DUKE POWER COMPANY

McGUIRE NUCLEAR STATION

PUMP AND VALVE INSERVICE TESTING

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ASME SECTION XI, SUBSECTION IWP

The inservice testing of ASME Code Class 1, 2, and 3 pumps provided with an emergency power source will be tested as required by Section XI, Subsection IWP, of the ASME Boiler and Pressure Vessel Code 1980 Edition, except where specific written relief has been granted by the Commission. A description of the proposed inservice testing program, as well as specific requests for relief from code requirements determined to be impractical, is described by the following.

I. The following specific requests for relief from certain code requirements are to be applicable for all pumps.

A) IWP-4120 requires the full scale range of each instrument to be three times the reference value or less. This was changed from four times the reference value in the edition of Section XI that was in effect prior to unit licensing. 10CFR, Section 50.55a(g)(4) states that design provisions are excluded from the requirement to upgrade to subsequent editions of Section XI. Since any cases where the three-times reference value criterion is not met would require design changes in instrumentation, we will continue to apply the four-times reference value criterion, as interpreted in B) below, for instrument accuracy evaluation.

B) In several cases, instrumentation does not meet the four times reference value criterion. These cases predominantly involve suction pressure gauges where a larger range is required to accommodate varying conditions at the suction of the pump. In all cases where the four-times reference value criterion cannot be met, an instrument error evaluation is performed to demonstrate that the overall accuracy of the differential pressure measurement is within the limits established by IWP. These cases are RHR discharge, nuclear service water suction, and control room chilled water suction gages.

C) Table IWP-3100-1 establishes the parameters that are to be measured. The previous edition of Section 11 specified that in a fixed resistance system, either ΔP or Q was to be measured, not both. There are two systems that are tested using fixed resistance flow paths, with no flow indication provided. Based on the design change exclusion provided by 10CRF50.55a(g)(4), we will continue to apply the criterion that it is not required to measure flow in a fixed resistance system.

II. The following Safety Class 1, 2, and 3 pumps (See Attachment #1 for specific safety class and available instrumentation) will be tested in accordance with the intent of Subsection IWP of the ASME code:

NUCLEAR SERVICE WATER PUMPS (1A, 1B)
CONTAINMENT SPRAY PUMPS (1A, 1B)
SAFETY INJECTION PUMPS (1A, 1B)
MOTOR-DRIVEN AUX. FEEDWATER PUMPS (1A, 1B)
TURBINE-DRIVEN AUX. FEEDWATER PUMP (NO. 1)
CENTRIFUGAL CHARGING PUMPS (1A, 1B)
COMPONENT COOLING PUMPS (1A1, 1A2, 1B1, 1B2)
RESIDUAL HEAT REMOVAL PUMPS (1A, 1B)

III. The following Safety Class 1, 2, and 3 pumps (See Attachment #1 for specific safety class and available instrumentation) will be tested in accordance with the intent of Subsection IWP, except for the request for relief for the specific requirements determined to be impractical as described below.

A) PUMP: CONTROL AREA CHILLED WATER PUMPS (CRA-P-1, CRA-P-2)

SAFETY CLASS: 3

FUNCTION: To provide chilled water to air handling units supplying control area air conditioning

TEST REQUIREMENTS:
1. Measure pump bearing temperature during inservice testing.
2. Annually run pumps until bearing temperatures stabilize.

BASIS FOR RELIEF: There is no instrumentation installed to measure bearing temperature, and no meaningful data can be obtained from bearing housing surface temperature measurements.

ALTERNATE TESTING: The inservice testing of the Control Area Chilled Water Pumps will be in accordance with the intent of Subsection IWP except that bearing temperature will not be monitored and subsequently the pumps will not be run annually until bearing temperature stabilizes. The mechanical condition of the subject pumps will be determined from vibration data.

IV. The following Safety Class 1, 2, and 3 pumps are provided with insufficient instrumentation to perform any meaningful testing in accordance with the intent of Subsection IWP and therefore the following alternate testing methods, as well as requests for relief from compliance with Subsection IWP, are described by the following.

A) PUMP: D/G FUEL OIL TRANSFER PUMPS (1A, 1B)

SAFETY CLASS: 3

FUNCTION: Diesel generator auxiliary support

TEST REQUIREMENT: Test pumps in accordance with Subsection IWP

BASIS FOR RELIEF: Pumps contain insufficient instrumentation (See Attachment #1) to perform any meaningful testing in accordance with the intent of Subsection IWP.

ALTERNATE TESTING: Monthly Diesel Generator starting and loading as required by McGuire Technical Specifications is sufficient in assessing the hydraulic condition of the subject auxiliary pumps and demonstrating the capability of the individual components to perform their design function.

The mechanical condition of the subject pumps will be determined from vibration data to be gathered monthly. Flow will be monitored by observing level rise in the day tank.

B) PUMP: D/G ROOM SUMP PUMPS (1A2, 1A3, 1B2, 1B3)

SAFETY CLASS: 3

FUNCTION: Water removal from Diesel Generator rooms

TEST REQUIREMENT: Test pumps in accordance with Subsection IWP

BASIS FOR RELIEF: Pumps contain insufficient instrumentation (See Attachment #1) to perform any meaningful testing in accordance with Subsection IWP.

ALTERNATE TESTING: Due to the anticipated infrequent normal operation of these pumps, quarterly, each pump will be verified to be capable of performing their design function of removing water from the sump at a rate greater than or equal to 419 gpm.

SAFETY RELATED CLASS 1, AND 3 PUMPS PROVIDED WITH AN EMERGENCY POWER SOURCE

PUMPS	Safety Class	Test Frequency	Speed, N	Inlet Pres., Pi	Diff. Pres., ΔP	Flow Rate, Q	Vib. Amplitude, V	Lubricant Level	Bearing Temp, T_b	Discharge Pres., Pd	Duke Flow Diagram
Nuclear Service Water Pumps (1A, 1B) (RN)	3	QU	NR	X	X	X	X(1)	X	X	X	MC-1574-1.1
Containment Spray Pumps (1A, 1B) (NS)	2	QU	NR	X	X	X	X(1)	X(3)	X(2)	X	MC-1563-1.1
Redidual Heat Removal Pumps (1A, 1B) (ND)	2	QU	NR	X	X	X	X(1)	X(3)	X(2)	X	MC-1561-1.0
Safety Injection Pumps (1A, 1B) (NI)	2	QU	NR	X	X	X	X(1)	X	X	X	MC-1562-3.0
M/D Aux. Feedwater Pumps (1A, 1B) (CA)	3	MO	NR	X	X	X	X(1)	X	X	X	MC-1592-1.1
T/D Aux. Feedwater Pump (No. 1) (CA)	3	MO	X	X	X	X	X(1)	X	X	X	MC-1592-1.1
Cent. Charging Pumps (1A, 1B) (NV)	2	QU	NR	X	X	NR	X(1)	X	X	X	MC-1554-3.1
Component Cooling Pumps (1A1, 1A2, 1B1, 1B2) (KC)	3	QU	NR	X	X	X	X(1)	X	X	X	MC-1573-1.0
Control Area Chilled Water Pumps (CRA-P-1,2) (YC)	3	QU	NR	X	X	X	X(1)	X	-	X	MC-1618-1.0
D/G Fuel Oil Transfer Pumps (1A, 1B) (FD)	3	QU	NR	-	-	X	X(1)	-	-	X	MC-1609-3.0
D/G Room Sump Pumps (1A2, 1A3, 1B2, 1B3) (WN)	3	QU	NR	-	-	-	-	-	-	X	MC-1609-7.0

NOTES

1. Vibration to be measured with portable instrumentation (Accuracy ±20%).
2. Pump contains no bearings, but is close coupled, therefore motor bearing will be monitored.
3. Pump is close coupled, therefore motor lubricant level will be observed.

LEGEND

X - Instrumentation
- - Instrumentation not available
MO - Monthly
NR - Not required for IWP Compliance
QU - Quarterly
( ) - Note

DUKE POWER COMPANY

MCGUIRE NUCLEAR STATION

VALVE INSERVICE TESTING PROGRAM

Introduction:

The inservice testing of ASME Code categories A, B, C, and D valves will be tested as required by Section XI, subsection IWV, of the ASME Boiler and Pressure Vessel Code 1980 Edition except where specific written relief has been granted by the Commission.

TABLE OF ABBREVIATIONS

CLASSIFICATION

Duke System Valve Class	Code Design Criteria	Designed For Seismic Loading	ANS Safety Class
A	Class 1, ASME Section III, 1971	Yes	1
B	Class 2, ASME Section III, 1971	Yes	2
C	Class 3, ASME Section III, 1971	Yes	3
D	Class 2, ASME Section III, 1971	No	2
E	ANSI B31.1.0 (1967)	No	NNS
F	ANSI B31.1.0 (1967)	Yes	NNS
G	ANSI B31.1.0 (1967)	No	-
H	Duke Power Company Specifications	No	-

TEST REQUIREMENTS

LT - Leak Test
MT - Movement Test
Q - Quarterly
CS - Cold Shutdown
RF - Refueling Outage
CT - Cycle and time
SP - Setpoint
PC - Procedure Check
VS - Valve Seating

DEFINITIONS OF TESTING REQUIREMENTS AND ALTERNATIVES

Cold Shutdown (CS)	Testing will be performed when the unit is in cold shutdown (Mode 5). In the case of frequent shutdowns, the testing will not be performed more than one per three (3) months.
Cycle and Time (CT)	Valve will be tested to verify that its stroke time is less than the maximum allowable stroke time specified by McGuire Nuclear Station.
Leak Test (LT)	Valve will be tested to verify that the seat leakage is limited to a specific maximum amount.
Movement Test (MT)	Valve will be tested to verify that the valve is operable and/or the valve moves to the position required to fulfill its purpose. No timing is involved.
Quarterly (Q)	Testing will be performed at least once per three (3) months.
Refueling Outage (RF)	Testing will be performed when the unit is shut down for refueling (Mode 6). Safety valves will be tested periodically per the testing schedule defined in ASME Subsection IWV-3510.
Refueling Outage (RF*)	Valve will normally be tested during refueling outages, however, testing is not required more often than once per 24 months per Appendix J to 10CFR50.
Setpoint (SP)	Valve will be tested to verify that it will relieve pressure at its specified setpoint.

GENERAL RELIEF

TEST REQUIREMENT:	Perform trend analyses on category A and B valves as described in IWV-3417(a).
BASIS FOR RELIEF:	Trend analyses performed on rapid acting valves does not give reliable indication of valve stroke time deterioration.
TESTING ALTERNATIVE:	Trend analyses will not be performed on valves that normally operate with cycle times of less than 5 seconds.

SYSTEM: ANNULUS VENTILATION

FLOW DIAGRAMS: MC-1564-1

System: Annulus Ventilation

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1VE-10A	B	MC-1564-1	H-3	X				LT			Passive
1VE-11	B	MC-1564-1	H-3	X		X		LT	X		Passive

VALVE:	1VE-11
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides Containment Isolation
TEST REQUIREMENT:	Full stroke exercise quarterly
BASIS FOR RELIEF:	Valve has no indication of closure
ALTERNATE TESTING:	Valve will be verified shut by leak test performed in accordance with Appendix J.

