

**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 in 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 Equipment listed in Table 2.8.2-1 as ASME Code Section III is designed, welded, and hydrostatically tested in accordance with ASME Code Section III.

3.2 Deleted.

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

3.4 Deleted.

3.5 Deleted.

3.6 Deleted.

3.7 Deleted.

- 3.8 Portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 are designed in accordance with ASME Code Section III requirements.
- 3.9 Portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 are installed in accordance with an ASME Code Section III Design Report.
- 3.10 Pressure boundary welds in portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 are in accordance with ASME Code Section III.
- 3.11 Portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 retain their pressure boundary integrity at their design pressure.
- 3.12 Portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 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 Electrical drivers for equipment listed in Table 2.8.2-2 for harsh environment can perform the safety function in Table 2.8.2-1 following exposure to the design basis environments for the time required.

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**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 design 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.

**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)**

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

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

<b>Equipment Description</b>	<b>Equipment Tag Number <sup>(1)</sup></b>	<b>Equipment Location</b>	<b>ASME Code Section III</b>	<b>Function</b>	<b>Seismic Category</b>
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 (5 Sheets)**

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

Table 2.8.2-2—MSS Equipment I&amp;C and Electrical Design (5 Sheets)

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

**Table 2.8.2-2—MSS Equipment I&C and Electrical Design (5 Sheets)**

<b>Equipment Description</b>	<b>Equipment Tag Number <sup>(1)</sup></b>	<b>Equipment Location</b>	<b>IEEE Class 1E <sup>(2)</sup></b>	<b>EQ – Harsh Env.</b>	<b>PACS</b>	<b>MCR/RSS Displays</b>	<b>MCR/RSS Controls</b>
Main Steam Warming Control Valve	30LBA44AA101	Safeguard Building 4	2 <sup>N</sup> 1 <sup>A</sup>	yes	yes	Pos./ N/A	Close/ N/A
Main Steam Line Pressure Transmitter	30LBA10CP811	Safeguard Building 1	1 <sup>N</sup> 2 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA10 CP821	Safeguard Building 1	2 <sup>N</sup> 1 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA10 CP831	Safeguard Building 1	3 <sup>N</sup> 4 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA10 CP841	Safeguard Building 1	4 <sup>N</sup> 3 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA20CP811	Safeguard Building 1	1 <sup>N</sup> 2 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA20CP821	Safeguard Building 1	2 <sup>N</sup> 1 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA20CP831	Safeguard Building 1	3 <sup>N</sup> 4 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA20 CP841	Safeguard Building 1	4 <sup>N</sup> 3 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA30CP811	Safeguard Building 4	1 <sup>N</sup> 2 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA30CP821	Safeguard Building 4	2 <sup>N</sup> 1 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A



Table 2.8.2-2—MSS Equipment I&amp;C and Electrical Design (5 Sheets)

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E <sup>(2)</sup>	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Main Steam Line Pressure Transmitter	30LBA30CP831	Safeguard Building 4	3 <sup>N</sup> 4 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA30CP841	Safeguard Building 4	4 <sup>N</sup> 3 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA40CP811	Safeguard Building 4	1 <sup>N</sup> 2 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA40CP821	Safeguard Building 4	2 <sup>N</sup> 1 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA40CP831	Safeguard Building 4	3 <sup>N</sup> 4 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Pressure Transmitter	30LBA40CP841	Safeguard Building 4	4 <sup>N</sup> 3 <sup>A</sup>	yes	N/A	Pressure/Pressure	N/A / N/A
Main Steam Line Activity Sensor	30LBA10CR811	Safeguard Building 1	1 <sup>N</sup> 2 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA10 CR821	Safeguard Building 1	2 <sup>N</sup> 1 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA10 CR831	Safeguard Building 1	3 <sup>N</sup> 4 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA10 CR841	Safeguard Building 1	4 <sup>N</sup> 3 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA20CR811	Safeguard Building 1	1 <sup>N</sup> 2 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA20CR821	Safeguard Building 1	2 <sup>N</sup> 1 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A

