2.7.2 Safety Chilled Water System

Design Description

1.0 System Description

The safety chilled water system (SCWS) is a safety-related system that delivers refrigerated chilled water to the safety-related heating, ventilation, air conditioning (HVAC) systems and to Division 1 and Division 4 low head safety injection (LHSI) motor cooler and pump seal cooler.

The SCWS significant safety-related function is to provide chilled water as a heat sink to safety-related HVAC systems, the main control room (MCR) habitability, and cooling of the LHSI pump seal coolers and motor coolers in Division 1 and Division 4 in the event of a design basis accident.

The SCWS significant non-safety-related function is for Division 1 and Division 4 to function in the event of a station blackout (SBO) or loss of ultimate heat sink.

2.0 Arrangement

2.1 The functional arrangement of the SCWS is as described in the Design Description of Section 2.7.2, Tables 2.7.2-1—Safety Chilled Water System Equipment Mechanical Design, 2.7.2-2—Safety Chilled Water System Equipment I&C and Electrical Design, 2.7.2-3-Safety Chilled Water System Air Cooled Division Equipment Mechanical Design, and 2.7.2-4-Safety Chilled Water System Air Cooled Division Equipment I&C and Electrical Design, and as shown on Figures 2.7.2-1—Safety Chilled Water System Functional Arrangement and 2.7.2-2 - Safety Chilled Water System Air-cooled Division Functional Arrangement.

2.2 Deleted.

2.3 Physical separation exists between divisions of the SCWS located in the Safeguard Buildings, excluding cross-connected piping, as listed in Table 2.7.2-1 and as shown on Figure 2.7.2-1.

3.0 Mechanical Design Features

3.1 Pumps and valves listed in Table 2.7.2-1 will be functionally designed and qualified such that each pump and 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 Check valves listed in Table 2.7.2-1 will function to change position as listed in Table 2.7.2-1 under normal operating conditions.

3.3 Check dampers listed in Table 2.7.2-3 will function to change position as listed in Table 2.7.2-3 under normal operating conditions.

3.4 Equipment identified as Seismic Category I in Tables 2.7.2-1 and 2.7.2-3 can withstand seismic design basis loads without a loss of safety function(s).

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3.14 ASME Code Class 3 piping systems are designed in accordance with ASME Code Section III requirements.

3.15 As-built ASME Code Class 3 components listed in Table 2.7.2-1 are reconciled with the design requirements.

3.16 Pressure-boundary welds in ASME Code Class 3 components listed in Table 2.7.2-1 meet ASME Code Section III non-destructive examination requirements.

3.17 ASME Code Class 3 components listed in Table 2.7.2-1 retain their pressure-boundary integrity at their design pressure.

3.18 ASME Code Class 3 components listed in Table 2.7.2-1 are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

3.19 Equipment listed in Table 2.7.2-3 as ASME AG-1 Code are fabricated, installed, inspected, and tested in accordance with ASME AG-1 Code requirements.

4.0 I&C Design Features, Displays, and Controls

4.1 Displays listed in Tables 2.7.2-2 and 2.7.2-4 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 Tables 2.7.2-2 and 2.7.2-4.

4.3 Equipment listed as being controlled by a PACS module in Tables 2.7.2-2 and 2.7.2-4 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.

4.4 An interlock for the SCWS Division 1 and 2 or Division 3 and 4 cross-tied condition automatically starts the non-running division chiller and pump(s) if the running division chiller or pump(s) trip.

5.0 Electrical Power Design Features

5.1 Equipment designated as Class 1E in Tables 2.7.2-2 and 2.7.2-4 are powered from Class 1E division as listed in Tables 2.7.2-2 and 2.7.2-4 in a normal or alternate feed condition.

5.2 Deleted.

6.0 Environmental Qualifications

6.1 Equipment designated as harsh environment in Table 2.7.2-2 can perform the function listed in Table 2.7.2-1 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 Each SCWS chiller refrigerating unit has the capacity to provide chilled water at the temperature to support the heat removal requirements of each user.

7.2 The pumps listed in Table 2.7.2-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow at the minimum expansion tank level.