SYSTEM: AUXILIARY FEEDWATER

FLOW DIAGRAMS: MC-1592-1.0
MC-1592-1.1

System: Auxiliary Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1CA-60	C	MC-1592-1.0	G-1		X			CT	X		60 sec. max. cycle time
1CA-61	B	MC-1592-1.0	H-1			X		MT	X	CS	
1CA-62A	B	MC-1592-1.0	I-1		X			CT			10 sec. max. operating time
1CA-66A	B	MC-1592-1.0	J-1		X			CT			10 sec. max. operating time
1CA-65	B	MC-1592-1.0	K-1			X		MT	X	CS	
1CA-64	C	MC-1592-1.0	L-4		X			CT	X		60 sec. max. cycle time
1CA-56	C	MC-1592-1.0	C-4		X			CT	X		60 sec. max. cycle time
1CA-58A	B	MC-1592-1.0	D-7		X			CT			10 sec. max. operating time
1CA-57	B	MC-1592-1.0	C-6			X		MT	X	CS	
1CA-54A	B	MC-1592-1.0	G-7		X			CT			10 sec. max. operating time

System: Auxiliary Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1CA-53	B	MC-1592-1.0	H-7			X		MT	X	CS	
1CA-52	C	MC-1592-1.0	K-7		X			CT	X		60 sec. max. cycle time
1CA-44	C	MC-1592-1.0	C-11		X			CT	X		60 sec. max. cycle time
1CA-45	B	MC-1592-1.0	C-9			X		MT	X	CS	
1CA-46B	B	MC-1592-1.0	D-8		X			CT			10 sec. max. cycle time
1CA-50B	B	MC-1592-1.0	G-8		X			CT			10 sec. max. cycle time
1CA-49	B	MC-1592-1.0	H-8			X		MT	X	CS	
1CA-48	C	MC-1592-1.0	K-8		X			CT	X		60 sec. max. cycle time
1CA-40	C	MC-1592-1.0	G-14		X			CT	X		60 sec. max. cycle time
1CA-41	B	MC-1592-1.0	H-14			X		MT	X	CS	

System: Ausiliary Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1CA-42B	B	MC-1592-1.0	J-14		X			CT			10 sec. max. cycle time
1CA-38B	B	MC-1592-1.0	J-14		X			CT			10 sec. max. cycle time
1CA-37	B	MC-1592-1.0	K-14			X		MT	X	CS	
1CA-36	C	MC-1592-1.0	L-10		X			CT	X		60 sec. max. cycle time
1CA-18B	C	MC-1592-1.1	C-1		X			CT			10 sec. max. cycle time
1CA-12	C	MC-1592-1.1	B-3			X		MT			
1CA-11A	C	MC-1592-1.1	B-4		X			CT			10 sec. max. cycle time
1CA-10	C	MC-1592-1.1	C-5			X		MT			
1CA-9B	C	MC-1592-1.1	C-5		X			CT			10 sec. max. cycle time
1CA-8	C	MC-1592-1.1	B-11			X		MT			

System: Auxiliary Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1CA-7A	C	MC-1592-1.1	B-10		X			CT			10 sec. cycle time
1CA-15A	C	MC-1592-1.1	D-3		X			CT			10 sec. cycle time
1CA-86A	C	MC-1592-1.1	L-8		X			CT			15 sec. max. cycle time
1CA-116B	C	MC-1592-1.1	L-7		X			CT			15 sec. max. cycle time
1CA-26	C	MC-1592-1.1	I-4			X		MT			
1CA-27	C	MC-1592-1.1	I-3		X			CT	X		60 sec. max. cycle time
1CA-32	C	MC-1592-1.1	I-7		X			CT	X		60 sec. max. cycle time
1CA-31	C	MC-1592-1.1	I-7			X		MT			
1CA-22	C	MC-1592-1.1	I-10			X		MT			
1CA-20	C	MC-1592-1.1	I-11		X			CT	X		60 sec. max. cycle time

System: Auxiliary Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1CA-161	C	MC-1592-1.1	D-8		X			CT			10 sec. max. cycle time
1CA-162	C	MC-1592-1.1	D-7		X			CT			10 sec. max. cycle time
1CA-165	C	MC-1592-1.1	C-14			X		MT	X	RF	
1CA-166	C	MC-1592-1.1	F-14			X		MT	X	RF	

VALVE:	1CA-60, 1CA-64, 1CA-56, 1CA-52, 1CA-44, 1CA-48, 1CA-40, 1CA-36
CATEGORY:	B
CLASS:	C
FUNCTION:	Control aux. feedwater flow to S/G's.
TEST REQUIREMENT:	Full stroke exercise and stroke time quarterly
BASIS FOR RELIEF:	Valves can only be timed when aux. feed receives an auto-start signal
ALTERNATE TESTING:	Valve will be full stroke execised quarterly and timed during ESF testing.

VALUE:	1CA-61, 1CA-53, 1CA-45, 1CA-37, 1CA-65, 1CA-57, 1CA-49, 1CA-41
CATEGORY:	C
CLASS:	B
FUNCTION:	Check flow from steam generators to aux. feedwater
TEST REQUIREMENT:	Full stroke exercise quarterly
BASIS FOR RELIEF:	Flow through these valves would unnecessarily thermal shock the S/G and feedwater piping.
ALTERNATE TESTING:	Valves will be full stroke exercised at cold shutdown.

VALVE:	1CA-20, 1CA-27, 1CA-32
CATEGORY:	B
CLASS:	C
FUNCTION:	Maintains minimum flow for Auxiliary Feedwater Pumps.
TEST REQUIREMENT:	Full stroke exercise and stroke time quarterly
BASIS FOR RELIEF:	This valve automatically regulates to maintain the minimum flow through the pump by monitoring the flow on the suction of the pump. There are not sufficient manual controls on this valve to permit the desired testing. These valves will operate during testing of the pump and their operability will be verified then.
ALTERNATE TESTING:	These valves will be full stroke exercised quarterly and stroke timed during ESF testing.

VALVE:	1CA-165, 1CA-166
CATEGORY:	C
CLASS:	C
TEST REQUIREMENT:	Full stroke exercise quarterly
BASIS FOR RELIEF:	Flow cannot be put through these valves because this would contaminate the aux. feed system with raw water.
ALTERNATE TESTING:	Valves will be verified operable during refueling outages.

SYSTEM: Boron Recycle

FLOW DIAGRAMS: MC-1556-3.0

System: Boron Recycle

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NB-260B	B	MC-1556-3.0	G-5	X				CT LT		RF	Isolation time ≤10 sec.
1NB-262	B	MC-1556-3.0	G-3	X		X		MT LT	X	RF	

VALVE:	1NB-262
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Leak rate performed every 24 months will verify valve closure.

SYSTEM: BREATHING AIR

FLOW DIAGRAMS: MC-1605-3.1

System: Breathing Air

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1VB-49B	B	MC-1605-3.1	G-2	X				CT Q LT		RF*	Isolation time 15 sec.
1VB-50	B	MC-1605-3.1	E-4	X		X		MT Q LT	X	RF*	

VALVE:	1VB-50
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per 3 months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Leak rate test performed every 24 months will verify valve closure.

SYSTEM: CHEMICAL & VOLUME CONTROL SYSTEM

FLOW DIAGRAMS:
MC-1554-1.1
MC-1554-1.2
MC-1554-1.3
MC-1554-2.0
MC-1554-3.0
MC-1554-3.1

System: Chemical and Volume Control

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NV-94A	B	MC-1554-1.1	J-13		X			CT	X		10 sec. max. cycle time
1NV-95B	B	MC-1554-1.1	H-13		X			CT	X		10 sec. max. cycle time
1NV-457A	B	MC-1554-1.2	I-7		X			CT			Isolation time ≤15 sec.
1NV-458A	B	MC-1554-1.2	J-7		X			CT			Isolation time ≤15 sec.
1NV-459A	B	MC-1554-1.2	K-7		X			CT			Isolation time ≤15 sec.
1NV-7B	B	MC-1554-1.2	J-10		X			CT	X	CS	10 sec. max. cycle time

System: Chemical and Volume Control

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
INV-842A,C	B	MC-1554-1.3	F-2		X			CT			15 sec. max. cycle time
INV-849A,C	B	MC-1554-1.3	F-8	X				LT CT			15 sec. max. cycle time
INV-1002	B	MC-1554-1.3	F-10	X		X		LT MT	X	RF	
INV-141A	B	MC-1554-2.0	B-8		X			CT	X	CS	10 sec. max. cycle time
INV-142B	B	MC-1554-2.0	B-7		X			CT	X	CS	10 sec. max. cycle time
INV-244A	B	MC-1554-3.0	K-8		X			CT	X	CS	10 sec. max. operating time
INV-245B	B	MC-1554-3.0	K-9		X			CT	X	CS	10 sec. max. operating time

System: Chemical and Volume Control

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NV-222B	B	MC-1554-3.1	I-1		X			CT	X	CS	10 sec. max. cycle time
1NV-221A	B	MC-1554-3.1	H-1		X			CT	X	CS	10 sec. max. cycle time
1NV-223	B	MC-1554-3.1	I-2			X		MT	X		
1NV-227	B	MC-1554-3.1	E-6			X		MT			
1NV-223	B	MC-1554-3.1	E-10			X		MT			
1NV-231	B	MC-1554-3.1	F-10			X		MT	X		
1NV-225	B	MC-1554-3.1	F-5			X		MT	X		

VALVE:	1NV-94A, 1NV-95B
CATEGORY:	B
CLASS:	B
FUNCTION:	a) Provide containment isolation b) Reactor coolant pump seal water discharge line.
TEST REQUIREMENT:	Cycle and time every three months.
BASIS FOR RELIEF:	Closure of one of these valves during unit operation would inhibit normal seal water flow across the reactor coolant pump number 1 seal. This action could result in damage to the reactor coolant pump seals or the pumps themselves.
ALTERNATE TESTING:	Valves will be cycled and timed during cold shutdowns.

VALVE:	1NV-7B
CATEGORY:	B
CLASS:	B
FUNCTION:	Letdown containment isolation.
TEST REQUIREMENT:	Full stroke exercise and stroke time quarterly
BASIS FOR RELIEF:	Failure of this valve in closed position could result in loss of PZR level control.
ALTERNATE TESTING:	Valve will be exercised and timed at cold shutdown.

VALVE:	1NV-1002
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides containment isolation
TEST REQUIREMENT:	Full stroke exercise quarterly
BASIS FOR RELIEF:	There is no indication of valve closure.
ALTERNATE TESTING:	Valve will be verified closed by leak rate test performed in accordance with Appendix J.

VALVE:	1NV-141A, 1NV-142B
CATEGORY:	B
CLASS:	B
FUNCTION:	Isolates volume control tank upon receipt of a safety injection signal.
TEST REQUIREMENT:	Cycle and time valve every three months.
BASIS FOR RELIEF:	Closure of one of these valves would isolate the suction for the charging pumps. This action could result in damage to the charging pumps. Seal water for the reactor coolant pumps would also be inhibited. This is undesirable in that damage could be done to the seals.
ALTERNATE TESTING:	Valve will be cycled and timed during shutdowns.

VALVE:	1NV-244A, 1NV-245B
CATEGORY:	B
CLASS:	B
FUNCTION:	Isolates charging to the Reactor Coolant System upon receipt of a safety injection signal.
TEST REQUIREMENT:	Cycle and time valve every three months.
BASIS FOR RELIEF:	If one of these valves were to fail in the closed position during testing, normal and alternate charging would be lost.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

VALVE:	1NC-225, 1NV-231
CATEGORY:	C
CLASS:	B
FUNCTION:	Opens on flow from the Centrifugal Charging Pump(s).
TEST REQUIREMENT:	Verify proper valve movement every three months.
BASIS FOR RELIEF:	Valve cannot be full stroke exercised during power operation or cold shutdown.
ALTERNATE TESTING:	Valve will be partial stroked at cold shutdown and full stroked during refueling.

