2.8.2 Main Steam System

1.0 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 shown on Figure 2.8.2-1—MSS Functional Arrangement.

2.2 The location of the MSS equipment is as listed in Table 2.8.2-1—MSS Equipment Mechanical Design.

2.3 Physical separation exists between divisions of the MSS.

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 for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable) under conditions ranging from normal operating to design-basis accident conditions.

3.2 Deleted.

3.3 Components identified as Seismic Category I in Table 2.8.2-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.8.2-1.

3.4 Components listed in Table 2.8.2-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.

3.5 Components listed in Table 2.8.2-1 as ASME Code Section III are fabricated in accordance with ASME Code Section III requirements.

3.6 Pressure boundary welds on components listed in Table 2.8.2-1 as ASME Code Section III are in accordance with ASME Code Section III requirements.

3.7 Components listed in Table 2.8.2-1 as ASME Code Section III retain pressure boundary integrity at design pressure.

3.8 MSS piping shown as ASME Code Section III on Figure 2.8.2-1 are designed in accordance with ASME Code Section III requirements.

3.9 MSS piping shown as ASME Code Section III on Figure 2.8.2-1 are installed in accordance with an ASME Code Section III Design Report.

3.10 Pressure boundary welds in MSS piping shown as ASME Code Section III on Figure 2.8.2-1 are in accordance with ASME Code Section III.

3.11 MSS piping shown as ASME Code Section III on Figure 2.8.2-1 retain pressure boundary integrity at design pressure.

3.12 MSS piping shown as ASME Code Section III on Figure 2.8.2-1 are installed and inspected in accordance with ASME Code Section III requirements.

3.13 Components listed in Table 2.8.2-1 as ASME Code Section III are installed in accordance with ASME Code Section III requirements.

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

4.1 Displays listed in Table 2.8.2-2—MSS Equipment I&C and Electrical Design are retrievable in the main control room (MCR) and the remote shutdown station (RSS) as listed in Table 2.8.2-2.

4.2 The MSS equipment controls are provided in the MCR and the RSS as 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 by a test signal.

5.0 Electrical Power Design Features

5.1 The components 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 electric power to the valve actuator.

5.3 Each MSIV fails closed on loss of hydraulic pressure or loss of electric power to the valve actuator.

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

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

6.0 Environmental Qualifications

6.1 Components in Table 2.8.2-2, that are designated as harsh environment, will perform the function listed in Table 2.8.2-1 in the environments that exist during and following design basis events.

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 2.8.2-2 can perform the function listed in Table 2.8.2-1 under system operating conditions.

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

7.3 MSRTs provide relief capacity.

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

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

7.6 Deleted.

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

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.8.2-3 lists the MSS ITAAC.

Table 2.8.2-1—MSS Equipment Mechanical Design (2 Sheets)

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 (2 Sheets)

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.

2) The main steam relief control valves are capable of being positioned 40 percent open and capable of a linear variation between 40 and 100 percent open.

Table 2.8.2-2—MSS Equipment I&C and Electrical Design (6 Sheets)

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	Pos./N/A	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	Pos./N/A	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	Pos./N/A	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	Pos./N/A	Open-Close/ Open-Close
Main Steam Relief Control Valve	30LBA13AA101	Safeguard Building 1	1^N 2^A	yes	yes	Pos./N/A	Open-Throttle-Close/Open-Throttle-Close
Main Steam Relief Control Valve	30LBA23AA101	Safeguard Building 1	2^N 1^A	yes	yes	Pos./N/A	Open-Throttle-Close/Open-Throttle-Close
Main Steam Relief Control Valve	30LBA33AA101	Safeguard Building 4	3^N 4^A	yes	yes	Pos./N/A	Open-Throttle-Close/Open-Throttle-Close
Main Steam Relief Control Valve	30LBA43AA101	Safeguard Building 4	4^N 3^A	yes	yes	Pos./N/A	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	Pos./N/A	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	Pos./N/A	Close/Close

Table 2.8.2-2—MSS Equipment I&C and Electrical Design (6 Sheets)

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	Pos./N/A	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	Pos./N/A	Close/Close
Main Steam Warming Isolation Valve	30LBA14AA001	Safeguard Building 1	1^N 2^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Warming Isolation Valve	30LBA24AA001	Safeguard Building 1	2^N 1^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Warming Isolation Valve	30LBA34AA001	Safeguard Building 4	3^N 4^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Warming Isolation Valve	30LBA44AA001	Safeguard Building 4	4^N 3^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Warming Control Valve	30LBA14AA101	Safeguard Building 1	3^N 4^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Warming Control Valve	30LBA24AA101	Safeguard Building 1	4^N 3^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Warming Control Valve	30LBA34AA101	Safeguard Building 4	1^N 2^A	yes	yes	Pos./N/A	Close/ N/A