7.3 The SCWS pump delivers water to the equipment listed in Table 2.7.2-1.

7.4 Class 1E valves listed in Table 2.7.2-2 will function to change position as listed in Table 2.7.2-1 under normal operating conditions.

7.5 The SCWS has provisions to allow flow testing of each SCWS pump during plant operation.

7.6 Each SCWS expansion tank maintains a reserve volume to accommodate system leakage for seven days with no makeup source available.

Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.7.2-5 lists the SCWS ITAAC.

Table 2.7.2-1—SCWS Equipment Mechanical Design
Sheet 1 of 3

Description	Tag Number(1)	Location	ASME Code Section III	Function	Seismic Category
Safety Chilled Water Division 1					
Air Cooled Condenser	30QKA10AC002	Safeguard Building 1	Yes	Run	I
Evaporator	30QKA10AC001	Safeguard Building 1	Yes	Run	I
Chilled Water Circulation Pump	30QKA10AP107	Safeguard Building 1	Yes	Run	I
Chilled Water Circulation Pump	30QKA10AP108	Safeguard Building 1	Yes	Run	I
Expansion Tank	30QKA10BB101	Safeguard Building 1	Yes	Maintain system static pressure	I
Flow Control Valve	30QKA10AA101	Safeguard Building 1	Yes	Open-Close	I
Flow Control Valve	30QKB10AA101	Safeguard Building 1	Yes	Open-Close	I
Flow Control Valve	30QKC10AA101	Safeguard Building 1	Yes	Open-Close	I
Check Valve	30QKA10AA003	Safeguard Building 1	Yes	Open-Close	I
Check Valve	30QKA10AA018	Safeguard Building 1	Yes	Open-Close	I
Check Valve	30QKC10AA028	Safeguard Building 1	Yes	Open-Close	I
Cross-Tie Valve	30QKA10AA102	Safeguard Building 1	Yes	Open-Close	I
Cross-Tie Valve	30QKA10AA103	Safeguard Building 1	Yes	Open-Close	I
Flow Control Valve	30QKC10AA025	Safeguard Building 1	Yes	Open-Close	I
Safety Chilled Water Division 2					
Water Cooled Condenser	30QKA20AC002	Safeguard Building 2	Yes	Run	I
Evaporator	30QKA20AC001	Safeguard Building 2	Yes	Run	I
Chilled Water Circulation Pump	30QKA20AP107	Safeguard Building 2	Yes	Run	I

Table 2.7.2-1—SCWS Equipment Mechanical Design
Sheet 2 of 3

Description	Tag Number(1)	Location	ASME Code Section III	Function	Seismic Category
Chilled Water Circulation Pump	30QKA20AP108	Safeguard Building 2	Yes	Run	I
Expansion Tank	30QKA20BB101	Safeguard Building 2	Yes	Maintain system static pressure	I
Flow Control Valve	30QKA20AA101	Safeguard Building 2	Yes	Open-Close	I
Flow Control Valve	30QKB20AA101	Safeguard Building 2	Yes	Open-Close	I
Flow Control Valve	30QKC20AA101	Safeguard Building 2	Yes	Open-Close	I
Check Valve	30QKA20AA003	Safeguard Building 2	Yes	Open-Close	I
Check Valve	30QKA20AA018	Safeguard Building 2	Yes	Open-Close	I
Cross-Tie Valve	30QKA20AA102	Safeguard Building 2	Yes	Open-Close	I
Cross-Tie Valve	30QKA20AA103	Safeguard Building 2	Yes	Open-Close	I
Safety Chilled Water Division 3					
Water Cooled Condenser	30QKA30AC002	Safeguard Building 3	Yes	Run	I
Evaporator	30QKA30AC001	Safeguard Building 3	Yes	Run	I
Chilled Water Circulation Pump	30QKA30AP107	Safeguard Building 3	Yes	Run	I
Chilled Water Circulation Pump	30QKA30AP108	Safeguard Building 3	Yes	Run	I
Expansion Tank	30QKA30BB101	Safeguard Building 3	Yes	Maintain system static pressure	I
Flow Control Valve	30QKA30AA101	Safeguard Building 3	Yes	Open-Close	I
Flow Control Valve	30QKB30AA101	Safeguard Building 3	Yes	Open-Close	I
Flow Control Valve	30QKC30AA101	Safeguard Building 3	Yes	Open-Close	I
Check Valve	30QKA30AA003	Safeguard Building 3	Yes	Open-Close	I