VALVE:	1NC-223
CATEGORY:	C
CLASS:	B
FUNCTION:	Opens on flow alignment from FWST
TEST REQUIREMENT:	Verify proper valve movement every three months.
BASIS FOR RELIEF:	Testing of this valve requires opening 1NV-221A or 1NV-222B. Failure of one of these valves in the open position aligns the FWST to the suction of the charging pumps with no means of isolating the flow path.
ALTERNATE TESTING:	Valve will be partial stroked during cold shutdowns and full stroked during refueling.

VALVE:	1NV-221A, 1NV-222B
CATEGORY:	B
CLASS:	B
FUNCTION:	Aligns fueling water storage tank (FWST) to the suction of the centrifugal charging pumps upon receipt of a safety injection signal.
TEST REQUIREMENT:	Cycle and time every three months.
BASIS FOR RELIEF:	If one of these were to fail in the open position during testing, the FWST would be aligned to the suction of the charging pumps.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

SYSTEM: COMPONENT COOLING

FLOW DIAGRAMS: MC-1573-1.0
MC-1573-1.1
MC-1573-3.1
MC-1573-4.0

System: Component Cooling

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1KC-1A	C	MC-1573-1.0	C-7		X			CT			60 sec. max. cycle time
1KC-2B	C	MC-1573-1.0	C-8		X			CT			60 sec. max. cycle time
1KC-3A	C	MC-1573-1.0	C-7		X			CT			50 sec. max. cycle time
1KC-18B	C	MC-1573-1.0	C-8		X			CT			50 sec. max. cycle time
1KC-5	C	MC-1573-1.0	F-4			X		MT			
1KC-8	C	MC-1573-1.0	F-4			X		MT			
1KC-11	C	MC-1573-1.0	F-11			X		MT			
1KC-14	C	MC-1573-1.0	F-11			X		MT			
1KC-51A	C	MC-1573-1.0	J-5		X			CT			10 sec. max. cycle time
1KC-54	C	MC-1573-1.0	J-10		X			CT			10 sec. max. cycle time

System: Component Cooling

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1KC-50A	C	MC-1573-1.0	K-7		X			CT			60 sec. max. cycle time
1KC-230A	C	MC-1573-1.0	K-7		X			CT			40 sec. max. cycle time
1KC-53B	C	MC-1573-1.0	K-8		X			CT			60 sec. max. cycle time
1KC-228B	C	MC-1573-1.0	K-8		X			CT			40 sec. max. cycle time
1KC-56A	C	MC-1573-1.1	E-2		X			CT			60 sec. max. cycle time
1KC-57A	C	MC-1573-1.1	D-6		X			CT			60 sec. max. cycle time
1KC-81B	C	MC-1573-1.1	F-13		X			CT			60 sec. max. cycle time
1KC-82B	C	MC-1573-1.1	D-9		X			CT			60 sec. max. cycle time

System: Componeat Cooling

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1KC-424B	B	MC-1573-3.1	L-4	X				LT CT	X	CS	Isolation time ≤40 sec.
1KC-425A	B	MC-1573-3.1	L-6	X				LT CT	X	CS	Isolation time ≤40 sec.
1KC-279	B	MC-1573-3.1	K-4	X		X		LT MT	X	RF	
1KC-315B	B	MC-1573-3.1	L-13		X			CT			Isolation time ≤30 sec.
1KC-305B	B	MC-1573-3.1	D-14		X			CT			Isolation time ≤30 sec.
1KC-340	B	MC-1573-3.1	E-12	X		X		LT MT	X	RF	
1KC-338B	B	MC-1573-3.1	D-12	X				LT CT	X	CS	Isolation time ≤40 sec.
1KC-320A	B	MC-1573-3.1	C-10	X				LT CT	X	CS	Isolation time ≤15 sec.

System: Component Cooling

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1KC-322	B	MC-1573-3.1	C-9	X		X		LT MT	X	RF	
1KC-280	B	MC-1573-3.1	D-1	X		X		LT MT	X	RF	
1KC-332B	B	MC-1573-3.1	D-1	X				LT CT	X	CS	Isolation time ≤15 sec.
1KC-333A	B	MC-1573-3.1	G-1	X				LT CT	X	CS	Isolation time ≤15 sec.
1KC-47	B	MC-1573-4.0	L-12	X		X		LT MT	X	CS	
1KC-429B	B	MC-1573-4.0	K-12	X				LT CT			Isolation time ≤15 sec.
1KC-430A	B	MC-1573-4.0	K-10	X				LT CT			Isolation time ≤15 sec.

VALVE:	1KC-424B, 1KC-425A
CATEGORY:	A
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Cycle and time valve every three months.
BASIS FOR RELIEF:	Failure of this valve in the closed position during testing would inhibit the normal flow path from the reactor coolant pump motor coolers. This action could result in damage to the pump.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

VALVE:	1KC-280
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides containment isolation and prevents over-pressurization of line between 1KC-332B and 1KC-333A.
TEST REQUIREMENT:	Verify proper valve movement.
BASIS FOR RELIEF:	This valve cannot be practically tested during operation due to the design of the system.
ALTERNATE TESTING:	Valve will be verified closed by leak test performed in accordance with Appendix J.

VALVE:	1KC-322
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides Containment Isolation.
TEST REQUIREMENT:	Verify valve seats on flow reversal.
BASIS FOR RELIEF:	Testing of this valve during operation is prohibited due to the system design.
ALTERNATE TESTING:	Valve will be verified closed by leak test performed in accordance with Appendix J.

VALVE:	1KC-279
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides containment isolation and prevents over-pressurization of line between 1KC-424B and 1KC-425A.
TEST REQUIREMENT:	Verify valve seats on flow out of containment.
BASIS FOR RELIEF:	The system design does not provide a means of verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Valve will be verified shut by leak test performed in accordance with Appendix J.

VALVE:	1KC-340
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide Containment Isolation.
TEST REQUIREMENT:	Verify valve seats on flow reversal once every three months.
BASIS FOR RELIEF:	The system design does not provide a means of verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Valve will be verified closed by leak test performed in accordance with Appendix J.

VALVE:	1KC-338B
CATEGORY:	A
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Cycle and time valve every three months.
BASIS FOR RELIEF:	Failure of this valve in the closed position during testing would inhibit flow to the reactor vessel support coolers. This action could result in damage to the reactor vessel.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

VALVE:	1KC-332B, 1KC-333A
CATEGORY:	A
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Cycle and time valve every three months.
BASIS FOR RELIEF:	Failure of one of these valves in the closed position during testing would inhibit the flow path through the reactor coolant drain tank heat exchanger. No alternate flow path is available, which would force unit shutdown until the valve is repaired. This action is considered undesirable.
ALTERNATE TESTING:	Valves will be cycled and timed during cold shutdowns.

VALVE:	1KC-320A
CATEGORY:	A
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Cycle and time every three months.
BASIS FOR RELIEF:	Failure of this valve in the closed position during testing would isolate flow to the reactor coolant drain tank heat exchanger. This failure would require unit shutdown until the valve could be repaired. This action is considered undesirable.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

VALVE:	1KC-47
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Verify valve seats on flow out of containment.
BASIS FOR RELIEF:	This valve cannot be practically tested during unit operation due to system design. No instrumentation is installed which can monitor any flow past the check valve.
ALTERNATE TESTING:	Valve will be verified shut by leak test performed in accordance with Appendix J.

SYSTEM: CONTAINMENT AIR RELEASE AND ADDITION

FLOW DIAGRAMS: MC-1585-1.0

System: Containment Air Release and Addition

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1VQ-1A	B	MC-1585-1.0	J-4	X				CT Q LT		RF*	Isolation time ≤3 sec.
1VQ-2B	B	MC-1585-1.0	J-6	X				CT Q LT		RF*	Isolation time ≤3 sec.
1VQ-5B	B	MC-1585-1.0	E-6	X				CT Q LT		RF*	Isolation time ≤3 sec.
1VQ-6A	B	MC-1585-1.0	E-3	X				CT Q LT		RF*	Isolation time ≤3 sec.

SYSTEM: CONTAINMENT AIR RETURN EXCHANGE AND HYDROGEN SKIMMER

FLOW DIAGRAMS: MC-1557-1.0

System: Containment Air Return Exchange and Hydrogen Skimmer

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1VX-34	B	MC-1557-1.0	K-12	X				LT			Passive
1VX-40	B	MC-1557-1.0	K-3	X				LT			Passive
1VX-30	B	MC-1557-1.0	J-3	X		X		MT Q LT	X	RF	
1VX-31A	B	MC-1557-1.0	J-13	X				CT Q LT			Isolation time $\leq$5 sec.
1VX-33B	B	MC-1557-1.0	J-12	X				CT Q LT			Isolation time $\leq$5 sec.
1VX-1A	B	MC-1557-1.0	I-2		X			CT Q			60 sec. max. operating time
1VX-2B	B	MC-1557-1.0	I-12		X			CT Q			60 sec. max. operating time

VALVE:	1VX-30
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Valve will be verified shut by leak test performed in accordance with Appendix J.

SYSTEM: CONTAINMENT PURGE VENTILATION

FLOW DIAGRAMS: MC-1576-1.0

System: Containment Purge Ventilation

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1VP-1B	B	MC-1576-1.0	I-3	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-2A	B	MC-1576-1.0	I-4	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-3B	B	MC-1576-1.0	I-3	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-4A	B	MC-1576-1.0	I-4	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-6B	B	MC-1576-1.0	D-3	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-7A	B	MC-1576-1.0	D-4	X				CT Q LT	X	RF*	Isolation time ≤3 sec.

System: Containment Purge Ventilation

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1VP-8B	B	MC-1576-1.0	C-3	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-9A	B	MC-1576-1.0	C-4	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-10A	B	MC-1576-1.0	G-11	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-11B	B	MC-1576-1.0	G-12	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-12A	B	MC-1576-1.0	F-11	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-13B	B	MC-1576-1.0	F-12	X				CT Q LT	X	RF*	Isolation time ≤3 sec.

System: Containment Purge Ventilation

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1VP-15A	B	MC-1576-1.0	E-11	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-16B	B	MC-1576-1.0	E-12	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-17A	B	MC-1576-1.0	D-11	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-18B	B	MC-1576-1.0	D-12	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-19A	B	MC-1576-1.0	C-11	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
1VP-20B	B	MC-1576-1.0	C-12	X				CT Q LT	X	RF*	Isolation time ≤3 sec.

VALVES:	1VP-1B, 1VP-2A, 1VP-3B, 1VP-4A, 1VP-6B, 1VP-7A, 1VP-8B, 1VP-9A, 1VP-10A, 1VP-11B, 1VP-12A, 1VP-13B, 1VP-15A, 1VP-16B, 1VP-17A, 1VP-18B, 1VP-19A, 1VP-20B
CATEGORY:	A
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Cycle and time valves every three months.
BASIS FOR RELIEF:	Technical Specification 4.6.3.4 requires a leak rate test on these valves whenever they are cycled. In addition, Technical Specification 4.6.1.9 places severe restrictions on the operational time and alignment permitted for this system during normal operation. Because of these restrictions, it is not practical to cycle and time these valves quarterly.
ALTERNATE TESTING:	Valves will be timed whenever the system is operated or whenever the valves are cycled, and the elapsed time since the previous test has been three months or greater.