Table 2.8.2-2—MSS Equipment I&C and Electrical Design (6 Sheets)

Description	Tag Number (1)	Location	IEEE Class 1E (2)	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Main Steam Warming Control Valve	30LBA44AA101	Safeguard Building 4	2^N 1^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA10AA441	Safeguard Building 1	1^N 2^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA10AA442	Safeguard Building 1	4^N 3^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA10AA444	Safeguard Building 1	3^N 4^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA20AA441	Safeguard Building 1	2^N 1^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA20AA442	Safeguard Building 1	3^N 4^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA20AA444	Safeguard Building 1	4^N 3^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA30AA441	Safeguard Building 4	3^N 4^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA30AA442	Safeguard Building 4	2^N 1^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA30AA444	Safeguard Building 4	1^N 2^A	yes	yes	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA40AA441	Safeguard Building 4	4^N 3^A	yes	yes	Pos./N/A	Close/ N/A

Table 2.8.2-2—MSS Equipment I&C and Electrical Design (6 Sheets)

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	Pos./N/A	Close/ N/A
Main Steam Drain Isolation Valves	30LBA40AA444	Safeguard Building 4	2^N 1^A	yes	yes	Pos./N/A	Close/ N/A
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
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

Table 2.8.2-2—MSS Equipment I&C and Electrical Design (6 Sheets)

Description	Tag Number (1)	Location	IEEE Class 1E (2)	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
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
Main Steam Line Activity Sensor	30LBA10CR811	Safeguard Building 1	1^N 2^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA10CR821	Safeguard Building 1	2^N 1^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA10CR831	Safeguard Building 1	3^N 4^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA10CR841	Safeguard Building 1	4^N 3^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA20CR811	Safeguard Building 1	1^N 2^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA20CR821	Safeguard Building 1	2^N 1^A	yes	N/A	Radiation/N/A	N/A / N/A

Table 2.8.2-2—MSS Equipment I&C and Electrical Design (6 Sheets)

Description	Tag Number (1)	Location	IEEE Class 1E (2)	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Main Steam Line Activity Sensor	30LBA20CR831	Safeguard Building 1	3^N 4^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA20CR841	Safeguard Building 1	4^N 3^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA30CR811	Safeguard Building 4	1^N 2^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA30CR821	Safeguard Building 4	2^N 1^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA30CR831	Safeguard Building 4	3^N 4^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA30CR841	Safeguard Building 4	4^N 3^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA40CR811	Safeguard Building 4	1^N 2^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA40CR821	Safeguard Building 4	2^N 1^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA40CR831	Safeguard Building 4	3^N 4^A	yes	N/A	Radiation/N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA40CR841	Safeguard Building 4	4^N 3^A	yes	N/A	Radiation/N/A	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 the component is normally powered from; ^{A} denotes the division the component is powered from when alternate feed is implemented.

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

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	The functional arrangement of the MSS is as shown on Figure 2.8.2-1.	Inspections of the as-built system as shown on Figure 2.8.2-1 will be conducted.	The as-built MSS conforms with the functional arrangement as shown on Figure 2.8.2-1.
2.2	The location of the MSS equipment is as listed in Table 2.8.2-1.	An inspection will be performed of the location of the equipment listed in Table 2.8.2-1.	The equipment listed in Table 2.8.2-1 is located as listed in Table 2.8.2-1.
2.3	Physical separation exists between divisions of the safety-related portion of the MSS.	An inspection will be performed to verify that the safety-related divisions of the MSS are located in separate valve rooms in Safeguard Buildings 1 and 4.	The divisions of the safety-related portion of the MSS are located in separate valve rooms in Safeguard Buildings 1 and 4 as listed in Table 2.8.2-1.
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 for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable) under conditions ranging from normal operating to design-basis accident conditions.	Tests or type tests of the valves listed in Table 2.8.2-1 will be conducted to demonstrate that the pumps and valves function under conditions ranging from normal operating to design-basis accident conditions.	A test report exists and concludes that the valves listed in Table 2.8.2-1 function under conditions ranging from normal operating to design-basis accident conditions.
3.2	Deleted.	Deleted.	Deleted.

