

3.5 Containment Isolation

1.0 Description

The reactor building is designed with a primary containment building and a separate shield building. The primary containment building provides the primary means of confining radioactivity that may be released following a postulated design basis accident. The primary containment and shield buildings are penetrated by systems to provide various functions for systems housed inside containment. These penetrations are made for mechanical and electrical systems, and include facilities for the transport of personnel and equipment.

The function for containment isolation is to isolate fluid system piping that penetrates the Reactor Building to prevent the discharge of radioactivity from containment following a postulated design basis accident. Containment isolation barriers are components of the penetrating systems and are generally included with the system descriptions in Chapter 2. This section includes containment isolation barriers that are not included in Chapter 2.

2.0 Arrangement

2.1 The functional arrangement of the containment isolation equipment is as shown in Figure 3.5-1—Representative Containment Isolation Valve Arrangements and as indicated in Table 3.5-1—Containment Isolation Equipment Mechanical Design.

2.2 The location of the containment isolation equipment is as listed in Table 3.5-1.

3.0 Mechanical Design Features

3.1 Equipment listed in Table 3.5-1 as ASME Code Section III is designed and tested to ASME Code Section III.

3.2 Check valves listed in Table 3.5-1 will function as listed in Table 3.5-1.

3.3 Piping indicated in Figure 3.5-1 as ASME Code Section III for the containment isolation configurations identified in Table 3.5-1 is designed, welded, and tested in accordance with ASME Code Section III.

3.4 Equipment identified as Seismic Category I in Table 3.5-1 can withstand a design basis seismic load without loss of safety function as listed in Table 3.5-1.

3.5 Specifications exist for components listed as ASME Section III in Table 3.5-1.

3.6 Specifications exist for piping shown as ASME Section III in Figure 3.5-1 for the containment isolation configurations identified in Table 3.5-1.

4.0 I&C Design Features, Displays and Controls

4.1 Displays listed in Table 3.5-2—Containment Isolation Equipment I&C and Electrical Design are retrievable in the main control room (MCR) as listed in Table 3.5-2.

4.2 The containment isolation equipment controls are provided in the MCR as listed in Table 3.5-2.

4.3 Actuators listed as being controlled by a Priority Actuation and Control System (PACS) module in Table 3.5-2 are controlled by a PACS module.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 3.5-2 are powered from the Class 1E division as listed in Table 3.5-2 in a normal or alternate feed condition.

5.2 Valves listed in Table 3.5-2 fail as-is on loss of power.

5.3 Containment electrical penetrations routing Class 1E cables have only Class 1E cables or associated cables.

5.4 Separation exists between containment electrical penetration assemblies routing each division of Class 1E cables, and between assemblies containing Class 1E and non-Class 1E cables.

5.5 Containment electrical penetrations are protected from fault currents that are greater than their current rating.

6.0 Environmental Qualifications

6.1 Equipment listed in Table 3.5 -2 for harsh environment can perform the function in Table 3.5-1 following exposure to the design basis environments for the time required.

6.2 Containment electrical penetrations assemblies are qualified for harsh environment and perform the required safety function following exposure to the operational and design basis environments.

7.0 Equipment and System Performance

7.1 Class 1E valves listed in Table 3.5-2 can perform the function listed in Table 3.5-1 under system design conditions.

7.2 Containment isolation valves listed in Table 3.5-1 close within the containment isolation response time following initiation of a containment isolation signal.

7.3 The containment provides a barrier against fission product release.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 3.5-3 specifies the inspections, tests, analyses, and acceptance criteria for the containment isolation equipment.