SYSTEM: CONTAINMENT SPRAY

FLOW DIAGRAMS: MC-1563-1.0

System: Containment Spray

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NS-43A	B	MC-1563-1.0	K-5		X			CT			10 sec. max. cycle time
1NS-46	B	MC-1563-1.0	K-3			X		MT	X	RF	
1NS-38B	B	MC-15643-1.0	J-5		X			CT			10 sec. max. cycle time
1NS-41	B	MC-1563-1.0	J-3			X		MT	X	RF	
1NS-18A	B	MC-1563-1.0	G-13		X			CT			30 sec. max. cycle time
1NS-20A	B	MC-1563-1.0	F-13		X			CT			30 sec. max. cycle time
1NS-21	B	MC-1563-1.0	F-12			X		MT	X		
1NS-32A	B	MC-1563-1.0	H-4		X			CT			10 sec. max. cycle time
1NS-29A	B	MC-1563-1.0	F-4		X			CT			10 sec. max. cycle time
1NS-30	B	MC-1563-1.0	F-2			X		MT	X	RF	

System: Containment Spray

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NS-33	B	MC-1563-1.0	H-2			X		MT	X	RF	
1NS-4	B	MC-1563-1.0	B-12			X		MT	X		
1NS-3B	B	MC-1563-1.0	B-13	X				CT			30 sec. max. cycle time
1NS-1B	B	MC-1563-1.0	C-13	X				CT			30 sec. max. cycle time
1NS-15B	B	MC-1563-1.0	D-4		X			CT			10 sec. max. cycle time
1NS-16	B	MC-1563-1.0	D-2			X		MT	X		
1NS-12B	B	MC-1563-1.0	C-4		X			CT			10 sec. max. cycle time
1NS-13	B	MC-1563-1.0	B-2			X		MT	X		

VALVE:	1NS-30, 1NS-33, 1NS-16, 1NS-13, 1NS-46, 1NS-41
CATEGORY:	C
CLASS:	B
FUNCTION:	Open on flow from the Containment Spray Pumps.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design has not provided a means for verifying that the valve opens when flow is initiated for the NS pumps.
ALTERNATE TESTING:	These valves will be tested during refueling outages.

VALVE:	1NS-21, 1NS-4
CATEGORY:	C
CLASS:	B
FUNCTION:	Prevent flow path from the Containment Recirculation Sump to the FWST.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Valves will be full stroked at refueling.

SYSTEM: CONTAINMENT VENTILATION COOLING WATER

FLOW DIAGRAMS: MC-1604-3.0

System: Containment Ventilation Cooling Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RV-79A	B	MC-1604-3.0	K-7	X				CT LT		RF*	Isolation time ≤30 sec.
1RV-80B	B	MC-1604-3.0	K-5	X				CT LT		RF*	Isolation time ≤30 sec.
1RV-32A	B	MC-1604-3.0	K-10	X				CT LT		CS RF*	Isolation time ≤60 sec.
1RV-33B	B	MC-1604-3.0	K-12	X				CT LT		CS RF*	Isolation time ≤60 sec.
1RV-130A	B	MC-1604-3.0	J-12	X		X		MT LT	X	RF*	
1RV-77B	B	MC-1604-3.0	C-10	X				CT LT		CS RF*	Isolation time ≤60 sec.
1RV-76A	B	MC-1604-3.0	C-12	X				CT LT		CS RF*	Isolation time ≤30 sec.

System: Containment Ventilation Cooling Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1RV-126	B	MC-1604-3.0	B-12	X		X		MT LT	X	RF*	
1RV-102B	B	MC-1604-3.0	C-7	X				CT LT			Isolation time ≤30 sec.
1RV-101A	B	MC-1604-3.0	C-5	X				CT LT			Isolation time ≤30 sec.

VALVE:	1RV-77B, 1RV-76A, 1RV-32A, 1RV-33B
CATEGORY:	A
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Cycle and time valve once per quarter.
BASIS FOR RELIEF:	Failure of one of these valves in the closed position would inhibit cooling flow to the containment.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

VALVE:	1RV-130, 1RV-126
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indications for verifying valve closure upon flow reversal.
ALTERNATE TESTING	Valve will be verified closed by leak test performed in accordance with Appendix J.

SYSTEM: CONTROL AREA CHILLED WATER

FLOW DIAGRAMS: MC-1618-1

System: Control Area Chilled Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1YC-2A	C	MC-1618-1	H-2		X			CT			10 sec. max. cycle time
1YC-13	C	MC-1618-1	K-9			X		MT			
1YC-14	C	MC-1618-1	K-10			X		MT			
1YC-16A	C	MC-1618-1	J-12		X			CT			10 sec. max. cycle time
1YC-17B	C	MC-1618-1	H-12		X			CT			10 sec. max. cycle time
1YC-83B	C	MC-1618-1	F-2		X			CT			10 sec. max. cycle time
1YC-94	C	MC-1618-1	C-9			X		MT			
1YC-95	C	MC-1618-1	C-10			X		MT			
1YC-99B	C	MC-1618-1	D-12		X			CT			10 sec. max. cycle time
1YC-27B	C	MC-1618-1	E-14		X			CT			10 sec. max. cycle time

System: Control Area Chilled Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1YC-30A	C	MC-1618-1	F-14		X			CT			10 sec. max. cycle time
1YC-29A	C	MC-1618-1	G-12		X			CT			10 sec. max. cycle time
1YC-39B	C	MC-1618-1	F-12		X			CT			10 sec. max. cycle time
1YC-38A	C	MC-1618-1	E-12		X			CT			10 sec. max. cycle time
1YC-40B	C	MC-1618-1	E-12		X			CT			10 sec. max. cycle time

SYSTEM: DIESEL GENERATOR ENGINE FUEL OIL

FLOW DIAGRAMS: MC-1609-3.0
MC-1609-3.1

System: Diesel Generator Engine Fuel Oil

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1FD-92	C	MC-1609-3.0	E-13			X		MT			
1FD-104	C	MC-1609-3.1	E-13			X		MT			

SYSTEM: DIESEL GENERATOR ROOM SUMP PUMP

FLOW DIAGRAMS: MC-1609-7.0

System: Diesel Generator Room Sump Pump

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1WN_3	C	MC-1609-7.0	L-11			X		MT			
1WN-5	C	MC-1609-7.0	K-11			X		MT			
1WN-7	C	MC-1609-7.0	J-11			X		MT			Verified shut
1WN-11	C	MC-1609-7.0	F-11			X		MT			
1WN-13	C	MC-1609-7.0	E-11			X		MT			
1WN-15	C	MC-1609-7.0	D-11			X		MT			Verified shut

SYSTEM: DIESEL GENERATOR STARTING AIR

FLOW DIAGRAMS: MC-1609-4.0

System: Diesel Generator Starting Air

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1VG-62	C	MC-1609-4.0	K-2		X			CT	X		
1VG-61	C	MC-1609-4.0	K-2		X			CT	X		
1VG-64	C	MC-1609-4.0	I-2		X			CT	X		
1VG-63	C	MC-1609-4.0	K-2		X			CT	X		
1VG-65	C	MC-1609-4.0	E-2		X			CT	X		
1VG-66	C	MC-1609-4.0	F-2		X			CT	X		
1VG-68	C	MC-1609-4.0	C-2		X			CT	X		
1VG-67	C	MC-1609-4.0	C-2		X			CT	X		

VALVE:	1VG-61, 1VG-62, 1VG-63, 1VG-64, 1VG-65, 1VG-66, 1VG-67, 1VG-68
CATEGORY:	B
CLASS:	C
FUNCTION:	Starting air solenoid control valves.
TEST REQUIREMENT:	Verify valve operability every three months.
BASIS FOR RELIEF:	This valve is automatically opened when the diesel generator engine is started. The valve will then close after the engine is started. Failure of this valve to perform its required function should be indicated by the diesel's performance when it is periodically tested (once per 31 days). Direct observation of valve movement is impossible.
ALTERNATE TESTING:	Valves will be considered to be functioning properly if the diesel's starting time is within tech. spec. limits.

SYSTEM: EQUIPMENT DECONTAMINATION

FLOW DIAGRAMS: MC-1568-1.0

System: Equipment Decontamination

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1WE-13	B	MC-1508-1.0	E-8	X				LT		RF*	Passive
1WE-23	B	MC-1568-1.0	E-9	X		X		LT		RF*	Passive

SYSTEM: FEEDWATER

FLOW DIAGRAMS: MC-1591-1.1

System: Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1CF-26	B	MC-1591-1.1	H-3		X			CT Q	X	CS	Isolation time $\leq$ 5 sec.
1CF-28	B	MC-1591-1.1	H-6		X			CT Q	X	CS	Isolation time $\leq$ 5 sec.
1CF-30	B	MC-1591-1.1	H-9		X			CT Q	X	CS	Isolation time $\leq$ 5 sec.
1CF-35	B	MC-1591-1.1	H-13		X			CT Q	X	CS	Isolation time $\leq$ 5 sec.
1CF-129	B	MC-1591-1.1	H-3		X			CT Q	X	CS	Isolation time $\leq$ 10 sec.
1CF-137	B	MC-1591-1.1	H-3		X			CT Q	X	CS	Isolation time $\leq$ 10 sec.
1CF-128	B	MC-1591-1.1	H-6		X			CT Q	X	CS	Isolation time $\leq$ 10 sec.

System: Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1CF-136	B	MC-1591-1.1	H-6		X			CT Q	X	CS	Isolation time $\leq$ 10 sec.
1CF-127	B	MC-1591-1.1	H-10		X			CT Q	X	CS	Isolation time $\leq$ 10 sec.
1CF-135	B	MC-1591-1.1	H-10		X			CT Q	X	CS	Isolation time $\leq$ 10 sec.
1CF-126	B	MC-1591-1.1	H-13		X			CT Q	X	CS	Isolation time $\leq$ 10 sec.
1CF-134	B	MC-1591-1.1	H-13		X			CT Q	X	CS	Isolation time $\leq$ 10 sec.
1CF-104	B	MC-1591-1.1	H-13		X			CT Q	X	CS	Isolation time $\leq$ 5 sec.
1CF-105	B	MC-1591-1.1	H-9		X			CT Q	X	CS	Isolation time $\leq$ 5 sec.

System: Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1CF-106	B	MC-1591-1.1	H-5		X			CT Q	X	CS	Isolation time ≤ 5 sec.
1CF-107	B	MC-1591-1.1	H-2		X			CT Q	X	CS	Isolation time ≤ 5 sec.
1CF-151	B	MC-1591-1.1	G-12		X			CT Q	X	CS	10 sec. max. operating time
1CF-153	B	MC-1591-1.1	G-11		X			CT Q	X	CS	10 sec. max. operating time
1CF-155	B	MC-1591-1.1	G-11		X			CT Q	X	CS	10 sec. max. operating time
1CF-157	B	MC-1591-1.1	G-12		X			CT Q	X	CS	10 sec. max. operating time
1CF-17	B	MC-1591-1.1	K-3		X			CT Q	X	CS	5 sec. max. operating time

System: Feedwater

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1CF-20	B	MC-1591-1.1	K-6		X			CT Q	X	CS	5 sec. max. operating time
1CF-23	B	MC-1591-1.1	K-9		X			CT Q	X	CS	5 sec. max. operating time
1CF-32	B	MC-1591-1.1	K-13		X			CT Q	X	CS	5 sec. max. operating time

VALVE:	1CF-26, 1CF-28, 1CF-30, 1CF-35
CATEGORY:	B
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Cycle and time valve once per quarter.
BASIS FOR RELIEF:	Closure would isolate the Steam Generator feedwater which could result in a severe transient in the Steam Generator which could result in a Unit trip.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

VALVE:	1CF-20, 1CF-17, 1CF-23, 1CF-32
CATEGORY:	B
CLASS:	F
FUNCTION:	Feedwater control.
TEST REQUIREMENT:	Cycle and time valve once per quarter.
BASIS FOR RELIEF:	Closure would isolate the steam generator feedwater which could result in a severe transiet in the steam generator which could result in a unit trip.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

VALVE:	1CF-129, 1CF-128, 1CF-127, 1CF-126
CATEGORY:	B
CLASS:	B
FUNCTION:	Opens to provide startup feedwater supply to the steam generators.
TEST REQUIREMENT:	Cycle and time valve once per three months.
BASIS FOR RELIEF:	Cycling valve during power operation could induce unwanted transiets in steam generators.
ALTERNATE TESTING:	Valve will be cycled and timed during cold shutdowns.

