2.8.2 Main Steam System

Design Description

1.0 System Description

The main steam system (MSS) is a safety-related system. It transports steam from the steam generators to the turbine generator during normal operations. The MSS also isolates the steam generators and the safety-related portion of MSS from the non-safety-related portion during design basis accidents. The main steam pipe lines from the steam generators to and including the fixed seismic restraints downstream of the main steam isolation valves (MSIVs) are safety related. The main steam lines downstream of the fixed seismic restraints to the turbine generator are non-safety-related.

The MSS provides the following safety-related functions:

- The MSS isolates the steam generators and associated portion of main steam lines.
- The MSS provides residual heat removal by venting steam to the atmosphere via the main steam relief trains (MSRTs) and the main steam safety valves (MSSVs).

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

- The MSS and the turbine bypass system provide the capability to dump steam to the main condenser.

2.0 Arrangement

2.1 The functional arrangement of the MSS is as described in the Design Description of Section 2.8.2, Tables 2.8.2-1—MSS Equipment Mechanical Design and 2.8.2-2—MSS Equipment I&C and Electrical Design, and as shown on Figure 2.8.2-1—MSS Functional Arrangement.

2.2 Deleted.

2.3 Physical separation exists between divisions of the safety-related portions of the MSS as shown on Figures 2.1.1-23, 2.1.1-24, 2.1.1-36, and 2.1.1-37.

3.0 Mechanical Design Features

3.1 Valves listed in Table 2.8.2-1 will be functionally designed and qualified such that each valve is capable of performing its intended function under the full range of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design basis accident conditions.

3.2 Deleted.

3.3 Equipment identified as Seismic Category I in Table 2.8.2-1 can withstand seismic design basis loads without a loss of safety function(s).

3.4 ASME Code Class 2 and 3 piping systems are designed in accordance with ASME Code Section III requirements.

3.5 As-built ASME Code Class 2 and 3 components listed in Table 2.8.2-1 are reconciled with the design requirements.

3.6 Pressure-boundary welds in ASME Code Class 2 and 3 components listed in Table 2.8.2-1 meet ASME Code Section III non-destructive examination requirements.

3.7 ASME Code Class 2 and 3 components listed in Table 2.8.2-1 retain their pressure-boundary integrity at their design pressure.

3.8 ASME Code Class 2 and 3 components listed in Table 2.8.2-1 are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.9 Deleted.

3.10 Deleted.

3.11 Deleted.

3.12 Deleted.

3.13 Deleted.

4.0 I&C Design Features, Displays, and Controls

4.1 Displays listed in Table 2.8.2-2 are indicated on the PICS operator workstations in the MCR and the RSS.

4.2 Controls on the PICS operator workstations in the MCR and the RSS perform the function listed in Table 2.8.2-2.

4.3 Equipment listed as being controlled by a priority and actuator control system (PACS) module in Table 2.8.2-2 responds to the state requested and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

5.0 Electrical Power Design Features

5.1 Equipment designated as Class 1E in Table 2.8.2-2 are powered from the Class 1E division as listed in Table 2.8.2-2 in a normal or alternate feed condition.

5.2 Each main steam relief isolation valve fails closed on loss of power.

5.3 Each MSIV fails closed on loss of hydraulic pressure or loss of power.

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

5.5 Each main steam relief control valve fails as-is on loss of power.

6.0 Environmental Qualifications

6.1 Equipment designated as harsh environment in Table 2.8.2-2 can perform the function listed in Table 2.8.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 2.8.2-2 will function to change position as listed in Table 2.8.2-1 under normal operating conditions.

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

7.3 MSRTs provide relief capacity.

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

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

7.6 Deleted.

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

Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.8.2-3 lists the MSS ITAAC.