Table 2.7.2-1—SCWS Equipment Mechanical Design
Sheet 3 of 3

Description	Tag Number(1)	Location	ASME Code Section III	Function	Seismic Category
Check Valve	30QKA30AA018	Safeguard Building 3	Yes	Open-Close	I
Cross-Tie Valve	30QKA30AA102	Safeguard Building 3	Yes	Open-Close	I
Cross-Tie Valve	30QKA30AA103	Safeguard Building 3	Yes	Open-Close	I
Safety Chilled Water Division 4					
Air Cooled Condenser	30QKA40AC002	Safeguard Building 4	Yes	Run	I
Evaporator	30QKA40AC001	Safeguard Building 4	Yes	Run	I
Chilled Water Circulation Pump	30QKA40AP107	Safeguard Building 4	Yes	Run	I
Chilled Water Circulation Pump	30QKA40AP108	Safeguard Building 4	Yes	Run	I
Expansion Tank	30QKA40BB101	Safeguard Building 4	Yes	Maintain system static pressure	I
Flow Control Valve	30QKA40AA101	Safeguard Building 4	Yes	Open-Close	I
Flow Control Valve	30QKB40AA101	Safeguard Building 4	Yes	Open-Close	I
Flow Control Valve	30QKC40AA101	Safeguard Building 4	Yes	Open-Close	I
Check Valve	30QKA40AA003	Safeguard Building 4	Yes	Open-Close	I
Check Valve	30QKA40AA018	Safeguard Building 4	Yes	Open-Close	I
Check Valve	30QKC40AA028	Safeguard Building 4	Yes	Open-Close	I
Cross-Tie Valve	30QKA40AA102	Safeguard Building 4	Yes	Open-Close	I
Cross-Tie Valve	30QKA40AA103	Safeguard Building 4	Yes	Open-Close	I
Flow Control Valve	30QKC40AA025	Safeguard Building 4	Yes	Open-Close	I

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

Table 2.7.2-2—SCWS Equipment I&C and Electrical Design
Sheet 1 of 4

Description	Tag Number(1)	Location	IEEE Class 1E(2)	EQ – Harsh Env.	PACS	MRC / RSS Displays	MCR / RSS Controls
Safety Chilled Water Division 1							
Chiller Refrigerating Unit with Air Cooled Condenser	30QKA10AH112	Safeguard Building 1	1N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Chilled Water Circulation Pump	30QKA10AP107	Safeguard Building 1	1N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Chilled Water Circulation Pump	30QKA10AP108	Safeguard Building 1	1N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Cross-Tie Valve	30QKA10AA102	Safeguard Building 1	1N 2A	Yes	Yes	Position / Position	Open-Close / Open-Close
Cross-Tie Valve	30QKA10AA103	Safeguard Building 1	1N 2A	Yes	Yes	Position / Position	Open-Close / Open-Close
Flow Control Valve	30QKA10AA101	Safeguard Building 1	1N 2A	Yes	Yes	Position / Position	Throttling / Throttling
Flow Control Valve	30QKB10AA101	Safeguard Building 1	1N 2A	Yes	Yes	Position / Position	Throttling / Throttling
Flow Control Valve	30QKC10AA101	Safeguard Building 1	1N 2A	Yes	Yes	Position / Position	Throttling / Throttling
Flow Control Valve	30QKC10AA025	Safeguard Building 1	1N 2A	Yes	Yes	Position / Position	Throttling / Throttling
Safety Chilled Water Division 2							
Chiller Refrigerating Unit with Water Cooled Condenser	30QKA20AH112	Safeguard Building 2	2N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop

Table 2.7.2-2—SCWS Equipment I&C and Electrical Design
Sheet 2 of 4

Description	Tag Number(1)	Location	IEEE Class 1E(2)	EQ – Harsh Env.	PACS	MRC / RSS Displays	MCR / RSS Controls
Chilled Water Circulation Pump	30QKA20AP107	Safeguard Building 2	2^N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Chilled Water Circulation Pump	30QKA20AP108	Safeguard Building 2	2^N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Cross-Tie Valve	30QKA20AA102	Safeguard Building 2	2^N 1^A	Yes	Yes	Position / Position	Open-Close / Open-Close
Cross-Tie Valve	30QKA20AA103	Safeguard Building 2	2^N 1^A	Yes	Yes	Position / Position	Open-Close / Open-Close
Flow Control Valve	30QKA20AA101	Safeguard Building 2	2^N 1^A	Yes	Yes	Position / Position	Throttling / Throttling
Flow Control Valve	30QKB20AA101	Safeguard Building 2	2^N 1^A	Yes	Yes	Position / Position	Throttling / Throttling
Flow Control Valve	30QKC20AA101	Safeguard Building 2	2^N 1^A	Yes	Yes	Position / Position	Throttling / Throttling
Safety Chilled Water Division 3							
Chiller Refrigerating Unit with Water Cooled Condenser	30QKA30AH112	Safeguard Building 3	3^N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Chilled Water Circulation Pump	30QKA30AP107	Safeguard Building 3	3^N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Chilled Water Circulation Pump	30QKA30AP108	Safeguard Building 3	3^N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Cross-Tie Valve	30QKA30AA102	Safeguard Building 3	3^N 4^A	Yes	Yes	Position / Position	Open-Close / Open-Close

Table 2.7.2-2—SCWS Equipment I&C and Electrical Design
Sheet 3 of 4

Description	Tag Number(1)	Location	IEEE Class 1E(2)	EQ – Harsh Env.	PACS	MRC / RSS Displays	MCR / RSS Controls
Cross-Tie Valve	30QKA30AA103	Safeguard Building 3	3^N 4^A	Yes	Yes	Position / Position	Open-Close / Open-Close
Flow Control Valve	30QKA30AA101	Safeguard Building 3	3^N 4^A	Yes	Yes	Position / Position	Throttling / Throttling
Flow Control Valve	30QKB30AA101	Safeguard Building 3	3^N 4^A	Yes	Yes	Position / Position	Throttling / Throttling
Flow Control Valve	30QKC30AA101	Safeguard Building 3	3^N 4^A	Yes	Yes	Position / Position	Throttling / Throttling
Safety Chilled Water Division 4							
Chiller Refrigerating Unit with Air Cooled Condenser	30QKA40AH112	Safeguard Building 4	4^N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Chilled Water Circulation Pump	30QKA40AP107	Safeguard Building 4	4^N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Chilled Water Circulation Pump	30QKA40AP108	Safeguard Building 4	4^N	Yes	Yes	On-Off / On-Off	Start-Stop / Start-Stop
Cross-Tie Valve	30QKA40AA102	Safeguard Building 4	4^N 3^A	Yes	Yes	Position / Position	Open-Close / Open-Close
Cross-Tie Valve	30QKA40AA103	Safeguard Building 4	4^N 3^A	Yes	Yes	Position / Position	Open-Close / Open-Close
Flow Control Valve	30QKA40AA101	Safeguard Building 4	4^N 3^A	Yes	Yes	Position / Position	Throttling / Throttling
Flow Control Valve	30QKB40AA101	Safeguard Building 4	4^N 3^A	Yes	Yes	Position / Position	Throttling / Throttling

Table 2.7.2-2—SCWS Equipment I&C and Electrical Design
Sheet 4 of 4

Description	Tag Number(1)	Location	IEEE Class 1E(2)	EQ – Harsh Env.	PACS	MRC / RSS Displays	MCR / RSS Controls
Flow Control Valve	30QKC40AA101	Safeguard Building 4	4^{N} 3^{A}	Yes	Yes	Position / Position	Throttling / Throttling
Instruments							
Radiation Monitor (R-59)	30QKC10CR001	Safeguard Building 1	N/A	N/A	No	Radioactivity level / Radioactivity level	NA / NA
Radiation Monitor (R-60)	30QKC40CR001	Safeguard Building 4	N/A	N/A	No	Radioactivity level / Radioactivity level	NA / NA