VALVE:	1CF-104, 1CF-105, 1CF-106, 1CF-107
CATEGORY:	B
CLASS:	B
FUNCTION:	Provides tempering flow to steam generators.
TEST REQUIREMENT:	Cycle and time valve quarterly.
BASIS FOR RELIEF:	Cycling this valve during operation could result in loss of S/G level control and result in a plant trip.
ALTERNATE TESTING:	Valve will be cycled and timed at cold shutdown.

SYSTEM: FIRE PROTECTION

FLOW DIAGRAMS: MC-1599-2.2

System: Fire Protection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RF-821	B	MC-1599-2.2	E-5	X				LT		RF*	Passive
1RF-823	B	MC-1599-2.2	E-7	X		X		MT Q LT	X	RF*	

VALVE:	1RF-823
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Valve will be verified shut by leak rate test performed in accordance with Appendix J.

SYSTEM: ICE CONDENSER REFRIGERATION

FLOW DIAGRAMS: MC-1558-4.0

System: Ice Condenser Refrigeration

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NF-233B	B	MC-1558-4.0	K-12	X				CT Q LT		RF*	Isolation time ≤ 15 sec.
1NF-234A	B	MC-1558-4.0	K-13	X				CT Q LT		RF*	Isolation time ≤ 15 sec.
1NF-228A	B	MC-1558-4.0	K-13	X				CT Q LT		RF*	Isolation time ≤ 15 sec.
1NF-229	B	MC-1558-4.0	F-13	X		X		MT Q LT		RF*	

VALVE:	1NF-229
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Valve will be verified closed by leak test performed in accordance with Appendix J.

SYSTEM: INSTRUMENT AIR

FLOW DIAGRAMS: MC-1605-1.2
MC-1605-1.3

System: Instrument Air

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1VI-150B	B	MC-1605-1.2	C-2	X				CT Q LT		RF*	Isolation time 15 sec.
1VI-148B	B	MC-1605-1.2	E-3	X				CT Q LT		RF*	Isolation time 15 sec.
1VI-124	B	MC-1605-1.2	B-4	X				MT Q LT	X	RF*	
1VI-149	B	MC-1605-1.2	E-5	X				MT Q LT	X	RF*	
1VI-129B	B	MC-1605-1.3	J-11	X				CT Q LT		RF*	Isolation time ≤15 sec.

System: Instrument Air

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1VI-40	B	MC-1605-1.3	J-13	X		X		MT Q LT	X	RF*	
1VI-160B	B	MC-1605-1.3	D-11	X				CT Q LT		RF*	Isolation time ≤15 sec.
1VI-161	B	MC-1605-1.3	D-13	X		X		MT Q LT	X	RF*	
1VI-362	B	MC-1605-1.3	D-4	X				LT CT Q		RF*	Isolation time ≤15 sec.

VALVE:	1VI-124, 1VI-149
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Verified closed by leak test performed in accordance with Appendix J.

VALVE:	1VI-40, 1VI-161
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Verified closed by leak test performed in accordance with Appendix J.

SYSTEM: LIQUID WASTE RECYCLE

FLOW DIAGRAMS: MC-1565-1.0
MC-1565-1.1
MC-1565-7.0

System: Liquid Waste Recycle

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1WL-64A	B	MC-1565-1.0	J-3	X				CT Q LT		RF*	Isolation time ≤15 sec.
1WL-65B	B	MC-1565-1.0	K-5	X				CT Q LT		RF*	Isolation time ≤15 sec.
1WL-264	B	MC-1565-1.0	J-2	X				LT		RF*	Passive
1WL-24	B	MC-1565-1.1	J-14	X		X		MT Q LT	X	RF*	
1WL-1B	B	MC-1565-1.1	L-11	X				CT Q LT		RF*	Isolation time ≤10 sec.
1WL-2A	B	MC-1565-1.1	K-13	X				CT Q LT		RF*	Isolation time ≤10 sec.

System: Liquid Waste Recycle

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1WL-39A	B	MC-1565-1.1	J-5	X				CT Q LT		RF*	Isolation time ≤10 sec.
1WL-41B	B	MC-1565-1.1	K-5	X				CT Q LT		RF*	Isolation time ≤10 sec.
1WL-321A	B	MC-1565-7.0	H-7	X				CT Q LT		RF*	15 sec. max. operating time
1WL-322B	B	MC-1565-7.0	I-6	X				CT Q LT		RF*	15 sec. max. operating time
1WL-385	B	MC-1565-7.0	H-7	X		X		CT Q LT	X	RF*	

VALVE:	1WL-24
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Verified closed by leak test performed in accordance with Appendix J.

VALVE:	1WL-385
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Verified closed by leak test performed in accordance with Appendix J.

SYSTEM: MAIN STREAM

FLOW DIAGRAMS: MC-1593-1.0

System: Main Steam

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1SM-1AB	B	MC-1593-1.0	K-13		X			CT	X		Isolation time ≤5 sec.
1SM-9AB	B	MC-1593-1.0	J-13		X			CT	X		Isolation time ≤5 sec.
1SM-3AB	B	MC-1593-1.0	H-13		X			CT	X		Isolation time ≤5 sec.
1SM-10AB	B	MC-1593-1.0	G-13		X			CT	X		Isolation time ≤5 sec.
1SM-5AB	B	MC-1593-1.0	F-13		X			CT	X		Isolation time ≤5 sec.
1SM-11AB	B	MC-1593-1.0	E-13		X			CT	X		Isolation time ≤5 sec.
1SM-7AB	B	MC-1593-1.0	C-13		X			CT	X		Isolation time ≤5 sec.
1SM-12AB	B	MC-1593-1.0	B-13		X			CT	X		Isolation time ≤5 sec.

VALVE:	1SM-1AB, 1SM-3AB, 1SM-5AB, 1SM-7AB, 1SM-9AB, 1SM-10AB, 1SM-11AB, 1SM-12AB
CATEGORY:	B
CLASS:	B
FUNCTION:	Main Steam Isolation Valves.
TEST REQUIREMENT:	Cycle and Time Valves Quarterly.
BASIS FOR RELIEF:	Closure of this valve during power operation would induce a severe transient in the main steam lines which would not be a safe operating practice. Testing could be accomplished through isolating the particular main steam header. This, however, would require a power reduction and steam generator isolation.
ALTERNATE TESTING:	These valves will be partially stroked at least once per 92 days in accordance with PT/1/A/4250/01A (Main Steam Isolation Valve Movement Test). These valves will be full stroked and timed at cold shutdown. 1SM-9, 1SM-10, 1SM-11, and 1SM-12 will be full stroked quarterly.

SYSTEM: MAIN STEAM SUPPLY TO AUXILIARY EQUIPMENT/TURBINE EXHAUST

FLOW DIAGRAMS: MC-1593-1.2

System: Main Steam Supply Auxiliary Equipment/Turbine Exhaust

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1SA-48AB	B	MC-1593-1.2	F-5		X			CT			50 sec. max. cycle time
1SA-49AB	B	MC-1593-1.2	F-2		X			CT			50 sec. max. cycle time

SYSTEM: MAIN STEAM VENT TO ATMOSPHERE

FLOW DIAGRAMS: MC-1593-1.0

System: Main Steam Vent to Atmosphere

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1SV-1	B	MC-1593-1.0	K-8		X			CT			20 sec. max. cycle time
1SV-2	B	MC-1593-1.0	J-9			X		SP			
1SV-3	B	MC-1593-1.0	K-9			X		SP			
1SV-4	B	MC-1593-1.0	J-10			X		SP			
1SV-5	B	MC-1593-1.0	K-10			X		SP			
1SV-6	B	MC-1593-1.0	K-11			X		SP			
1SV-7	B	MC-1593-1.0	I-8		X			CT			20 sec. max. cycle time
1SV-8	B	MC-1593-1.0	H-9			X		SP			
1SV-9	B	MC-1593-1.0	I-9			X		SP			
1SV-10	B	MC-1593-1.0	H-10			X		SP			

System: Main Steam Vent to Atmosphere

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1SV-11	B	MC-1593-1.0	I-10			X		SP			
1SV-12	B	MC-1593-1.0	I-11			X		SP			
1SV-13	B	MC-1593-1.0	G-8		X			CT			20 sec. max. cycle time
1SV-14	B	MC-1593-1.0	F-9			X		SP			
1SV-15	B	MC-1593-1.0	G-9			X		SP			
1SV-16	B	MC-1593-1.0	F-10			X		SP			
1SV-17	B	MC-1593-1.0	G-10			X		SP			
1SV-18	B	MC-1593-1.0	G-11			X		SP			
1SV-19	B	MC-1593-1.0	D-8		X			CT			20 sec. cycle time
1SV-20	B	MC-1593-1.0	C-9			X		SP			

System: Main Steam Vent to Atmosphere

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1SV-21	B	MC-1593-1.0	D-9			X		SP			
1SV-22	B	MC-1593-1.0	C-10			X		SP			
1SV-23	B	MC-1593-1.0	D-10			X		SP			
1SV-24	B	MC-1593-1.0	D-11			X		SP			

SYSTEM: MAKEUP DEMINERALIZED WATER

FLOW DIAGRAMS: MC-1601-2.4

System: Makeup Demineralized Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1YM-115B	B	MC-1601-2.4	F-11	X				CT LT		RF*	Isolation time 15 seconds
1YM-116	B	MC-1601-2.4	D-11	X		X		MT LT	X	RF*	

VALVE:	1YM-116
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Valve will be verified closed by leak test performed in accordance with Appendix J.

SYSTEM: NUCLEAR SAMPLING

FLOW DIAGRAMS: MC-1572-1.0
MC-1572-1.1
MC-1572-3.0

System: Nuclear Sampling

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NM-3A	B	MC-1572-1.0	K-3	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-6A	B	MC-1572-1.0	J-3	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-7B	B	MC-1572-1.0	K-6	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-67	B	MC-1572-1.0	K-4			X		LT		RF*	
1NM-26B	B	MC-1572-1.0	K-8	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-25A	B	MC-1572-1.0	K-12	X				CT Q LT		RF*	Isolation time ≤15 sec.

System: Nuclear Sampling

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NM-22A	B	MC-1572-1.0	J-12	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-68	B	MC-1572-1.0	K-11			X		LT		RF*	
1NM-72B	B	MC-1572-1.1	I-6	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-75B	B	MC-1572-1.1	I-8	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-78B	B	MC-1572-1.1	I-9	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-81B	B	MC-1572-1.1	I-11	X				CT Q LT		RF*	Isolation time ≤15 sec.