Table 2.8.2-1—MSS Equipment Mechanical Design
Sheet 1 of 2

Description	Tag Number(1)	Location	ASME Code Section III	Function	Seismic Category
MSSVs	30LBA11AA191 30LBA12AA191 30LBA21AA191 30LBA22AA191 30LBA31AA191 30LBA32AA191 30LBA41AA191 30LBA42AA191	1UJE29002 1UJE29002 2UJE29002 2UJE29002 3UJE29002 3UJE29002 4UJE29002 4UJE29002	Yes	Open, Close	I
Main Steam Relief Isolation Valves	30LBA13AA001 30LBA23AA001 30LBA33AA001 30LBA43AA001	1UJE29002 2UJE29002 3UJE29002 4UJE29002	Yes	Open, Close	I
Main Steam Relief Control Valves	30LBA13AA101 30LBA23AA101 30LBA33AA101 30LBA43AA101	1UJE29002 2UJE29002 3UJE29002 4UJE29002	Yes	Open, Throttle(2), Close	I
MSIVs	30LBA10AA002 30LBA20AA002 30LBA30AA002 30LBA40AA002	1UJE29002 2UJE29002 3UJE29002 4UJE29002	Yes	Close	I
Main Steam Warming Isolation Valves	30LBA14AA001 30LBA24AA001 30LBA34AA001 30LBA44AA001	1UJE29002 2UJE29002 3UJE29002 4UJE29002	Yes	Close	I
Main Steam Warming Control Valves	30LBA14AA101 30LBA24AA101 30LBA34AA101 30LBA44AA101	1UJE29002 2UJE29002 3UJE29002 4UJE29002	Yes	Close	I

Table 2.8.2-1—MSS Equipment Mechanical Design
Sheet 2 of 2

Description	Tag Number(1)	Location	ASME Code Section III	Function	Seismic Category
Main Steam Drain Isolation Valves	30LBA10AA441 30LBA10AA442 30LBA10AA444 30LBA20AA441 30LBA20AA442 30LBA20AA444 30LBA30AA441 30LBA30AA442 30LBA30AA444 30LBA40AA441 30LBA40AA442 30LBA40AA444	1UJE29002 1UJE29002 1UJE29002 2UJE29002 2UJE29002 2UJE29002 3UJE29002 3UJE29002 3UJE29002 4UJE29002 4UJE29002 4UJE29002	Yes	Close	I
Turbine Bypass Valves	30MAN11AA051 30MAN13AA051 30MAN21AA051 30MAN23AA051 30MAN31AA051 30MAN33AA051	Turbine Building	N/A	Close	N/A

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

Table 2.8.2-2—MSS Equipment I&C and Electrical Design
Sheet 1 of 5

Description	Tag Number(1)	Location	IEEE Class 1E (2)	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Main Steam Relief Isolation Valve	30LBA13AA001	Safeguard Building 1	1^N, 2^N, 3^N, 4^N 2^A,1^A, 4^A, 3^A	Yes	Yes	Position / Position	Open-Close/ Open-Close
Main Steam Relief Isolation Valve	30LBA23AA001	Safeguard Building 1	1^N, 2^N, 3^N, 4^N 2^A,1^A, 4^A, 3^A	Yes	Yes	Position / Position	Open-Close/ Open-Close
Main Steam Relief Isolation Valve	30LBA33AA001	Safeguard Building 4	1^N, 2^N, 3^N, 4^N 2^A,1^A, 4^A, 3^A	Yes	Yes	Position / Position	Open-Close/ Open-Close
Main Steam Relief Isolation Valve	30LBA43AA001	Safeguard Building 4	1^N, 2^N, 3^N, 4^N 2^A,1^A, 4^A, 3^A	Yes	Yes	Position / Position	Open-Close/ Open-Close
Main Steam Relief Control Valve	30LBA13AA101	Safeguard Building 1	1^N 2^A	Yes	Yes	Position / Position	Open-Throttle-Close/ Open-Throttle-Close
Main Steam Relief Control Valve	30LBA23AA101	Safeguard Building 1	2^N 1^A	Yes	Yes	Position / Position	Open-Throttle-Close/ Open-Throttle-Close
Main Steam Relief Control Valve	30LBA33AA101	Safeguard Building 4	3^N 4^A	Yes	Yes	Position / Position	Open-Throttle-Close/ Open-Throttle-Close
Main Steam Relief Control Valve	30LBA43AA101	Safeguard Building 4	4^N 3^A	Yes	Yes	Position / Position	Open-Throttle-Close/ Open-Throttle-Close
MSIV	30LBA10AA002	Safeguard Building 1	1^N, 2^N, 3^N, 4^N 2^A,1^A, 4^A, 3^A	Yes	Yes	Position / Position	Close / Close
MSIV	30LBA20AA002	Safeguard Building 1	1^N, 2^N, 3^N, 4^N 2^A,1^A, 4^A, 3^A	Yes	Yes	Position / Position	Close / Close