Table 3.5-1—Containment Isolation Equipment Mechanical Design (8 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	Equipment Location	Figure 3.5-1 Configuration Type	ASME Code Section III	Function (2)	Seismic Category
Fuel Pool Purification System – CIV	FAL40AA002	Reactor Building	1B	Yes	Close	I
Fuel Pool Purification System – CIV	FAL40AA001	Fuel Building	1A	Yes	Close	I
Demineralized Water Distribution System - CIV	GHC74AA001	Fuel Building	5A	Yes	Close ^(a)	I
Demineralized Water Distribution System - CIV	GHC74AA002	Reactor Building	5B	Yes	Close ^(a)	I
Leak Off System - Inflating/Deflating Subsystem - CIV	JMM10AA006	Reactor Building	5B	Yes	Close ^(a)	I
Leak Off System - Inflating/Deflating Subsystem - CIV	JMM10AA007	Fuel Building	5A	Yes	Close ^(a)	I
Leak Off System - Leakage Exhaust Subsystem - CIV	JMM23AA001	Reactor Building	5B	Yes	Open/Close	I
Leak Off System - Leakage Exhaust Subsystem - CIV	JMM23AA002	Reactor Building Annulus	5A	Yes	Open/Close	I
Leak Off System - Leaktightness Test Subsystem - CIV	JMM30AA001	Reactor Building	1B	Yes	Close	I
Leak Off System - Leaktightness Test Subsystem - CIV	JMM30AA003	Safeguard Building	1A	Yes	Close	I
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA075	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA076	Safeguard Building	5A	Yes	Open/Close ^(a)	I

Table 3.5-1—Containment Isolation Equipment Mechanical Design (8 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	Equipment Location	Figure 3.5-1 Configuration Type	ASME Code Section III	Function (2)	Seismic Category
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA077	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA078	Safeguard Building	5A	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA079	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA080	Safeguard Building	5A	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA081	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA082	Safeguard Building	5A	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 1 Return to Containment - CIV	JMU50AA083	Safeguard Building	5A	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 1 Return to Containment - CIV	JMU50AA084	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA085	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA086	Safeguard Building	5A	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA087	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA088	Safeguard Building	5A	Yes	Open/Close ^(a)	I

Table 3.5-1—Containment Isolation Equipment Mechanical Design (8 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	Equipment Location	Figure 3.5-1 Configuration Type	ASME Code Section III	Function (2)	Seismic Category
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA089	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA090	Safeguard Building	5A	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA091	Reactor Building	5B	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA092	Safeguard Building	5A	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 Return to containment - CIV	JMU51AA093	Safeguard Building	5A	Yes	Open/Close ^(a)	I
Hydrogen Monitoring System - Analyzer 2 Return to Containment -CIV	JMU51AA094	Reactor Building	5B	Yes	Open/Close ^(a)	I
IRWST - Sump Suction SAHRS - CIV	JMQ40AA001	Safeguard Building	5A	Yes	Close ^(b)	I
Containment Equip Compartment pressure - CIV	KLA60AA701	Safeguard Building	1A	Yes	Open	I
Containment Equip Compartment pressure - CIV	KLA60AA702	Fuel Building	1A	Yes	Open	I
Containment Equip Compartment pressure - CIV	KLA60AA703	Safeguard Building	1A	Yes	Open	I
Containment Equip Compartment pressure - CIV	KLA60AA704	Fuel Building	1A	Yes	Open	I
Containment Service Compartment pressure – CIV	KLA70AA701	Safeguard Building	1A	Yes	Open	I

Table 3.5-1—Containment Isolation Equipment Mechanical Design (8 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	Equipment Location	Figure 3.5-1 Configuration Type	ASME Code Section III	Function (2)	Seismic Category
Containment Service Compartment pressure – CIV	KLA70AA702	Safeguard Building	1A	Yes	Open	I
Containment Service Compartment pressure – CIV	KLA70AA703	Fuel Building	1A	Yes	Open	I
Containment Service Compartment pressure – CIV	KLA70AA704	Fuel Building	1A	Yes	Open	I
Containment Service Compartment pressure – CIV	KLA70AA706	Safeguard Building	1A	Yes	Open	I
Containment Service Compartment pressure – CIV	KLA70AA707	Safeguard Building	1A	Yes	Open	I
Containment Service Compartment pressure – CIV	KLA70AA708	Fuel Building	1A	Yes	Open	I
Containment Service Compartment pressure – CIV	KLA70AA709	Fuel Building	1A	Yes	Open	I
Gaseous Waste Processing System - CIV	KPL84AA003	Reactor Building	5B	Yes	Close ^(a)	I
Gaseous Waste Processing System - CIV	KPL84AA002	Fuel Building	5A	Yes	Close ^(a)	I
Gaseous Waste Processing System - CIV	KPL85AA003	Reactor Building	5B	Yes	Close ^(a)	I
Gaseous Waste Processing System - CIV	KPL85AA004	Fuel Building	5A	Yes	Close ^(a)	I
Nuclear Island Drain & Vent System - CIV	KTA10AA017	Reactor Building	5B	Yes	Close ^(a)	I
Nuclear Island Drain & Vent System - CIV	KTA10AA018	Fuel Building	5A	Yes	Close ^(a)	I