System: Nuclear Sampling

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NM-69	B	MC-1572-1.1	G-9	X		X		LT		RF*	Passive
1NM-82A	B	MC-1572-1.1	E-9	X				CT Q LT		RF*	Isolation time ≤15 sec.
1NM-187A	B	MC-1572-3.0	K-1		X			CT Q			Isolation time ≤15 sec.
1NM-190A	B	MC-1572-3.0	K-2		X			CT Q			Isolation time ≤15 sec.
1NM-191B	B	MC-1572-3.0	I-2		X			CT Q			Isolation time ≤15 sec.
1NM-197B	B	MC-1572-3.0	K-5		X			CT Q			Isolation time ≤15 sec.
1NM-200B	B	MC-1572-3.0	K-6		X			CT Q			Isolation time ≤15 sec.

System: Nuclear Sampling

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NM-201A	B	MC-1572-3.0	I-6		X			CT Q			Isolation time ≤15 sec.
1NM-207A	B	MC-1572-3.0	K-8		X			CT Q			Isolation time ≤15 sec.
1NM-210A	B	MC-1572-3.0	K-9		X			CT Q			Isolation time ≤15 sec.
1NM-211B	B	MC-1572-3.0	I-9		X			CT Q			Isolation time ≤15 sec.
1NM-217B	B	MC-1572-3.0	K-11		X			CT Q			Isolation time ≤15 sec.
1NM-220B	B	MC-1572-3.0	K-12		X			CT Q			Isolation time ≤15 sec.
1NM-221A	B	MC-1572-3.0	I-12		X			CT Q			Isolation time ≤15 sec.

SYSTEM: NUCLEAR SERVICE WATER

FLOW DIAGRAMS:
MC-1574-1.0
MC-1574-1.1
MC-2574-1.1
MC-1574-2.0
MC-1574-2.1
MC-1574-3.0
MC-1574-3.1
MC-1574-4.0

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RN-7A	C	MC-1574-1.0	J-9		X			CT			60 sec. max. cycle time
1RN-2B	C	MC-1574-1.0	K-10		X			CT			60 sec. max. cycle time
1RN-3A	C	MC-1574-1.0	K-10		X			CT			60 sec. max. cycle time
1RN-13A	C	MC-1574-1.0	J-11		X			CT			60 sec. max. cycle time
1RN-12A,C	C	MC-1574-1.0	I-11		X			CT			60 sec. max. cycle time
1RN-14A	C	MC-1574-1.0	I-13		X			CT			60 sec. max. cycle time
1RN-15B	C	MC-1574-1.0	F-13		X			CT			60 sec. max. cycle time
1RN-4A	C	MC-1574-1.0	F-12		X			CT			60 sec. max. cycle time
1RN-5B	C	MC-1574-1.0	E-12		X			CT			60 sec. max. cycle time
1RN-10A,C	C	MC-1574-1.0	G-11		X			CT			60 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RN-11B	C	MC-1574-1.0	F-11		X			CT			60 sec. max. cycle time
1RN-1	C	MC-1574-1.0	I-10		X			CT			60 sec. max. cycle time
1RN-301A,C	C	MC-1574-1.0	G-10		X			CT			60 sec. max. cycle time
1RN-302B	C	MC-1574-1.0	F-10		X			CT			60 sec. max. cycle time
1RN-9B	C	MC-1574-1.0	D-9		X			CT			60 sec. max. cycle time
1RN-149A	C	MC-1574-1.0	J-7		X			CT			60 sec. max. cycle time
1RN-152B	C	MC-1574-1.0	E-7		X			CT			60 sec. max. cycle time
1RN-150A	C	MC-1574-1.0	I-6		X			CT			60 sec. max. cycle time
1RN-151B	C	MC-1574-1.0	F-6		X			CT			60 sec. max. cycle time
1RN-299A	C	MC-1574-1.0	K-2		X			CT			60 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1RN-279B	C	MC-1574-1.0	K-2		X			CT			60 sec. max. cycle time
1RN-64A	C	MC-1574-1.0	I-2		X			CT	X	CS	60 sec. max. cycle time
1RN-63A	C	MC-1574-1.0	I-2		X			CT	X	CS	60 sec. max. cycle time
1RN-296A	C	MC-1574-1.0	I-1		X			CT			60 sec. max. cycle time
1RN-147A,C	C	MC-1574-1.0	H-2		X			CT			60 sec. max. cycle time
1RN-148A	C	MC-1574-1.0	H-3		X			CT			60 sec. max. cycle time
1RN-297B	C	MC-1574-1.0	G-2		X			CT			60 sec. max. cycle time
1RN-283A,C	C	MC-1574-1.0	F-2		X			CT			60 sec. max. cycle time
1RN-284B	C	MC-1574-1.0	F-2		X			CT			60 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RN-21A	C	MC-1574-1.1	J-2		X			CT	X	CS	60 sec. max. cycle time
1RN-16A	C	MC-1574-1.1	J-3		X			CT			60 sec. max. cycle time
1RN-22A	C	MC-1574-1.1	H-5		X			CT	X	CS	60 sec. max. cycle time
1RN-28	C	MC-1574-1.1	J-9			X		MT			
1RN-68	C	MC-1574-1.1	K-12		X			CT			60 sec. max. cycle time
1RN-40A	C	MC-1574-1.1	I-12		X			CT			60 sec. max. cycle time
1RN-41B	C	MC-1574-1.1	F-12		X			CT			60 sec. max. cycle time
1RN-43A	C	MC-1574-1.1	F-12		X			CT			60 sec. max. cycle time
1RN-18B	C	MC-1574-1.1	E-2		X			CT			60 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RN-26B	C	MC-1574-1.1	G-5		X			CT	X	CS	60 sec. max. cycle time
1RN-25B	C	MC-1574-1.1	C-4		X			CT	X	CS	60 sec. max. cycle time
1RN-30	C	MC-1574-1.1	E-9			X		MT			
1RN-161	C	MC-1574-1.1	B-13		X			CT			60 sec. max. cycle time
2RN-41B	C	MC-2574-1.1	F-12		X			CT			60 sec. max. cycle time
2RN-43A	C	MC-2574-1.1	F-12		X			CT			60 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RN-166	C	MC-1574-2.0	J-2		X			CT			60 sec. max. cycle time
1RN-70A	C	MC-1574-2.0	D-4		X			CT			60 sec. max. cycle time
1RN-69A	C	MC-1574-2.0	K-3		X			CT			10 sec. max. cycle time
1RN-73A	C	MC-1574-2.0	I-4		X			CT			60 sec. max. cycle time
1RN-112	C	MC-1574-2.0	J-5		X			CT			60 sec. max. cycle time
1RN-117	C	MC-1574-2.0	J-7		X			CT			60 sec. max. cycle time
1RN-86A	C	MC-1574-2.0	D-9		X			CT			60 sec. max. cycle time
1RN-89	C	MC-1574-2.0	I-9		X			CT			60 sec. max. cycle time
1RN-140A	C	MC-1574-2.0	D-3		X			CT			15 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RN-103	C	MC-1574-2.1	C-6		X			CT			10 sec. max. cycle time
1RN-81	C	MC-1574-2.1	I-3		X			CT			60 sec. max. cycle time
1RN-134A	C	MC-1574-2.1	C-7		X			CT			60 sec. max. cycle time
1RN-137A	C	MC-1574-2.1	H-7		X			CT			60 sec. max. cycle time
1RN-126A	C	MC-1574-2.1	D-9		X			CT			15 sec. max. cycle time
1RN-130A	C	MC-1574-2.1	C-10		X			CT			15 sec. max. cycle time
1RN-114A	C	MC-1574-2.1	B-11		X			CT			15 sec. max. cycle time
1RN-85	C	MC-1574-2.1	I-12		X			CT			60 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RN-170	C	MC-1574-3.0	J-2		X			CT			60 sec. max. cycle time
1RN-171B	C	MC-1574-3.0	E-4		X			CT			40 sec. max. cycle time
1RN-174B	C	MC-1574-3.0	I-4		X			CT			60 sec. max. cycle time
1RN-162B	C	MC-1574-3.0	K-4		X			CT			10 sec. max. cycle time
1RN-213	C	MC-1574-3.0	J-5		X			CT			60 sec. max. cycle time
1RN-218	C	MC-1574-3.0	J-7		X			CT			60 sec. max. cycle time
1RN-187B	C	MC-1574-3.0	D-9		X			CT			60 sec. max. cycle time
1RN-190	C	MC-1574-3.0	I-9		X			CT			60 sec. max. cycle time
1RN-240B	C	MC-1574-3.0	D-13		X			CT			15 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1RN-204B	C	MC-1574-3.1	C-5		X			CT			15 sec. max. cycle time
1RN-182	C	MC-1574-3.1	I-3		X			CT			60 sec. max. cycle time
1RN-235B	C	MC-1574-3.1	E-7		X			CT			60 sec. max. cycle time
1RN-238B	C	MC-1574-3.1	I-7		X			CT			60 sec. max. cycle time
1RN-227B	C	MC-1574-3.1	E-10		X			CT			15 sec. max. cycle time
1RN-231B	C	MC-1574-3.1	C-10		X			CT			15 sec. max. cycle time
1RN-215B	C	MC-1574-3.1	B-11		X			CT			15 sec. max. cycle time
1RN-186	C	MC-1574-3.1	I-12		X			CT			60 sec. max. cycle time

System: Nuclear Service Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1RN-252B	C	MC-1574-4.0	E-2	X				CT LT	X	CS	Isolation time ≤30 sec.
1RN-253BA	C	MC-1574-4.0	C-2	X				CT LT	X	CS	Isolation time ≤30 sec.
1RN-276A	C	MC-1574-4.0	J-2	X				CT LT	X	CS	Isolation time ≤30 sec.
1RN-277B	C	MC-1574-4.0	I-2	X				CT LT	X	CS	Isolation time ≤30 sec.
1RN-42A	C	MC-1574-4.0	B-9		X			CT	X	CS	60 sec. max. cycle time

VALVE:	1RN-63B, 1RN-64A
CATEGORY:	B
CLASS:	C
FUNCTION:	Isolates Nuclear Service Water System Non-essential Header.
TEST REQUIREMENT:	Cycle and time valve every three months.
BASIS FOR RELIEF:	Failure of this valve in the closed position during testing would inhibit cooling flow to several heat exchangers. This action could result in damage to the equipment served by these heat exchangers.
ALTERNATE TESTING:	This valve will be tested during cold shutdowns.

VALVE:	1RN-21A, 1RN-22A, 1RN-25B, 1RN-26B
CATEGORY:	B
CLASS:	C
FUNCTION:	Regulate to backflush Nuclear Service Water Strainer 1A when D/P setpoint is reached.
TEST REQUIREMENT:	Verify valve operability every three months.
BASIS FOR RELIEF:	These valves automatically regulate to provide flow for backwashing the strainer. These valves are not provided with sufficient manual controls to permit testing. Normal operation should verify valve operability.
ALTERNATE TESTING:	Valves will be timed during ESF testing at refueling.

VALVE:	1RN-252B, 1RN-253A
CATEGORY:	A
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Cycle and time every three months.
BASIS FOR RELIEF:	These valves must remain open to maintain cooling water to the Reactor Coolant Pump Motor Air Cooler. If one of these valves were to fail in the closed position during testing, the flow would be restricted. This action could result in damage to the Reactor Coolant Pump Motors.
ALTERNATE TESTING:	These valves will be tested during cold shutdowns.

VALVE:	1RN-276A, 1RN-277B
CATEGORY:	A
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Cycle and time valve every three months.
BASIS FOR RELIEF:	These valves must remain open to maintain the cooling water flow path for the Reactor Coolant Pump Motor Air Coolers. If one of these valves were to fail in the closed position during testing, the flow would be restricted. This action could result in damage to the Reactor Coolant Motors.
ALTERNATE TESTING:	These valves will be tested during cold shutdowns.