Table 2.8.2-2—MSS Equipment I&C and Electrical Design
Sheet 2 of 5

Description	Tag Number(1)	Location	IEEE Class 1E (2)	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
MSIV	30LBA30AA002	Safeguard Building 4	1^N, 2^N, 3^N, 4^N 2^A,1^A, 4^A, 3^A	Yes	Yes	Position / Position	Close / Close
MSIV	30LBA40AA002	Safeguard Building 4	1^N, 2^N, 3^N, 4^N 2^A,1^A, 4^A, 3^A	Yes	Yes	Position / Position	Close / Close
Main Steam Warming Isolation Valve	30LBA14AA001	Safeguard Building 1	1^N 2^A	Yes	Yes	Position / Position	Close / Close
Main Steam Warming Isolation Valve	30LBA24AA001	Safeguard Building 1	2^N 1^A	Yes	Yes	Position / Position	Close / Close
Main Steam Warming Isolation Valve	30LBA34AA001	Safeguard Building 4	3^N 4^A	Yes	Yes	Position / Position	Close / Close
Main Steam Warming Isolation Valve	30LBA44AA001	Safeguard Building 4	4^N 3^A	Yes	Yes	Position / Position	Close / Close
Main Steam Warming Control Valve	30LBA14AA101	Safeguard Building 1	3^N 4^A	Yes	Yes	Position / Position	Close / Close
Main Steam Warming Control Valve	30LBA24AA101	Safeguard Building 1	4^N 3^A	Yes	Yes	Position / Position	Close / Close
Main Steam Warming Control Valve	30LBA34AA101	Safeguard Building 4	1^N 2^A	Yes	Yes	Position / Position	Close / Close
Main Steam Warming Control Valve	30LBA44AA101	Safeguard Building 4	2^N 1^A	Yes	Yes	Position / Position	Close / Close

Table 2.8.2-2—MSS Equipment I&C and Electrical Design
Sheet 3 of 5

Description	Tag Number(1)	Location	IEEE Class 1E (2)	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Main Steam Drain Isolation Valves	30LBA10AA441	Safeguard Building 1	1^N 2^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA10AA442	Safeguard Building 1	4^N 3^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA10AA444	Safeguard Building 1	3^N 4^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA20AA441	Safeguard Building 1	2^N 1^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA20AA442	Safeguard Building 1	3^N 4^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA20AA444	Safeguard Building 1	4^N 3^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA30AA441	Safeguard Building 4	3^N 4^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA30AA442	Safeguard Building 4	2^N 1^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA30AA444	Safeguard Building 4	1^N 2^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA40AA441	Safeguard Building 4	4^N 3^A	Yes	Yes	Position / Position	Close / Close

Table 2.8.2-2—MSS Equipment I&C and Electrical Design
Sheet 4 of 5

Description	Tag Number(1)	Location	IEEE Class 1E (2)	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Main Steam Drain Isolation Valves	30LBA40AA442	Safeguard Building 4	1^N 2^A	Yes	Yes	Position / Position	Close / Close
Main Steam Drain Isolation Valves	30LBA40AA444	Safeguard Building 4	2^N 1^A	Yes	Yes	Position / Position	Close / Close
Instruments							
Main Steam Line Pressure Transmitter	30LBA10CP811	Safeguard Building 1	1^N 2^A	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA10CP821	Safeguard Building 1	2^N 1^A	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA10CP831	Safeguard Building 1	3^N 4^A	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA10CP841	Safeguard Building 1	4^N 3^A	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA20CP811	Safeguard Building 1	1^N 2^A	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA20CP821	Safeguard Building 1	2^N 1^A	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA20CP831	Safeguard Building 1	3^N 4^A	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA20CP841	Safeguard Building 1	4^N 3^A	Yes	N/A	Pressure/ Pressure	N/A / N/A