Table 3.5-1—Containment Isolation Equipment Mechanical Design (8 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	Equipment Location	Figure 3.5-1 Configuration Type	ASME Code Section III	Function (2)	Seismic Category
Nuclear Island Drain & Vent System - CIV	KTC10AA005	Reactor Building	5B	Yes	Close ^(a)	I
Nuclear Island Drain & Vent System - CIV	KTC10AA006	Fuel Building	5A	Yes	Close ^(a)	I
Nuclear Island Drain & Vent System - re-injection – CIV	KTC10AA029	Fuel Building	6B	Yes	Close	I
Nuclear Island Drain & Vent System - re-injection – CIV	KTC10AA010	Reactor Building	6A	Yes	Close ^(a)	I
Nuclear Island Drain & Vent System - Annulus – CIV	KTD10AA008	Reactor Building Annulus	6B	Yes	Close	I
Nuclear Island Drain & Vent System - CIV	KTD10AA015	Fuel Building	5A	Yes	Close ^(a)	I
Nuclear Island Drain & Vent System - CIV	KTD10AA024	Reactor Building	5B	Yes	Close ^(a)	I
Nuclear Island Drain & Vent System - Annulus – CIV	KTD10AA025	Fuel Building	6A	Yes	Close ^(a)	I
Nuclear Sampling System – Active Liquid Samples – CIV	KUA10AA003	Reactor Building	5B	Yes	Close ^(a)	I
Nuclear Sampling System – Active Liquid Samples – CIV	KUA10AA004	Fuel Building	5A	Yes	Close ^(a)	I
Nuclear Sampling System – Active Liquid Samples – CIV	KUA20AA002	Reactor Building Annulus	5B	Yes	Close ^(a)	I
Nuclear Sampling System – Active Liquid Samples – CIV	KUA20AA003	Fuel Building	5A	Yes	Close ^(a)	I

Table 3.5-1—Containment Isolation Equipment Mechanical Design (8 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	Equipment Location	Figure 3.5-1 Configuration Type	ASME Code Section III	Function (2)	Seismic Category
Nuclear Sampling System – Active Liquid Samples – CIV	KUA30AA003	Reactor Building Annulus	5B	Yes	Close ^(a)	I
Nuclear Sampling System – Active Liquid Samples – CIV	KUA30AA004	Fuel Building	5A	Yes	Close ^(a)	I
Nuclear Sampling System – Slightly Active Liquid Samples – CIV	KUB10AA001	Reactor Building	5B	Yes	Close ^(a)	I
Nuclear Sampling System – Slightly Active Liquid Samples – CIV	KUB10AA002	Fuel Building	5A	Yes	Close ^(a)	I
Severe Accident Sampling System - CIV	KUL51AA002	Safeguard Building	5A	Yes	Close ^(a)	I
Severe Accident Sampling System - CIV	KUL51AA003	Safeguard Building	5A	Yes	Close ^(a)	I
Severe Accident Sampling System - CIV	KUL52AA002	Safeguard Building	5A	Yes	Close ^(a)	I
Severe Accident Sampling System - CIV	KUL52AA003	Safeguard Building	5A	Yes	Close ^(a)	I
Main Condensate Piping System - Condensate to Blowdown Clrs – CIV	LCA90AA003	Main Steam Valve Room	6A	Yes	Close ^(a)	I
Main Condensate Piping System - Condensate to Blowdown Clrs – CIV	LCA90AA004	Reactor Building	6B	Yes	Close	I
Main Condensate Piping System - Condensate to Blowdown Clrs – CIV	LCA90AA005	Reactor Building	5B	Yes	Close ^(a)	I
Main Condensate Piping System - Condensate to Blowdown Clrs – CIV	LCA90AA006	Main Steam Valve Room	5A	Yes	Close ^(a)	I