VALVE:	1RN-42A
CATEGORY:	B
CLASS:	C
FUNCTION:	Isolates Nuclear Service Water System Non-essential Header.
TEST REQUIREMENT:	Cycle and time valve every three months.
BASIS FOR RELIEF:	Failure of this valve in the closed position during testing would inhibit cooling flow charging pump. This action could result in damage to the equipment served by these heat exchangers.
ALTERNATE TESTING:	This valve will be tested during cold shutdowns.

SYSTEM: REACTOR COOLANT SYSTEM

FLOW DIAGRAMS: MC-1553-2.0
MC-1553-4.0

System: Reactor Coolant

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NC-36B	A	MC-1553-2.0	G-2		X			CT			2.0 second cycle time
1NC-34A	A	MC-1553-2.0	G-3		X			CT			2.0 second cycle time
1NC-32B	A	MC-1553-2.0	G-5		X			CT			2.0 second cycle time
1NC-1	A	MC-1553-2.0	K-3			X		SP			Set at 2485 PSIG
1NC-2	A	MC-1553-2.0	K-4			X		SP			Set at 2485 PSIG
1NC-3	A	MC-1553-2.0	K-5			X		SP			Set at 2485 PSIG
1NC-54A	B	MC-1553-2.0	H-9	X				CT LT			Isolation time $\leq$10 sec.
1NC-53B	B	MC-1553-2.0	H-10	X				CT LT			Isolation time $\leq$10 sec.
1NC-57	B	MC-1553-2.0	F-13	X		X		LT			Passive

System: Reactor Coolant

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NC-56B	B	MC-1553-2.0	D-14	X				CT LT			Isolation time <10 sec.
1NC-195B	B	MC-1553-4.0	I-8	X				LT			Passive
1NC-196A	B	MC-1553-4.0	H-8	X				LT			Passive
1NC-141	B	MC-1553-4.0	D-7	X				PC LT		RF*	
1NC-142	B	MC-1553-4.0	B-6	X				PC LT		RF*	
1NC-261	B	MC-1553-4.0	C-7	X		X		LT	X	RF*	
1NC-259	B	MC-1553-4.0	I-7	X		X		LT	X	RF*	

VALVE:	1NC-259, 1NC-261
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Thermal overpressurization relief.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASISFOR RELIEF:	Valves have no indication of closure.
ALTERNATE TESTING:	Valves will be verified shut by leak test performed in accordance with Appendix J.

SYSTEM: REFUELING WATER

FLOW DIAGRAMS: MC-1571-1.0

System: Refueling Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1FW-5	B	MC-1571-1.0	C-7	X		X		LT			Passive
1FW-4	B	MC-1571-1.0	D-8	X				LT		RF*	
1FW-11	B	MC-1571-1.0	C-2	X				LT		RF*	
1FW-13	B	MC-1571-1.0	D-2	X				LT		RF*	
1FW-49B	B	MC-1571-1.0	F-10		X			CT Q			10 sec. max. operating time
1FW-33A	B	MC-1571-1.0	F-11		X			CT Q			10 sec. max. operating time
1FW-1A	B	MC-1571-1.0	E-11		X			CT Q			10 sec. max. operating time
1FW-32B	B	MC-1571-1.0	E-11		X			CT Q			10 sec. max. operating time

System: Refueling Water

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1FW-27A	B	MC-1571-1.0	C-12		X			CT Q	X	CS	30 sec. max. cycle time
1FW-28	B	MC-1571-1.0	B-11			X		MT Q			
1FW-67	B	MC-1571-1.0	C-1	X		X		LT		RF	Passive
1FW-52	E	MC-1571-1.0	I-5			X		MT			

VALVE:	1FW-27A
CATEGORY:	B
CLASS:	B
FUNCTION:	Isolates low pressure inj. from RWST.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	Closure of this valve would render all low pressure injection inoperable.
ALTERNATE TESTING:	Valve will be cycled and timed at cold shutdown.

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM

FLOW DIAGRAMS: MC-1561-1.0

System: Residual Heat Removal

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1ND-1B	A	MC-1561-1.0	I-13	X				CT	X	CS	60 sec. max. cycle time
1ND-2A	A	MC-1561-1.0	H-13	X				CT	X	CS	60 sec. max. cycle time
1ND-4B	B	MC-1561-1.0	E-12		X			CT			60 sec. max. cycle time
1ND-19A	B	MC-1561-1.0	H-12		X			CT			60 sec. max. cycle time
1ND-23	B	MC-1561-1.0	J-8			X		MT			
1ND-8	B	MC-1561-1.0	D-8			X		MT			
1ND-18	B	MC-1561-1.0	F-7		X			CT			60 sec. max. cycle time
1ND-33	B	MC-1561-1.0	H-7		X			CT			60 sec. max. cycle time
1ND-67B	B	MC-1561-1.0	B-9		X			CT			10 sec. max. cycle time
1ND-68A	B	MC-1561-1.0	L-9		X			CT			10 sec. max. cycle time

System: Residual Heat Removal

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1ND-71	B	MC-1561-1.0	C-4			X		MT	X		
1ND-14	B	MC-1561-1.0	D-3		X			CT			60 sec. max. cycle time
1ND-70	B	MC-1561-1.0	K-3			X		MT	X		
1ND-58A	B	MC-1561-1.0	K-3		X			CT	X	CS	60 sec. max. cycle time
1ND-29	B	MC-1561-1.0	J-3		X			CT			60 sec. max. cycle time
1ND-15B	B	MC-1561-1.0	E-3		X			CT			10 sec. max. cycle time
1ND-30A	B	MC-1561-1.0	I-3		X			CT			10 sec. max. cycle time
1ND-34	B	MC-1561-1.0	G-5		X			CT			60 sec. max. cycle time

VALVE:	1ND-1B, 1ND-2A
CATEGORY:	B
CLASS:	A
FUNCTION:	Provides suction for Residual Heat Removal pumps during normal cooldown.
TEST REQUIREMENT:	Verify proper valve movement every three months.
BASIS FOR RELIEF:	These valves have been provided with an interlock which prevents their opening when the Reactor Coolant System pressure is greater than 600 psig.
ALTERNATE TESTING:	Valve will be cycled during cold shutdowns.

VALVE:	1ND-70, 1ND-71
CATEGORY:	C
CLASS:	B
FUNCTION:	RHR to SI Suction Checks.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	SI pumps cannot be run during power operation or cold shutdown.
ALTERNATE TESTING:	IND-70 will be full stroke exercised at refueling and partial stroked quarterly. IND-71 will be full stroked at refueling.

VALVE:	1ND-58
CATEGORY:	B
CLASS:	B
FUNCTION:	Provides suction to the Centrifugal Charging Pumps from the Residual Heat Removal System.
TEST REQUIREMENT:	Cycle valve every three months.
BASIS FOR RELIEF:	Due to interlocks in the Safety Injection System and the actual Residual Heat Removal System design, it is impossible to test these valves without rendering both trains of Residual Heat Removal and both trains of Safety Injection inoperable during operation.
ALTERNATE TESTING:	Cycle and time at cold shutdown.

SYSTEM: SAFETY INJECTION

FLOW DIAGRAMS:
MC-1562-1.0
MC-1562-2.0
MC-1562-2.1
MC-1562-3.0
MC-1562-3.1
MC-1562-4.0

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NI-4A	B	MC-1562-1.0	E-10		X			CT			10 sec. max. cycle time
1NI-5B	B	MC-1562-1.0	D-10		X			CT			10 sec. max. cycle time
1NI-41A	B	MC-1562-1.0	G-8		X			CT			10 sec. max. cycle time
1NI-25A	B	MC-1562-1.0	G-7		X			CT			10 sec. max. cycle time
1NI-23A	B	MC-1562-1.0	I-5		X			CT			10 sec. max. cycle time
1NI-24B	B	MC-1562-1.0	I-6		X			CT			10 sec. max. cycle time
1NI-9A	B	MC-1562-1.0	H-4		X			CT			10 sec. max. cycle time
1NI-10B	B	MC-1562-1.0	G-4		X			CT			10 sec. max. cycle time
1NI-12	B	MC-1562-1.0	G-2			X		MT	X	RF	
1NI-15	A	MC-1562-1.0	K-1			X		MT	X	RF	

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-17	A	MC-1562-1.0	I-1			X		MT	X	RF	
1NI-347	A	MC-1562-1.0	I-1			X		MT	X	RF	
1NI-19	A	MC-1562-1.0	F-1			X		MT	X	RF	
1NI-348	A	MC-1562-1.0	F-1			X		MT	X	RF	
1NI-27	A	MC-1562-1.0	D-1			X		MT	X	RF	
1NI-349	A	MC-1562-1.0	D-1			X		MT	X	RF	
1NI-354	A	MC-1562-1.0	K-1			X		MT	X	RF	
1NI-431B	B	MC-1562-2.0	J-4		X			CT	X	CS	60 sec. max. cycle time

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-70	A	MC-1562-2.0	H-13	X		X		LT MT	X	CS RF	
1NI-71	A	MC-1562-2.0	H-4	X		X		LT MT	X	CS RF	
1NI-430A	B	MC-1562-2.0	E-4		X			CT	X	CS	60 sec. max. cycle time
1NI-59	A	MC-1562-2.0	D-13	X		X		LT MT	X	CS RF	
1NI-60	A	MC-1562-2.0	D-14	X		X		LT MT	X	CS RF	
1NI-47A	B	MC-1562-2.0	K-5	X				CT LT			Isolation time ≤15 sec.
1NI-48	B	MC-1562-2.0	K-3	X		X		MT LT	X		

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-81	A	MC-1562-2.1	C-3	X		X		LT MT	X	CS RF	
1NI-82	A	MC-1562-2.1	C-3	X		X		LT MT	X	CS RF	
1NI-93	A	MC-1562-2.1	C-8	X		X		MT	X	CS	
1NI-94	A	MC-1562-2.1	C-8	X		X		MT	X	CS	
1NI-95A	B	MC-1562-2.1	F-11	X				CT LT			Isolation time $\leq$10 sec.
1NI-96B	B	MC-1562-2.1	E-14	X				CT LT			Isolation time $\leq$10 sec.
1NI-436	B	MC-1562-2.1	G-11	X		X		MT LT	X	RF	Passive

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NI-334B	B	MC-1562-3.0	L-11		X			CT			10 sec. max. cycle time
1NI-333B	B	MC-1562-3.0	L-12		X			CT			10 sec. max. cycle time
1NI-332B	B	MC-1562-3.0	L-14		X			CT			10 sec. max. cycle time
1NI-136B	B	MC-1562-3.0	C-14		X			CT			10 sec. max. cycle time
1NI-103A	B	MC-1562-3.0	I-14		X			CT			10 sec. max. cycle time
1NI-101	B	MC-1562-3.0	F-14			X		MT	X		
1NI-100B	B	MC-1562-3.0	F-13		X			CT	X	CS	10 sec. max. cycle time
1NI-135B	B	MC-1562-3.0	E-14		X			CT			10 sec. max. cycle time
1NI-114	B	MC-1562-3.0	I-9			X		MT			
1NI-115B	B	MC-1562-3.0	H-9		X			CT			10 sec. max. cycle time

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-147A	B	MC-1562-3.0	G-11		X			CT	X	CS	10 sec. max. cycle time
1NI-144B	B	MC-1562-3.0	G-9		X			CT			10 sec. max. cycle time
1NI-143	B	MC-1562-3.0	F-9			X		MT			
1NI-116	B	MC-1562-3.0	J-9			X		MT	X	RF	
1NI-148	B	MC-1562-3.0	D-9			X		MT	X	RF	
1NI-118A	B	MC-1562-3.0	H-7		X			CT			10 sec. max. cycle time
1NI-150B	B	MC-1562-3.0	E-7		X			CT			10 sec. max. cycle time
1NI-120B	B	MC-1562-3.0	J-7	X				CT LT			Isolation time ≤10 sec.
1NI-121A	B	MC-1562-3.0	J-6		X			CT			Isolation time ≤10 sec.