Table 2.8.2-2—MSS Equipment I&C and Electrical Design
Sheet 5 of 5

Description	Tag Number(1)	Location	IEEE Class 1E (2)	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Main Steam Line Pressure Transmitter	30LBA30CP811	Safeguard Building 4	1^{N} 2^{A}	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA30CP821	Safeguard Building 4	2^{N} 1^{A}	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA30CP831	Safeguard Building 4	3^{N} 4^{A}	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA30CP841	Safeguard Building 4	4^{N} 3^{A}	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA40CP811	Safeguard Building 4	1^{N} 2^{A}	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA40CP821	Safeguard Building 4	2^{N} 1^{A}	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA40CP831	Safeguard Building 4	3^{N} 4^{A}	Yes	N/A	Pressure/ Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA40CP841	Safeguard Building 4	4^{N} 3^{A}	Yes	N/A	Pressure/ Pressure	N/A / N/A

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

2. ^{N} denotes the division equipment is normally powered from; ^{A} denotes the division equipment is powered from when alternate feed is implemented.

Table 2.8.2-3—Main Steam System ITAAC
Sheet 1 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	The functional arrangement of the MSS is as described in the Design Description of Section 2.8.2, Tables 2.8.2-1 and 2.8.2-2, and as shown on Figure 2.8.2-1.	An inspection of the as-built MSS functional arrangement will be performed.	The MSS conforms to the functional arrangement as described in the Design Description of Section 2.8.2, Tables 2.8.2-1 and 2.8.2-2, and as shown on Figure 2.8.2-1.
2.2	Deleted.	Deleted.	Deleted.
2.3	Physical separation exists between divisions of the safety-related portions of the MSS as shown on Figures 2.1.1-23, 2.1.1-24, 2.1.1-36, and 2.1.1-37.	An inspection will be performed to verify that the as-built safety-related portions of the MSS are located in separate valve rooms in Safeguard Buildings 1 and 4.	The divisions of the safety-related portions of the MSS are located in separate valve rooms in Safeguard Buildings 1 and 4 as shown on Figures 2.1.1-23, 2.1.1-24, 2.1.1-36, and 2.1.1-37.
3.1	Valves listed in Table 2.8.2-1 will be functionally designed and qualified such that each valve is capable of performing its intended function under the full range of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design basis accident conditions.	Tests or type tests of valves will be performed to demonstrate that the valves function under the full range of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design basis accident conditions.	A report concludes that the valves listed in Table 2.8.2-1 are capable of performing their intended function under the full range of fluid flow, differential pressure, electrical conditions, and temperature conditions up to and including design basis accident conditions.
3.2	Deleted.	Deleted.	Deleted.

Table 2.8.2-3—Main Steam System ITAAC
Sheet 2 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.3	Equipment identified as Seismic Category I in Table 2.8.2-1 can withstand seismic design basis loads without a loss of safety function(s).	a. Type tests, analyses, or a combination of type tests and analyses will be performed on the equipment identified as Seismic Category I in Table 2.8.2-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements.	a. Test/analysis reports conclude that the equipment identified as Seismic Category I in Table 2.8.2-1 can withstand seismic design basis loads without a loss of safety function(s).
		b. An inspection will be performed of the as-built equipment identified as Seismic Category I in Table 2.8.2-1 to verify that the equipment, including anchorage, are installed in a condition bounded by the tested or analyzed condition.	b. Inspection reports conclude that the equipment identified as Seismic Category I in Table 2.8.2-1, including anchorage, are installed in a condition bounded by the tested or analyzed condition.
3.4	ASME Code Class 2 and 3 piping systems are designed in accordance with ASME Code Section III requirements.	An inspection of piping design and analysis documentation required by ASME Code Section III will be performed. {{DAC}}	ASME Code Section III Design Report(s) exist that meet the requirements of NCA-3550 and conclude that the design of ASME Code Class 2 and 3 piping systems complies with the requirements of ASME Code Section III. {{DAC}}