Table 3.5-1—Containment Isolation Equipment Mechanical Design (8 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	Equipment Location	Figure 3.5-1 Configuration Type	ASME Code Section III	Function (2)	Seismic Category
Nitrogen Gas Distribution System - CIV	QJB40AA001	Fuel Building	5A	Yes	Close ^(a)	I
Nitrogen Gas Distribution System - CIV	QJB40AA002	Reactor Building	5B	Yes	Close ^(a)	I
Nitrogen Gas Distribution System - CIV	QJB40AA003	Fuel Building	5A	Yes	Close ^(a)	I
Nitrogen Gas Distribution System - CIV	QJB40AA004	Reactor Building	5B	Yes	Close ^(a)	I
Operational Chilled Water Supply to Containment cooling coils - CIV	QNJ41AA002	Fuel Building	6A	Yes	Close ^(a)	I
Operational Chilled Water Supply to Containment cooling coils – CIV	QNJ41AA003	Reactor Building	6B	Yes	Close	I
Operational Chilled Water Return from Containment cooling coils - CIV	QNJ41AA027	Reactor Building	5B	Yes	Close ^(a)	I
Operational Chilled Water Return from Containment cooling coils - CIV	QNJ41AA028	Fuel Building	5A	Yes	Close ^(a)	I
Sampling System for Steam Generator Blowdown System – CIV	QUC11AA001	Fuel Building	5A	Yes	Close ^(a)	I
Sampling System for Steam Generator Blowdown System – CIV	QUC11AA011	Reactor Building	5B	Yes	Close ^(a)	I
Sampling System for Steam Generator Blowdown System – CIV	QUC12AA001	Fuel Building	5A	Yes	Close ^(a)	I
Sampling System for Steam Generator Blowdown System – CIV	QUC12AA011	Reactor Building	5B	Yes	Close ^(a)	I
Sampling System for Steam Generator Blowdown System – CIV	QUC13AA001	Fuel Building	5A	Yes	Close ^(a)	I

Table 3.5-1—Containment Isolation Equipment Mechanical Design (8 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	Equipment Location	Figure 3.5-1 Configuration Type	ASME Code Section III	Function (2)	Seismic Category
Sampling System for Steam Generator Blowdown System – CIV	QUC13AA011	Reactor Building	5B	Yes	Close ^(a)	I
Sampling System for Steam Generator Blowdown System – CIV	QUC14AA001	Fuel Building	5A	Yes	Close ^(a)	I
Sampling System for Steam Generator Blowdown System – CIV	QUC14AA011	Reactor Building	5B	Yes	Close ^(a)	I
Compressed Air Distribution System - Instrument Air - CIV	SCB01AA001	Fuel Building	5A	Yes	Close ^(a)	I
Compressed Air Distribution System - Instrument Air - CIV	SCB01AA002	Reactor Building	5B	Yes	Close ^(a)	I
Compressed Air Distribution System - Service Air - CIV	SCB02AA001	Fuel Building	1A	Yes	Close	I
Compressed Air Distribution System - Service Air - CIV	SCB02AA002	Reactor Building	1B	Yes	Close	I

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

(2) Closes on Stage 1 ^(a) or Stage 2 ^(b) containment isolation signal.