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

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

Table 2.7.2-3—SCWS Air Cooled Division Equipment Mechanical Design
Sheet 1 of 2

Description	Tag Number(1)	Location	ASME AG-1 Code	Function	Seismic Category
Safety Chilled Water Air Cooled Division 1					
Condenser Fan Check Dampers	30QKA10AA023 30QKA10AA024 30QKA10AA025 30QKA10AA026 30QKA10AA033 30QKA10AA034 30QKA10AA035 30QKA10AA036	Safeguard Building 1	Yes	Open/Close	I
Condenser Fans	30QKA10AN021 30QKA10AN022 30QKA10AN023 30QKA10AN024 30QKA10AN025 30QKA10AN026 30QKA10AN027 30QKA10AN028	Safeguard Building 1	Yes	Run	I
Safety Chilled Water Air Cooled Division 4					
Condenser Fan Check Dampers	30QKA40AA023 30QKA40AA024 30QKA40AA025 30QKA40AA026 30QKA40AA033 30QKA40AA034 30QKA40AA035 30QKA40AA036	Safeguard Building 4	Yes	Open/Close	I

Table 2.7.2-3—SCWS Air Cooled Division Equipment Mechanical Design
Sheet 2 of 2

Description	Tag Number(1)	Location	ASME AG-1 Code	Function	Seismic Category
Condenser Fans	30QKA40AN021 30QKA40AN022 30QKA40AN023 30QKA40AN024 30QKA40AN025 30QKA40AN026 30QKA40AN027 30QKA40AN028	Safeguard Building 4	Yes	Run	I

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

Table 2.7.2-4—SCWS Air Cooled Division Equipment I&C and Electrical Design

Description	Tag Number(1)	Location	IEEE Class 1E(2)	EQ – Harsh Env.	PACS
Safety Chilled Water Air Cooled Division 1					
Condenser Fans	30QKA10AN021 30QKA10AN022 30QKA10AN023 30QKA10AN024 30QKA10AN025 30QKA10AN026 30QKA10AN027 30QKA10AN028	Safeguard Building 1	Division 1^{N} Division 4^{A}	No	Yes
Supply Air Heater	30QKA10AH021	Safeguard Building 1	Division 1^{N} Division 4^{A}	No	Yes
Safety Chilled Water Air Cooled Division 4					
Condenser Fans	30QKA40AN021 30QKA40AN022 30QKA40AN023 30QKA40AN024 30QKA40AN025 30QKA40AN026 30QKA40AN027 30QKA40AN028	Safeguard Building 4	Division 4^{N} Division 1^{A}	No	Yes
Supply Air Heater	30QKA40AH021	Safeguard Building 4	Division 4^{N} Division 1^{A}	No	Yes

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

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

Table 2.7.2-5—Safety Chilled Water System ITAAC
Sheet 1 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
2.1	The functional arrangement of the SCWS is as described in the Design Description of Section 2.7.2, Tables 2.7.2-1, 2.7.2-2, 2.7.2-3, and 2.7.2-4, and as shown on Figures 2.7.2-1 and 2.7.2-2.	An inspection of the as-built SCWS functional arrangement will be performed.	The SCWS conforms to the functional arrangement as described in the Design Description of Section 2.7.2, Tables 2.7.2-1, 2.7.2-2, 2.7.2-3, and 2.7.2-4, and as shown on Figures 2.7.2-1 and 2.7.2-2.
2.2	Deleted.	Deleted.	Deleted.
2.3	Physical separation exists between divisions of the SCWS located in the Safeguard Buildings, excluding cross-connected piping, as listed in Table 2.7.2-1 and as shown on Figure 2.7.2-1.	An inspection will be performed to verify that the as-built divisions of the SCWS, excluding cross-connected piping, are located in separate Safeguard Buildings.	The divisions of the SCWS, excluding cross-connected piping, are located in separate Safeguard Buildings as listed in Table 2.7.2-1 and as shown on Figure 2.7.2-1.
3.1	Pumps and valves listed in Table 2.7.2-1 will be functionally designed and qualified such that each pump and 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 pumps and valves will be performed to demonstrate that the pumps and 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 pumps and valves listed in Table 2.7.2-1 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	Check valves listed in Table 2.7.2-1 will function to change position as listed in Table 2.7.2-1 under normal operating conditions.	Tests will be performed to verify the ability of check valves to change position under normal operating conditions.	The check valves change position as listed in Table 2.7.2-1 under normal operating conditions.
3.3	Check dampers listed in Table 2.7.2-3 will function to change position as listed in Table 2.7.2-3 under normal operating conditions.	Tests will be performed to demonstrate the ability of check dampers to change position under normal operating conditions.	The check dampers listed in Table 2.7.2-3 change position as listed in Table 2.7.2-3 under normal operating conditions.