**Table 2.8.2-2—MSS Equipment I&C and Electrical Design (5 Sheets)**

Equipment Description	Equipment Tag Number <sup>(1)</sup>	Equipment Location	IEEE Class 1E <sup>(2)</sup>	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Main Steam Line Activity Sensor	30LBA20CR831	Safeguard Building 1	3 <sup>N</sup> 4 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA20 CR841	Safeguard Building 1	4 <sup>N</sup> 3 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA30CR811	Safeguard Building 4	1 <sup>N</sup> 2 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA30CR821	Safeguard Building 4	2 <sup>N</sup> 1 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA30CR831	Safeguard Building 4	3 <sup>N</sup> 4 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA30CR841	Safeguard Building 4	4 <sup>N</sup> 3 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA40CR811	Safeguard Building 4	1 <sup>N</sup> 2 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA40CR821	Safeguard Building 4	2 <sup>N</sup> 1 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA40CR831	Safeguard Building 4	3 <sup>N</sup> 4 <sup>A</sup>	yes	N/A	Radiation/ N/A	N/A / N/A
Main Steam Line Activity Sensor	30LBA40CR841	Safeguard Building 4	4 <sup>N</sup> 3 <sup>A</sup>	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) <sup>N</sup> denotes the division the component is normally powered from; <sup>A</sup> denotes the division the component is powered from when alternate feed is implemented.

**Table 2.8.2-3—MSS ITAAC (6 Sheets)**

<b>Commitment Wording</b>		<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
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 in 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 portions of the 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.
3.1	Equipment listed in Table 2.8.2-1 as ASME Code Section III is designed, welded, and hydrostatically tested in accordance with ASME Code Section III.	<p>a. Analysis of the equipment identified in Table 2.8.2-1 as ASME Code Section III will be performed per ASME Code Section III design requirements.</p> <p>b. Inspections will be conducted on the equipment identified in Table 2.8.2-1 as ASME Code Section III to verify welding has been performed per ASME Code Section III welding requirements.</p> <p>c. Hydrostatic testing of the equipment identified in Table 2.8.2-1 as ASME Code Section III will be performed per ASME Code Section III hydrostatic testing requirements.</p>	<p>a. ASME Code Section III Design Reports (NCA-3550) exist and conclude that the equipment identified in Table 2.8.2-1 as ASME Code Section III meets ASME Code Section III design requirements.</p> <p>b. Equipment identified in Table 2.8.2-1 as ASME Code Section III has been welded per ASME Code Section III welding requirements.</p> <p>c. Equipment identified in Table 2.8.2-1 as ASME Code Section III has been hydrostatically tested per ASME Code Section III hydrostatic testing requirements.</p>
3.2	Deleted.	Deleted.	Deleted.

**Table 2.8.2-3—MSS ITAAC (6 Sheets)**

<b>Commitment Wording</b>		<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
3.3	Equipment identified as Seismic Category I in Table 2.8.2-1 can withstand seismic design basis loads without loss of safety function as listed in Table 2.8.2-1.	<p>a. Type tests, analyses, or a combination of type tests and analyses will be performed on the equipment designated as Seismic Category I in Table 2.8.2-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements.</p> <p>b. Inspections will be performed of the as-installed Seismic Category I equipment listed in Table 2.8.2-1 to verify that the equipment including anchorage is installed as specified on the construction drawings.</p>	<p>a. Tests/analysis reports exists and conclude that the Seismic Category I equipment listed in Table 2.8.2-1 can withstand seismic design basis loads without loss of safety function.</p> <p>b. Inspection reports exist and conclude that the as-installed Seismic Category I equipment listed in Table 2.8.2-1 including anchorage is installed as specified on the construction drawings.</p>
3.4	Deleted.	Deleted.	Deleted.
3.5	Deleted.	Deleted.	Deleted.
3.6	Deleted.	Deleted.	Deleted.
3.7	Deleted.	Deleted.	Deleted.
3.8	Portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 are designed in accordance with ASME Code Section III requirements.	Inspections will be performed for the existence of ASME Code Section III Design Reports.	ASME Code section III Design Reports (NCA-3550) exist for portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1.
3.9	Portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 are installed in accordance with an ASME Code Section III Design Report.	Inspections will be performed to verify the existence of an analysis which reconciles as-fabricated deviations to the ASME Code Design Report as required by ASME Code Section III.	For portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1, ASME Code Data Reports (N-5) exist and conclude that reconciliation (NCA-3554) of the as-installed system with the Design Report (NCA-3550) has occurred.