Table 3.5-2—Containment Isolation Equipment I&C and Electrical Design (5 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	IEEE Class 1E ⁽²⁾	EQ - Harsh Environment	PACS	MCR Displays	MCR Controls
Demineralized Water Distribution System - CIV	GHC74AA001	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Demineralized Water Distribution System - CIV	GHC74AA002	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close
Chemical & Volume Control System - Seal Injection - CIV	JEW01AA005	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Chemical & Volume Control System - Seal Return – CIV	JEW50AA001	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close
Chemical & Volume Control System - Seal Return – CIV	JEW50AA002	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Leak Off System - Inflating/Deflating Subsystem – CIV	JMM10AA006	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close
Leak Off System - Inflating/Deflating Subsystem – CIV	JMM10AA007	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Leak Off System - Leakage Exhaust Subsystem – CIV	JMM23AA001	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Leak Off System - Leakage Exhaust Subsystem – CIV	JMM23AA002	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA075	3 ^(N) 4 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA076	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA077	3 ^(N) 4 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA078	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA079	3 ^(N) 4 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA080	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA081	3 ^(N) 4 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 - CIV	JMU50AA082	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close

Table 3.5-2—Containment Isolation Equipment I&C and Electrical Design (5 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	IEEE Class 1E ⁽²⁾	EQ - Harsh Environment	PACS	MCR Displays	MCR Controls
Hydrogen Monitoring System - Analyzer 1 Return to containment - CIV	JMU50AA083	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 1 return to containment - CIV	JMU50AA084	3 ^(N) 4 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA085	2 ^(N) 1 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA086	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA087	2 ^(N) 1 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA088	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA089	2 ^(N) 1 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA090	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA091	2 ^(N) 1 ^(A)	Yes	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 - CIV	JMU51AA092	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 Return to containment - CIV	JMU51AA093	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Hydrogen Monitoring System - Analyzer 2 Return to containment - CIV	JMU51AA094	2 ^(N) 1 ^(A)	Yes	Yes	Position	Open / Close
IRWST - Sump Suction SAHRS - CIV	JMQ40AA001	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Gaseous Waste Processing System - CIV	KPL84AA003	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Gaseous Waste Processing System - CIV	KPL84AA002	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Gaseous Waste Processing System - CIV	KPL85AA003	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Gaseous Waste Processing System - CIV	KPL85AA004	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Nuclear Island Drain & Vent System - CIV	KTA10AA017	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close
Nuclear Island Drain & Vent System - CIV	KTA10AA018	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close

Table 3.5-2—Containment Isolation Equipment I&C and Electrical Design (5 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	IEEE Class 1E ⁽²⁾	EQ - Harsh Environment	PACS	MCR Displays	MCR Controls
Nuclear Island Drain & Vent System - CIV	KTC10AA005	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Nuclear Island Drain & Vent System - CIV	KTC10AA006	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Nuclear Island Drain & Vent System - CIV	KTD10AA015	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Nuclear Island Drain & Vent System - CIV	KTD10AA024	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Nuclear Island Drain & Vent System - Annulus - CIV	KTD10AA025	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Nuclear Sampling System – Active Liquid Samples - CIV	KUA10AA003	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Nuclear Sampling System – Active Liquid Samples - CIV	KUA10AA004	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Nuclear Sampling System – Active Liquid Samples - CIV	KUA20AA002	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Nuclear Sampling System – Active Liquid Samples - CIV	KUA20AA003	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Nuclear Sampling System – Active Liquid Samples - CIV	KUA30AA003	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close
Nuclear Sampling System – Active Liquid Samples - CIV	KUA30AA004	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Nuclear Sampling System – Slightly Active Liquid Samples - CIV	KUB10AA001	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Nuclear Sampling System – Slightly Active Liquid Samples - CIV	KUB10AA002	4 ^(N) 3 ^(A,B)	No	Yes	Position	Open / Close
Severe Accident Sampling System - CIV	KUL51AA002	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close