Table 2.7.2-5—Safety Chilled Water System ITAAC
Sheet 2 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.4	Equipment identified as Seismic Category I in Tables 2.7.2-1 and 2.7.2-3 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 Tables 2.7.2-1 and 2.7.2-3 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements. b. An inspection will be performed of the as-built equipment identified as Seismic Category I in Tables 2.7.2-1 and 2.7.2-3 to verify that the equipment, including anchorage, are installed in a condition bounded by the tested or analyzed condition.	a. Test/analysis reports conclude that the equipment identified as Seismic Category I in Tables 2.7.2-1 and 2.7.2-3 can withstand seismic design basis loads without a loss of safety function(s). b. Inspection reports conclude that the equipment identified as Seismic Category I in Tables 2.7.2-1 and 2.7.2-3, including anchorage, are installed in a condition bounded by the tested or analyzed condition.
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3.10	Deleted.	Deleted.	Deleted.
3.11	Deleted.	Deleted.	Deleted.
3.12	Deleted.	Deleted.	Deleted.
3.13	Deleted.	Deleted.	Deleted.

Table 2.7.2-5—Safety Chilled Water System ITAAC
Sheet 3 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.14	ASME Code Class 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 3 piping systems complies with the requirements of ASME Code Section III. {{DAC}}
3.15	As-built ASME Code Class 3 components listed in Table 2.7.2-1 are reconciled with the design requirements.	A reconciliation analysis of ASME Code Class 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 3 components listed in Table 2.7.2-1, and document that the results of the reconciliation analysis comply with the requirements of ASME Code Section III.
3.16	Pressure-boundary welds in ASME Code Class 3 components listed in Table 2.7.2-1 meet ASME Code Section III non-destructive examination requirements.	An inspection of the as-built pressure-boundary welds in ASME Code Class 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 3 components listed in Table 2.7.2-1.
3.17	ASME Code Class 3 components listed in Table 2.7.2-1 retain their pressure-boundary integrity at their design pressure.	A hydrostatic test will be conducted on ASME Code Class 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 3 components listed in Table 2.7.2-1 comply with the requirements of ASME Code Section III.

Table 2.7.2-5—Safety Chilled Water System ITAAC
Sheet 4 of 7

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
3.18	ASME Code Class 3 components listed in Table 2.7.2-1 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 3 components will be conducted.	ASME Code Data Report(s) exist that conclude that ASME Code Class 3 components listed in Table 2.7.2-1 are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.
3.19	Equipment listed in Table 2.7.2-3 as ASME AG-1 Code are fabricated, installed, inspected, and tested in accordance with ASME AG-1 Code requirements.	An inspection of the as-built construction activities and documentation for ASME AG-1 Code equipment will be conducted.	A report concludes that ASME AG-1 Code equipment listed in Table 2.7.2-3 are fabricated, installed, inspected, and tested in accordance with ASME AG-1 Code requirements.
4.1	Displays listed in Tables 2.7.2-2 and 2.7.2-4 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 Tables 2.7.2-2 and 2.7.2-4 are indicated on the PICS operator workstations in the MCR. b. Tests will be performed to verify that the displays listed in Tables 2.7.2-2 and 2.7.2-4 are indicated on the PICS operator workstations in the RSS.	a. Displays listed in Tables 2.7.2-2 and 2.7.2-4 are indicated on the PICS operator workstations in the MCR. b. Displays listed in Tables 2.7.2-2 and 2.7.2-4 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 Tables 2.7.2-2 and 2.7.2-4.	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 Tables 2.7.2-2 and 2.7.2-4. b. Controls on the PICS operator workstations in the RSS perform the function listed in Tables 2.7.2-2 and 2.7.2-4.