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

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.3	Components identified as Seismic Category I in Table 2.8.2-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.8.2-1.	a. Type tests, analyses, or a combination of type tests and analyses will be performed on the components 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. b. Inspections will be performed of the Seismic Category I components identified in Table 2.8.2-1 to verify that the components, including anchorage, are installed as specified on the construction drawings and deviations have been reconciled to the seismic qualification reports (SQDP, EQDP, or analyses).	a. Seismic qualification reports (SQDP, EQDP, or analyses) exist and conclude that the Seismic Category I components identified in Table 2.8.2-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.8.2-1 including the time required to perform the listed function. b. Inspection reports exist and conclude that the Seismic Category I components identified in Table 2.8.2-1, including anchorage, are installed as specified on the construction drawings and deviations have been reconciled to the seismic qualification reports (SQDP, EQDP, or analyses).
3.4	Components listed in Table 2.8.2-1 as ASME Code Section III are designed in accordance with ASME Code Section III requirements.	Inspections of ASME Code Section III Design Reports and associated reference documents will be performed.	ASME Code Section III Design Reports (NCA-3550) exist and conclude that components listed as ASME Code Section III in Table 2.8.2-1 comply with ASME Code Section III requirements.
3.5	Components listed in Table 2.8.2-1 as ASME Code Section III are fabricated in accordance with ASME Code Section III requirements.	An analysis will be performed to verify that deviations to the component design reports (NCA-3550) have been reconciled.	ASME Code Section III Design Reports (NCA-3550) exist and conclude that components listed as ASME Code Section III in Table 2.8.2-1 comply with ASME Code Section III requirements and any deviations to the design report have been reconciled.

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

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.6	Pressure boundary welds on components listed in Table 2.8.2-1 as ASME Code Section III are in accordance with ASME Code Section III requirements.	Inspections of pressure boundary welds will be performed to verify that welding is performed in accordance with ASME Code Section III requirements.	For components listed as ASME Code Section III in Table 2.8.2-1, ASME Code Section III Data Reports (NCA-8000) exist and conclude that pressure boundary welding has been performed in accordance with ASME Code Section III.
3.7	Components listed in Table 2.8.2-1 as ASME Code Section III retain pressure boundary integrity at design pressure.	Hydrostatic tests will be performed on the components.	For components listed as ASME Code Section III in Table 2.8.2-1, ASME Code Section III Data Reports exist and conclude that hydrostatic test results comply with ASME Code Section III requirements.
3.8	MSS piping shown as ASME Code Section III on Figure 2.8.2-1 is designed in accordance with ASME Code Section III requirements.	Inspections of the ASME Code Section III Design Reports (NCA-3550) and associated reference documents will be performed. **{{DAC}}**	ASME Code Section III Design Reports (NCA-3550) exist and conclude that MSS piping shown as ASME Code Section III on Figure 2.8.2-1 complies with ASME Code Section III requirements. **{{DAC}}**
3.9	MSS piping shown as ASME Code Section III on Figure 2.8.2-1 is installed in accordance with an ASME Code Section III Design Report.	Analyses to reconcile as-built deviations to the ASME Code Design Reports (NCA-3550) will be performed.	For MSS piping shown as ASME Code Section III on Figure 2.8.2-1, ASME Code Data Reports (N-5) exist and conclude that design reconciliation (NCA-3554) has been completed in accordance with the ASME Code Section III for the as-built system. The report(s) document the as-built condition.
3.10	Pressure boundary welds in MSS piping shown as ASME Code Section III on Figure 2.8.2-1 are in accordance with ASME Code Section III.	Inspections of pressure boundary welds verify that welding is performed in accordance with ASME Code Section III requirements.	ASME Code Section III Data Reports exist and conclude that pressure boundary welding for MSS piping shown as ASME Code Section III on Figure 2.8.2-1 has been performed in accordance with ASME Code Section III.

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

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.11	MSS piping shown as ASME Code Section III on Figure 2.8.2-1 retains pressure boundary integrity at design pressure.	Hydrostatic tests will be performed on the as-built system.	For MSS piping shown as ASME Code Section III on Figure 2.8.2-1, ASME Code Section III Data Reports exist and conclude that hydrostatic test results comply with ASME Code Section III requirements.
3.12	MSS piping shown as ASME Code Section III on Figure 2.8.2-1 is installed and inspected in accordance with ASME Code Section III requirements.	An inspection of the as-built piping will be performed.	For MSS piping shown as ASME Code Section III on Figure 2.8.2-1, N–5 Data Reports exist and conclude that installation and inspection are in accordance with ASME Code Section III requirements.
3.13	Components listed in Table 2.8.2-1 as ASME Code Section III are installed in accordance with ASME Code Section III requirements.	An inspection of ASME Code Data Reports will be performed.	ASME Code Section III N-5 Data Reports exist and conclude that components listed as ASME Code Section III in Table 2.8.2-1 have been installed in accordance with ASME Code Section III requirements.
4.1	Displays exist or can be retrieved in the MCR and the RSS as identified in Table 2.8.2-2.	Tests will be performed for the retrieveability of the displays in the MCR or the RSS as listed in Table 2.8.2-2.	a. The displays listed in Table 2.8.2-2 as being retrieved in the MCR can be retrieved in the MCR. b. The displays listed in Table 2.8.2-2 as being retrieved in the RSS can be retrieved in the RSS.
4.2	Controls exist in the MCR and the RSS as identified in Table 2.8.2-2.	Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.8.2-2.	a. The controls listed in Table 2.8.2-2 as being in the MCR exist in the MCR. b. The controls listed in Table 2.8.2-2 as being in the RSS exist in the RSS.
4.3	Equipment listed as being controlled by a PACS module in Table 2.8.2-2 responds to the state requested by a test signal.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table 2.8.2-2 responds to the state requested by the test signal.