Table 3.5-2—Containment Isolation Equipment I&C and Electrical Design (5 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	IEEE Class 1E ⁽²⁾	EQ - Harsh Environment	PACS	MCR Displays	MCR Controls
Severe Accident Sampling System - CIV	KUL51AA003	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Severe Accident Sampling System - CIV	KUL52AA002	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Severe Accident Sampling System - CIV	KUL52AA003	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Main Condensate Piping System - Condensate to Blowdown Clrs - CIV	LCA90AA003	2 ^(N) 1 ^(A)	No	Yes	Position	Open / Close
Main Condensate Piping System - Condensate to Blowdown Clrs - CIV	LCA90AA005	3 ^(N) 4 ^(A)	Yes	Yes	Position	Open / Close
Main Condensate Piping System - Condensate to Blowdown Clrs - CIV	LCA90AA006	2 ^(N) 1 ^(A)	No	Yes	Position	Open / Close
Nitrogen Gas Distribution System - CIV	QJB40AA001	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Nitrogen Gas Distribution System - CIV	QJB40AA002	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close
Nitrogen Gas Distribution System - CIV	QJB40AA003	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Nitrogen Gas Distribution System - CIV	QJB40AA004	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close
Operational Chilled Water Supply to Containment cooling coils - CIV	QNJ41AA002	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Operational Chilled Water Return to Containment cooling coils - CIV	QNJ41AA027	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Operational Chilled Water Return to Containment cooling coils - CIV	QNJ41AA028	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Sampling System for Steam Generator Blowdown System - CIV	QUC11AA001	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Sampling System for Steam Generator Blowdown System - CIV	QUC11AA011	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close

Table 3.5-2—Containment Isolation Equipment I&C and Electrical Design (5 Sheets)

Equipment Description	Equipment Tag Number ⁽¹⁾	IEEE Class 1E ⁽²⁾	EQ - Harsh Environment	PACS	MCR Displays	MCR Controls
Sampling System for Steam Generator Blowdown System - CIV	QUC12AA001	1 ^(N) 2 ^(A)	No	Yes	Position	Open / Close
Sampling System for Steam Generator Blowdown System - CIV	QUC12AA011	4 ^(N) 3 ^(A)	Yes	Yes	Position	Open / Close
Sampling System for Steam Generator Blowdown System - CIV	QUC13AA001	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Sampling System for Steam Generator Blowdown System - CIV	QUC13AA011	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Sampling System for Steam Generator Blowdown System - CIV	QUC14AA001	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Sampling System for Steam Generator Blowdown System - CIV	QUC14AA011	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close
Compressed Air Distribution System - Instrument Air - CIV	SCB01AA001	4 ^(N) 3 ^(A)	No	Yes	Position	Open / Close
Compressed Air Distribution System - Instrument Air - CIV	SCB01AA002	1 ^(N) 2 ^(A)	Yes	Yes	Position	Open / Close

(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 3.5-3—Containment Isolation Inspections, Tests, Analyses, and Acceptance Criteria (7 Sheets)

	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
2.1	The functional arrangement of the containment isolation equipment is as shown in Figure 3.5-1 and as indicated in Table 3.5-1.	Inspections of the as-built equipment will be conducted	The containment isolation equipment conforms to the functional arrangement as indicated in Table 3.5-1.
2.2	The location of the containment isolation equipment is as listed in Table 3.5-1.	An inspection will be performed.	The equipment listed in Table 3.5-1 is located as listed in Table 3.5-1.
3.1	The components designated as ASME Code Section III in Table 3.5-1 are designed to ASME Code Section III requirements.	Inspections will be conducted of ASME design, NDE and hydrostatic test reports for the components listed as ASME Code Section III in Table 3.5-1.	A report exists and concludes that the components listed as ASME Code Section III in Table 3.5-1 have been designed and hydrostatically tested in accordance with ASME Code Section III requirements.
3.2	Check valves listed in Table 3.5-1 will function as listed in Table 3.5-1.	Tests will be performed for the operation of the check valves listed in Table 3.5-1.	The check valves listed in Table 3.5-1 perform the functions listed in Table 3.5-1.
3.3a	The piping identified as being within the ASME Code Section III boundary as indicated in Figure 3.5-1 for the containment isolation configurations identified in Table 3.5-1 has been designed in accordance with ASME Code Section III requirements including seismic loads.	Analysis of the as-designed piping will be performed in accordance with ASME Code Section III requirements.	ASME Code Section III stress reports exist and conclude that the as-designed piping identified as ASME Code Section III in Figure 3.5-1 for the containment isolation configurations identified in Table 3.5-1 meets ASME Code Section III design requirements.