**Table 2.8.2-3—MSS ITAAC (6 Sheets)**

<b>Commitment Wording</b>		<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
3.10	Pressure boundary welds in portions of the MSS piping shown as ASME Code Section III in 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 portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 has been performed in accordance with ASME Code Section III.
3.11	Portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 retain their pressure boundary integrity at their design pressure.	Hydrostatic tests will be performed on the as-fabricated system.	For portions of the MSS piping shown as ASME Code Section III in 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	Portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1 are installed in accordance with ASME Code Section III requirements.	An inspection for the existence of ASME N-5 Data Reports will be performed.	For portions of the MSS piping shown as ASME Code Section III in Figure 2.8.2-1, N-5 Data Reports exist and conclude that installation is 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.	Inspections will be performed for the existence or retrievability of the displays in the MCR or the RSS as listed in Table 2.8.2-2.	<ul style="list-style-type: none"> <li>a. The displays listed in Table 2.8.2-2 as being retrieved in the MCR can be retrieved in the MCR.</li> <li>b. The displays listed in Table 2.8.2-2 as being retrieved in the RSS can be retrieved in the RSS.</li> </ul>
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.	<ul style="list-style-type: none"> <li>a. The controls listed in Table 2.8.2-2 as being in the MCR exist in the MCR.</li> <li>b. The controls listed in Table 2.8.2-2 as being in the RSS exist in the RSS.</li> </ul>
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—MSS ITAAC (6 Sheets)**

<b>Commitment Wording</b>		<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
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.	<p>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.</p> <p>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.</p>	<p>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.</p> <p>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.</p>
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—MSS ITAAC (6 Sheets)**

<b>Commitment Wording</b>		<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
6.1	Components listed as Class 1E 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 before and during the time required to perform their safety function.	<p>a. Type tests, tests, analyses, or a combination of tests and analyses will be performed to demonstrate the ability of the equipment listed for 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 before and during a design basis accident.</p> <p>b. For equipment listed for harsh environment in Table 2.8.2-2, an inspection will be performed of the as-installed Class 1E equipment and the associated wiring, cables, and terminations.</p>	<p>a. The Class 1E equipment listed for harsh environment in Table 2.8.2-2 can perform the function listed in Table 2.8.2-1 before and during design basis accidents for the time required to perform the listed function.</p> <p>b. Inspection concludes the as-installed Class 1E equipment and associated wiring, cables, and terminations as listed in Table 2.8.2-2 for harsh environment conform with the design.</p>
7.1	Class 1E valves listed in Table 2.8.2-2 perform the function listed in Table 2.8.2-1 under system 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 design conditions.	The as-installed valve changes position as listed Table 2.8.2-1 under system design 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 $\geq 1,422,073$ lbm/hr. The MSSV per main steam line with the lower pressure setting delivers that rated capacity at $\leq 1504$ psig. The MSSV per main steam line with the higher pressure setting delivers that rated capacity at $\leq 1535$ psig.

**Table 2.8.2-3—MSS ITAAC (6 Sheets)**

<b>Commitment Wording</b>		<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
7.3	MSRTs provide relief capacity.	Testing and analysis will be performed.	Each MSRT provides relief capacity $\geq 2,844,146$ 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.