Table 2.8.2-3—Main Steam System ITAAC
Sheet 3 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.5	As-built ASME Code Class 2 and 3 components listed in Table 2.8.2-1 are reconciled with the design requirements.	A reconciliation analysis of ASME Code Class 2 and 3 components will be performed.	ASME Code Design Report(s) exist that meet the requirements of NCA-3550, conclude that the design reconciliation has been completed for as-built ASME Code Class 2 and 3 components listed in Table 2.8.2-1, and document that the results of the reconciliation analysis comply with the requirements of ASME Code Section III.
3.6	Pressure-boundary welds in ASME Code Class 2 and 3 components listed in Table 2.8.2-1 meet ASME Code Section III non-destructive examination requirements.	An inspection of the as-built pressure-boundary welds in ASME Code Class 2 and 3 components will be performed.	ASME Code reports(s) exist that conclude that ASME Code Section III requirements are met for non-destructive examination of pressure-boundary welds in ASME Code Class 2 and 3 components listed in Table 2.8.2-1.
3.7	ASME Code Class 2 and 3 components listed in Table 2.8.2-1 retain their pressure-boundary integrity at their design pressure.	A hydrostatic test will be conducted on ASME Code Class 2 and 3 components that are required to be hydrostatically tested by ASME Code Section III.	ASME Code Data Report(s) exist and conclude that the results of the hydrostatic test of ASME Code Class 2 and 3 components listed in Table 2.8.2-1 comply with the requirements of ASME Code Section III.
3.8	ASME Code Class 2 and 3 components listed in Table 2.8.2-1 are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.	An inspection of the as-built construction activities and documentation for ASME Code Class 2 and 3 components will be conducted.	ASME Code Data Report(s) exist that conclude that ASME Code Class 2 and 3 components listed in Table 2.8.2-1 are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.
3.9	Deleted.	Deleted.	Deleted.
3.10	Deleted.	Deleted.	Deleted.
3.11	Deleted.	Deleted.	Deleted.
3.12	Deleted.	Deleted.	Deleted.

Table 2.8.2-3—Main Steam System ITAAC
Sheet 4 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.13	Deleted.	Deleted.	Deleted.
4.1	Displays listed in Table 2.8.2-2 are indicated on the PICS operator workstations in the MCR and the RSS.	a. Tests will be performed to verify that the displays listed in Table 2.8.2-2 are indicated on the PICS operator workstations in the MCR. b. Tests will be performed to verify that the displays listed in Table 2.8.2-2 are indicated on the PICS operator workstations in the RSS.	a. Displays listed in Table 2.8.2-2 are indicated on the PICS operator workstations in the MCR. b. Displays listed in Table 2.8.2-2 are indicated on the PICS operator workstations in the RSS.
4.2	Controls on the PICS operator workstations in the MCR and the RSS perform the function listed in Table 2.8.2-2.	a. Tests will be performed using controls on the PICS operator workstations in the MCR. b. Tests will be performed using controls on the PICS operator workstations in the RSS.	a. Controls on the PICS operator workstations in the MCR perform the function listed in Table 2.8.2-2. b. Controls on the PICS operator workstations in the RSS perform the function listed in Table 2.8.2-2.
4.3	Equipment listed as being controlled by a PACS module in Table 2.8.2-2 responds to the state requested and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test input signals to verify equipment controlled by a PACS module responds to the state requested and provides drive monitoring signals back to the PACS module.	Equipment listed as being controlled by a PACS module in Table 2.8.2-2 responds to the state requested and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