Table 3.5-3—Containment Isolation Inspections, Tests, Analyses, and Acceptance Criteria (7 Sheets)

	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
3.3b	The piping identified as being within the ASME Code Section III boundary as indicated in Figure 3.5-1 for the containment isolation configurations identified in Table 3.5-1 has been inspected and hydrostatically tested in accordance with ASME Code Section III.	<p>Inspections will be conducted of the as-built piping for the following:</p> <ul style="list-style-type: none"> a. Welding has been performed per ASME Code Section III. b. Hydrostatic testing per ASME Code Section III was performed. 	<ul style="list-style-type: none"> a. A report exists and concludes that the piping as indicated in Figure 3.5-1 as ASME Code Section III for the containment isolation configurations identified in Table 3.5-1 has been welded in accordance with ASME Code Section III welding requirements. b. A report exists and concludes that the piping as indicated in Figure 3.5-1 as ASME Code Section III for the containment isolation configurations identified in Table 3.5-1 has been hydrostatically tested in accordance with ASME Code Section III requirements.
3.4	Equipment identified as Seismic Category I in Table 3.5-1 can withstand a design basis seismic load without loss of safety function as listed in Table 3.5-1.	<ul style="list-style-type: none"> a. Inspection will be performed of the equipment identified as Seismic Category I in Table 3.5-1. b. Type tests, tests, analyses or a combination of tests and analyses will be performed on the equipment designated as Seismic Category I in Table 3.5-1. 	<ul style="list-style-type: none"> a. A report exists and concludes that the equipment designated as Seismic Category I in Table 3.5-1 is installed as designed. b. A report exists and concludes that the equipment designated as Seismic Category I in Table 3.5-1 can withstand a design basis seismic load without loss of safety function.
3.5	Specifications exist for components listed as ASME Section III in Table 3.5-1.	An inspection will be performed.	Specifications exist for components listed as ASME Section III in Table 3.5-1.

Table 3.5-3—Containment Isolation Inspections, Tests, Analyses, and Acceptance Criteria (7 Sheets)

	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
3.6	Specifications exist for piping shown as ASME Section III in Figure 3.5-1 for the containment isolation configurations identified in Table 3.5-1.	An inspection will be performed.	Specifications exist for piping identified as ASME Section III in Figure 3.5-1 for the containment isolation configurations identified in Table 3.5-1.
4.1	Displays exist or can be retrieved in the MCR as identified in Table 3.5-2.	Inspections will be performed for the existence or retrieveability of the displays in the MCR as listed in Table 3.5-2.	The displays listed in Table 3.5-2 as being retrieved in the MCR can be retrieved in the MCR.
4.2	Controls exist in the MCR as identified in Table 3.5-2.	Tests will be performed for the existence of control signals from the MCR to the equipment listed in Table 3.5-2.	The controls listed in Table 3.5-2 as being in the MCR exist in the MCR.
4.3	Actuators listed as being controlled by a PACS module in Table 3.5-2 are controlled by a PACS module.	An operational test will be performed using test signals for the actuators being controlled by a PACS module as listed in Table 3.5-2. An inspection will be performed on the actuation of the actuator.	The actuators listed as being controlled by a PACS module in Table 3.5-2 actuate to the state requested by the signal.
5.1	The components designated as Class 1E in Table 3.5-2 are powered from the Class 1E division as listed in Table 3.5-2 in a normal or alternate feed condition.	<ul style="list-style-type: none"> a. Testing will be performed for components designated as Class 1E in Table 3.5-2 by providing a test signal in each normally aligned division. b. Testing will be performed for components designated as Class 1E in Table 3.5-2 by providing a test signal in each division with the alternate feed aligned to the divisional pair. 	<ul style="list-style-type: none"> a. The test signal provided in the normally aligned division is present at the respective Class 1E component identified in Table 3.5-2. 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 3.5-2.