Table 2.7.2-5—Safety Chilled Water System ITAAC
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Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.3	Equipment listed as being controlled by a PACS module in Tables 2.7.2-2 and 2.7.2-4 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 Tables 2.7.2-2 and 2.7.2-4 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.
4.4	An interlock for the SCWS Division 1 and 2 or Division 3 and 4 cross-tied condition automatically starts the non-running division chiller and pump(s) if the running division chiller or pump(s) trip.	Tests will be performed using test input signals to verify the interlock automatically starts the non-running division chiller and pump(s) if the running division chiller or pump(s) trip when the SCWS Division 1 and 2 or Division 3 and 4 are cross-tied.	The following interlock responds as specified below when activated by a test input signal: • With SCWS Division 1 and 2 or Division 3 and 4 cross-tied, the non-running division chiller and pump(s) automatically start if the running division chiller or pumps(s) trip.
5.1	Equipment designated as Class 1E in Tables 2.7.2-2 and 2.7.2-4 and 2.7.2-4 are powered from the Class 1E division as listed in Tables 2.7.2-2 and 2.7.2-4 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 Tables 2.7.2-2 and 2.7.2-4. 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 Tables 2.7.2-2 and 2.7.2-4.
5.2	Deleted.	Deleted.	Deleted.

Table 2.7.2-5—Safety Chilled Water System ITAAC
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Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
6.1	Equipment designated as harsh environment in Table 2.7.2-2 can perform the function listed in Table 2.7.2-1 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 2.7.2-2 to perform the function listed in Table 2.7.2-1 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 2.7.2-2 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 2.7.2-2 can perform the function listed in Table 2.7.2-1 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 2.7.2-2, 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	Each SCWS chiller refrigerating unit has the capacity to provide chilled water at the temperature to support the heat removal requirements of each user.	Tests and analyses will be performed to verify the capability of the SCWS chiller refrigerating units to provide chilled water at the temperature to support the heat removal requirements of each user.	Each SCWS chiller refrigerating unit provides chilled water at a temperature of less than or equal to 41°F to support the heat removal requirements of each user.

Table 2.7.2-5—Safety Chilled Water System ITAAC
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Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
7.2	The pumps listed in Table 2.7.2-1 have NPSHA that is greater than NPSHR at system run-out flow at the minimum expansion tank level.	Tests and analyses will be performed to verify pump NPSHA is greater than NPSHR at system run-out flow at the minimum expansion tank level.	The pumps listed in Table 2.7.2-1 have NPSHA that is greater than NPSHR at system run-out flow at the minimum expansion tank level.
7.3	The SCWS pump delivers water to the equipment listed in Table 2.7.2-1.	Tests will be performed to determine the SCWS pump flowrate to the equipment listed in Table 2.7.2-1 under normal operating conditions.	Each SCWS pump delivers a minimum flow of 565 gpm to provide cooling to the equipment listed in Table 2.7.2-1 under normal operating conditions.
7.4	Class 1E valves listed in Table 2.7.2-2 will function to change position as listed in Table 2.7.2-1 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 2.7.2-2 change position as listed in Table 2.7.2-1 under normal operating conditions.
7.5	The SCWS has provisions to allow flow testing of each SCWS pump during plant operation.	Tests will be performed to verify the SCWS has provisions to allow flow testing of the SCWS pumps during plant operation.	The flow test line allows flow testing of each SCWS pump through the recirculation loop back to the pump suction.
7.6	Each SCWS expansion tank maintains a reserve volume to accommodate system leakage for seven days.	A test and analysis will be performed to verify that each as-built SCWS expansion tank maintains a reserve volume to accommodate system leakage for seven days.	SCWS expansion tank maintains a reserve volume of 100 gallons to accommodate system leakage for seven days.

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