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

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
5.1	The components 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 for components designated as Class 1E in Table 2.8.2-2 by providing a test signal in each normally aligned division. b. Testing will be performed for components designated as Class 1E in Table 2.8.2-2 by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E component identified in Table 2.8.2-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E component identified in Table 2.8.2-2.
5.2	Each main steam relief isolation valve fails closed on loss of electric power to the valve actuator.	Testing will be performed for each main steam relief isolation valve to fail closed on loss of electric power to the valve actuator.	Each main steam relief isolation valve fails closed on loss of electric power to the valve actuator.
5.3	Each MSIV fails closed on loss of hydraulic pressure or loss of electric power to the valve actuator.	Tests will be performed.	Each MSIV fails closed on loss of hydraulic pressure or loss of electric power to the valve actuator.
5.4	Each turbine bypass valve fails closed on loss of power to the valve actuator.	Tests will be performed.	Each turbine bypass valve fails closed on loss of electric power to the valve actuator.
5.5	Each main steam relief control valve, main steam warming isolation valve, and main steam warming control valve fails as-is on loss of electric power to the valve actuator.	Tests will be performed.	Each main steam relief control valve, main steam warming isolation valve, and main steam warming control valve fails as-is on loss of electric power to the valve actuator.

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

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Components in Table 2.8.2-2, that are designated as harsh environment, will perform the function listed in Table 2.8.2-1 in the environments that exist during and following design basis events.	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components listed as harsh environment in Table 2.8.2-2 to perform the function listed in Table 2.8.2-1 for the environmental conditions that could occur during and following design basis events. b. Components listed as harsh environment in Table 2.8.2-2 will be inspected to verify installation in accordance with the construction drawings including the associated wiring, cables and terminations. Deviations to the construction drawings will be reconciled to the EQDP.	a. Environmental Qualification Data Packages (EQDP) exist and conclude that the components listed as harsh environment in Table 2.8.2-2 can perform the function listed in Table 2.8.2-1 during and following design basis events including the time required to perform the listed function. b. Inspection reports exists and conclude that the components listed in Table 2.8.2-2 as harsh environment has been installed per the construction drawings and any deviations have been reconciled to the EQDP.
7.1	Class 1E valves listed in Table 2.8.2-2 perform the function listed in Table 2.8.2-1 under system operating conditions.	Tests and analyses or a combination of tests and analyses will be performed to demonstrate the ability of the valves listed in Table 2.8.2-2 to change position as listed in Table 2.8.2-1 under system operating conditions.	The valve changes position as listed Table 2.8.2-1 under system operating conditions.
7.2	Each of the two MSSVs per main steam line provide relief capacity for the main steam system.	Testing and analysis will be performed.	The rated capacity of each MSSV is ≥ 1,422,073 lbm/hr. The MSSV per main steam line with the lower pressure setting delivers that rated capacity at ≤ 1504 psig. The MSSV per main steam line with the higher pressure setting delivers that rated capacity at ≤ 1535 psig.

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

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
7.3	MSRTs provide relief capacity.	Testing and analysis will be performed.	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.	Testing will be performed.	Each MSRIV opens within 1.8 seconds after receipt of a signal.
7.5	Each MSIV per main steam line closes upon receipt of a signal.	Testing will be performed.	Each MSIV closes within 5 seconds after receipt of a signal.
7.6	Deleted.	Deleted.	Deleted.
7.7	Upon safety injection actuation, the MSRT controls secondary system cooldown at a pre-defined rate.	A test and analysis will be performed to confirm the cooldown rate.	A report exists and concludes that the test and analysis results indicate that the pressure control set-point is ramped from 1414.7 psia to 900 psia within 19 minutes.

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