Table 3.5-3—Containment Isolation Inspections, Tests, Analyses, and Acceptance Criteria (7 Sheets)

	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
5.2	Valves listed in Table 3.5-2 fail as-is on loss of power.	Testing will be performed for the valves listed in Table 3.5-2 to fail as-is on loss of power.	Following loss of power, the valves listed in Table 3.5-2 fail as-is.
5.3	Containment electrical penetrations routing Class 1E cables have only Class 1E cables or associated cables.	Inspections will be performed	Containment electrical penetrations routing Class 1E cables have only Class 1E cables or associated cables.
5.4	Separation exists between containment electrical penetration assemblies routing each division of Class 1E cables, and between assemblies containing Class 1E and non-Class 1E cables.	Inspections will be performed	Separation exists between containment electrical penetration assemblies routing each division of Class 1E cables, and between assemblies containing Class 1E and non-Class 1E cables.
5.5	Containment electrical penetrations are protected from fault currents that are greater than their current rating	Inspection and testing will be performed	Containment electrical penetrations are protected from fault currents that are greater than their current rating

Table 3.5-3—Containment Isolation Inspections, Tests, Analyses, and Acceptance Criteria (7 Sheets)

	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
6.1	Components listed as Class 1E in Table 3.5-2 that are designated as harsh environment will perform the function listed in Table 3.5-1 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 3.5-2 to perform the function listed in Table 3.5-1 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 3.5-2, an inspection will be performed of the as-installed Class 1E equipment and the associated wiring, cables and terminations.</p>	<p>a. A report exists and concludes that the Class 1E equipment listed for harsh environment in Table 3.5-2 can perform the function listed in Table 3.5-1 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 3.5-2 for harsh environment conform with the design.</p>

Table 3.5-3—Containment Isolation Inspections, Tests, Analyses, and Acceptance Criteria (7 Sheets)

	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
6.2	Containment electrical penetrations assemblies are qualified for harsh environment and perform the required safety function following exposure to the operational and design basis environments.	<p>a. Type tests, tests, analyses or a combination of tests and analyses will be performed to demonstrate the ability of the equipment for harsh environment to perform the function for the environmental conditions that could occur before and during a design basis accident.</p> <p>b. Equipment listed for harsh environment will have an inspection performed of the as-installed Class 1E equipment and the associated wiring, cables and terminations.</p>	<p>a. Containment electrical penetrations assemblies are qualified for harsh environment and perform the required safety function following exposure to the operational and design basis environments.</p> <p>b. Inspection concludes as-installed containment electrical penetrations assemblies are qualified for harsh environment and perform the required safety function following exposure to the operational and design basis environments.</p>
7.1	Class 1E valves listed in Table 3.5-2 perform the function listed in Table 3.5-1 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 3.5-2 to change position as listed in Table 3.5-1 under system design conditions.	The as-installed valves change position as listed in Table 3.5-1 under system design conditions.
7.2	Containment isolation valves listed in Table 3.5-1 close within the containment isolation response time following initiation of a containment isolation signal.	Tests will be performed to demonstrate the ability of the containment isolation valves listed in Table 3.5-1 to close within the containment isolation response time following initiation of a containment isolation signal.	A report exists and concludes that the containment isolation valves listed in Table 3.5-1 close within 60 seconds following initiation of a containment isolation signal.

Table 3.5-3—Containment Isolation Inspections, Tests, Analyses, and Acceptance Criteria (7 Sheets)

	Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
7.3	The containment provides a barrier against fission product release.	A test will be performed to measure the containment overall integrated leakage rate.	The measured leakage rate from containment is less than L_a .