemical and Volume Control System	O	
Steam Generator Blowdown System[(4)]	O	
~~Component Cooling System~~ Component Cooling Water System		O
Spent Fuel Pool Cooling and Cleanup System		O
Containment Air Monitoring/Sampling System		O
Containment Spray System		O
Essential Service Water System		O
Main Steam System	O	
Auxiliary Feedwater Pump Turbine System	O	
Main Feedwater System	O	
Auxiliary Feedwater System		O
Auxiliary Steam System	O	
Emergency Diesel Generator System[(5)]	O	
Diesel Fuel Oil Transfer System		O
Fire Protection System		O
Station Heating System		O
~~Drain System~~ Equipment and Floor Drainage System		O
Essential/Normal Chilled Water System		O
Breathing Air System		O
Instrument Air System		O
Service Air System		O

(1) Systems classified as high-energy are either totally or partially high-energy. If portions of system are high-energy, it is classified as high-energy system.

(2) Systems or portions of systems outside the containment building and auxiliary building are excluded from this table.

(3) The piping portion from 2-in piping located at downstream of POSRV to the first isolation valve is high-energy piping and the rest is moderate-energy piping.

(4) Wet layup recirculation system is classified as moderate-energy system.

(5) Subsystems other than an EDG engine starting air system are classified as moderate-energy systems.