Table 2.8.2-3—Main Steam System ITAAC
Sheet 5 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	Equipment designated as Class 1E in Table 2.8.2-2 are powered from the Class 1E division as listed in Table 2.8.2-2 in a normal or alternate feed condition.	a. Testing will be performed by providing a test input signal in each normally aligned division. b. Testing will be performed by providing a test input signal in each division with the alternate feed aligned to the divisional pair.	a. The test input signal provided in the normally aligned division is present at the respective Class 1E equipment identified in Table 2.8.2-2. b. The test input signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E equipment identified in Table 2.8.2-2.
5.2	Each main steam relief isolation valve fails closed on loss of power.	Tests will be performed to verify that each main steam relief isolation valve fails closed on loss of power.	Following loss of power, each main steam relief isolation valve fails closed.
5.3	Each MSIV fails closed on loss of hydraulic pressure or loss of power.	Tests will be performed to verify that each MSIV fails closed on loss of hydraulic pressure or loss of power.	Following loss of hydraulic pressure or loss of power, each MSIV fails closed.
5.4	Each turbine bypass valve fails closed on loss of power.	Tests will be performed to verify that each turbine bypass valve fails closed on loss of power.	Following loss of power, each turbine bypass valve fails closed.
5.5	Each main steam relief control valve fails as-is on loss of power.	Tests will be performed to verify that each main steam relief control valve fails as-is on loss of power.	Following loss of power, each main steam relief control valve fails as-is.

Table 2.8.2-3—Main Steam System ITAAC
Sheet 6 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Equipment designated as harsh environment in Table 2.8.2-2 can perform the function listed in Table 2.8.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the equipment designated as harsh environment in Table 2.8.2-2 to perform the function listed in Table 2.8.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. b. An inspection will be performed of the as-built equipment designated as harsh environment in Table 2.8.2-2 to verify that the equipment, including the associated cables, wiring, and terminations located in a harsh environment, are bounded by the type test or combination of type tests and analyses.	a. EQDPs conclude that the equipment designated as harsh environment in Table 2.8.2-2 can perform the function listed in Table 2.8.2-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, including the time required to perform the listed function. b. A report exists and concludes that the equipment designated as harsh environment in Table 2.8.2-2, including the associated cables, wiring, and terminations located in a harsh environment, are bounded by the type test or combination of type tests and analyses.
7.1	Class 1E valves listed in Table 2.8.2-2 will function to change position as listed in Table 2.8.2-1 under normal operating conditions.	Tests will be performed to verify the ability of Class 1E valves to change position under normal operating conditions.	Class 1E valves listed in Table 2.8.2-2 change position as listed in Table 2.8.2-1 under normal operating conditions.

Table 2.8.2-3—Main Steam System ITAAC
Sheet 7 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
7.2	Each of the two MSSVs per main steam line provides relief capacity for the main steam system.	Vendor tests and analysis will be performed to verify relief capacity of the two MSSVs per main steam line.	Each MSSV provides relief capacity ≥ 1,422,073 lbm/hr. The MSSV on the main steam line with the lower pressure setting delivers that rated capacity at ≤ 1504 psig. The MSSV on the main steam line with the higher pressure setting delivers that rated capacity at ≤ 1535 psig.
7.3	MSRTs provide relief capacity.	Vendor tests and analysis will be performed to verify relief capacity of the MSRTs.	Each MSRT provides relief capacity ≥ 2,844,146 lbm/hr at valve inlet static pressure of 1370 psig. With pressure measurement uncertainty of 30 psi, the maximum relieving pressure is 1400 psig.
7.4	Each MSRIV per main steam line opens upon receipt of a signal.	A test will be performed to verify that upon receipt of a test input signal, each MSRIV per main steam line opens.	Each MSRIV opens within 1.8 seconds after receipt of a test input signal from the PACS module.
7.5	Each MSIV per main steam line closes upon receipt of a signal.	A test will be performed to verify that upon receipt of a test input signal, each MSIV per main steam line closes.	Each MSIV closes within 5 seconds after receipt of a test input signal from the PACS module.
7.6	Deleted.	Deleted.	Deleted.
7.7	Upon safety injection actuation, the MSRT controls secondary system cooldown at a pre-defined rate.	A test will be performed to verify that upon receipt of a safety injection actuation test input signal, the MSRT controls secondary system cooldown at a pre-defined rate.	The MSRT pressure control set-point is ramped from 1414.7 psia to 900 psia within 19 minutes.

Next File