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NI-122B	B	MC-1562-3.0	K-4		X			CT			Isolation time ≤10 sec.
1NI-128	A	MC-1562-3.0	I-4	X		X		LT MT	X	RF	
1NI-134	A	MC-1562-3.0	H-4	X		X		LT MT	X	CS	
1NI-129	A	MC-1562-3.0	I-3	X		X		LT MT	X	CS	
1NI-124	A	MC-1562-3.0	I-3	X		X		LT MT	X	RF	
1NI-126	A	MC-1562-3.0	J-2	X		X		LT MT	X	CS	
1NI-183B	B	MC-1562-3.0	G-3		X			CT			20 sec. max. cycle time
1NI-152B	B	MC-1562-3.0	D-6		X			CT			10 sec. max. cycle time

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-159	A	MC-1562-3.0	B-4	X		X		CT LT	X	RF	
1NI-166	A	MC-1562-3.0	B-3	X		X		MT LT	X	RF	
1NI-156	A	MC-1562-3.0	D-3	X		X		LT MT	X	RF	
1NI-157	A	MC-1562-3.0	D-2	X		X		LT MT	X	RF	
1NI-125	A	MC-1562-3.0	I-3	X		X		LT MT	X	CS	
1NI-153	B	MC-1562-3.0	E-4		X			CT			30 sec. max. cycle time

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-162A	B	MC-1562-3.1	K-11		X			CT	X	CS	10 sec. max. cycle time
1NI-171	A	MC-1562-3.1	J-7	X		X		MT	X	RF	
1NI-169	A	MC-1562-3.1	J-6	X		X		MT	X	RF	
1NI-167	A	MC-1562-3.1	J-5	X		X		MT	X	RF	
1NI-165	A	MC-1562-3.1	J-3	X		X		MT	X	RF	
1NI-173A	B	MC-1562-3.1	I-12		X			CT			10 sec. max. cycle time
1NI-175	A	MC-1562-3.1	I-8	X		X		MT	X	CS	
1NI-166	A	MC-1562-3.1	H-8	X		X		MT	X	CS	
1NI-178B	B	MC-1562-3.1	F-12		X			CT			10 sec. max. cycle time
1NI-180	A	MC-1562-3.1	F-5	X		X		MT	X	CS	

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-181	A	MC-1562-3.1	F-5	X		X		MT	X	CS	
1NI-184B	B	MC-1562-3.1	D-12		X			CT	X	RF	60 sec. max. cycle time
1NI-185B	B	MC-1562-3.1	B-12		X			CT	X	RF	60 sec. max. cycle time
1NI-358A	B	MC-1562-4.0	C-12		X			CT			10 sec. max. cycle time
1NI-244B	B	MC-1562-4.0	F-18		X			CT			3 sec. max. cycle time
1NI-242B	B	MC-1562-4.0	E-8		X			CT			3 sec. max. cycle time
1NI-245A	B	MC-1562-4.0	F-7		X			CT			3 sec. max. cycle time

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-243A	B	MC-1562-4.0	E-7		X			CT			3 sec. max. cycle time
1NI-258	B	MC-1562-4.0	F-5		X			CT			10 sec. max. cycle time
1NI-255B	B	MC-1562-4.0	F-5		X			CT			10 sec. max. cycle time
1NI-248	A	MC-1562-4.0	E-5	X		X		LT	X		
1NI-249	A	MC-1562-4.0	E-3	X		X		LT	X		
1NI-266A	A	MC-1562-4.0	E-3	X				CT LT			Isolation time $\leq$10 sec.
1NI-267A	A	MC-1562-4.0	E-4	X				CT LT			Isolation time $\leq$10 sec.
1NI-336	B	MC-1562-4.0	G-2			X		LT			
1NI-264	B	MC-1562-4.0	G-3	X				CT LT			Isolation time $\leq$10 sec.

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NI-253	A	MC-1562-4.0	C-6	X		X		LT MT	X	RF	
1NI-252	A	MC-1562-4.0	C-4	X		X		LT MT	X	RF	
1NI-251	A	MC-1562-4.0	C-3	X		X		LT MT	X	RF	
1NI-250	A	MC-1562-4.0	C-2	X		X		LT MT	X	RF	
UHI Rupture Disc	B	MC-1562-4.0	I-8				X		X		Tested per tech. spec.

VALVE:	1NI-15, 1NI-354, 1NI-17, 1NI-347, 1NI-19, 1NI-348, 1NI-21, 1NI-349
CATEGORY:	C
CLASS:	A
FUNCTION:	Opens on flow from BIT.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	Full or partial stroke during power operation would result in thermal shock to injection nozzles. Valve cannot be stroked during shutdown due to possible low temperature overpressurization.
ALTERNATE TESTING:	Valve will be full stroked at refueling.

VALVE:	1NI-12
CATEGORY:	C
CLASS:	B
FUNCTION:	Opens on flow from BIT.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	Full or partial stroke during power operation would result in thermal shock to injection nozzles. Valve cannot be stroked during shutdown due to possible low temperature overpressurization.
ALTERNATE TESTING:	Valve will be full stroked at refueling.

VALVE:	1NI-430A, 1NI-431B
CATEGORY:	B
CLASS:	B
FUNCTION:	Supplies air to low pressure PORV's during blackout.
TEST REQUIREMENT:	Cycle time quarterly.
BASIS FOR RELIEF:	Valves are interlocked closed when RCS temperature is above 300 °F.
ALTERNATE TESTING:	Valves will be cycle timed at cold shutdown.

VALVE:	1NI-48
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	Valve has no indication of closure.
ALTERNATE TESTING:	Valve will be verified shut by leak test performed in accordance with Appendix J.

VALVE:	1NI-71, 1NI-70, 1NI-59, 1NI-60
CATEGORY:	A, C
CLASS:	A
FUNCTION:	Opens on flow from the NI System to the Reactor Coolant System.
TEST REQUIREMENT:	Verify valve opens when Reactor Coolant System pressure decreases below Safety Injection System pressure.
BASIS FOR RELIEF:	This valve cannot be opened until the Reactor Coolant System pressure is below 1520 psig (NI pump discharge pressure).
ALTERNATE TESTING:	Valves will be partial stroked during cold shutdowns, but not more often than once per nine months. Valves will be full stroked at refueling.

VALVE:	1NI-436
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provides containment isolation.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	Valve has no indication of closure.
ALTERNATE TESTING:	Valve will be verified shut by leak test performed in accordance with Appendix J.

VALVE:	1NI-82, 1NI-81, 1NI-93, 1NI-94
CATEGORY:	A, C
CLASS:	A
FUNCTION:	Opens on flow from the NI System to the Reactor Coolant System.
TEST REQUIREMENT:	Verify valve opens when Reator Coolant System pressure decreases below Safety Injection System pressure.
BASIS FOR RELIEF:	This valve cannot be opened until the Reactor Coolant System pressure is below 1520 psig (NT pump discharge pressure).
ALTERNATE TESTING:	Valve will be partial stroked during cold shutdowns, but no more often than once per nine months. Valves will be full stroked at refueling.

VALVE:	1NI-101
CATEGORY:	C
CLASS:	B
FUNCTION:	Opens on flow from RWST to SI.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	SI pumps cannot be operated during operation or cold shutdown.
ALTERNATE TESTING:	Valve will be partial stroked quarterly and full stroked at refueling.

VALVE:	1NI-100B, FWST to Safety Injection Pumps
CATEGORY:	B
CLASS:	B
FUNCTION:	Isolates Safety Injection Pump Suction from FWST.
TEST REQUIREMENT:	Cycle and time Valve Quarterly.
BASIS FOR RELIEF:	Failure of valve in closed position would isolate suction from FWST to both safety injection pumps.
ALTERNATE TESTING:	Valve will be cycled and timed at cold shutdown.

VALVE:	1NI-147A Safety Injection Pumps Miniflow Header to FW
CATEGORY:	B
CLASS:	B
FUNCTION:	Isolation vlave for safety injection miniflow to FWST.
TEST REQUIREMENT:	Cycle and time valve quarterly.
BASIS FOR RELIEF:	If valve fails in closed position, the recirculation flow patn for the safety injection pumps is isolated. If a safety injection signal occurs with NC system pressure above shutoff head for the pumps, the pumps would not have a flow path.
ALTERNATE TESTING:	Valve will be cycled and timed at cold shutdown.

VALVE:	1NI-116, 1NI-148
CATEGORY:	C
CLASS:	B
FUNCTION:	Opens on flow from the NI Pump(s).
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any means for cycling open this valve during operation.
ALTERNATE TESTING:	Valve will be cycled open during refueling.

VALVE:	1NI-128, 1NI-159, 1NI-160, 1NI-156, 1NI-124, 1NI-157
CATEGORY:	C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any means for cycling open this valve during operation.
ALTERNATE TESTING:	Valve will be cycled open during refueling.

VALVE:	1NI-129, 1NI-125, 1NI-134, 1NI-126
CATEGORY:	C
CLASS:	A
FUNCTION:	Opens on flow from the NI to NC System.
TEST REQUIREMENT:	Verify valve opens on flow from safety injection pumps once per three months.
BASIS FOR RELIEF:	The discharge pressure of the safety injection pumps (1520 psig) is not sufficient for opening the valve to the Reactor Coolant System (2235 psig) during power operation.
ALTERNATE TESTING:	Valve will be tested for proper movement during cold shutdowns, but not more often than once per nine months.

VALVE:	1NI-162A Safety Injection Pumps Cold Leg Inj. Header
CATEGORY:	B
CLASS:	B
FUNCTION:	Provides isolation of Safety Injection Pumps from cold legs during hot leg recirculation.
TEST REQUIREMENT:	Cycle and time valve quarterly.
BASIS FOR RELIEF:	Failure of valve in closed position would completely isolate both trains of safety injection during the initial injection phase.
ALTERNATE TESTING:	Valve will be cycled and timed at cold shutdown.

VALVE:	1NI-165, 1NI-167, 1NI-169, 1NI-171
CATEGORY:	A, C
CLASS:	A
FUNCTION:	SI discharge check valves.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	Valves cannot be cycled during power operation or cold shutdown because SI Pumps cannot be run.
ALTERNATE TESTING:	Full stroke exercise at refueling.

VALVE:	1NI-180, 1NI-181
CATEGORY:	A, C
CLASS:	A
FUNCTION:	Opens on flow from the ND or NI to NC System.
TEST REQUIREMENT:	Verify valve opens on flow from NI or ND System to the NC System once per three months.
BASIS FOR RELIEF:	The discharge pressure of the NI and ND Pumps is not sufficient for opening the valve to the Reactor Coolant System during power operation.
ALTERNATE TESTING:	Valve will be tested for proper movement during cold shutdowns, but not more often than once per nine months.

VALVE:	1NI-184, 1NI-185
CATEGORY:	B
CLASS:	B
FUNCTION:	Isolate the containment sump (1NI-184 isolates train B, 1NI-185 isolates train A). These valves also provide an alternate source for suction to the Residual Heat Removal Pumps.
BASIS FOR RELIEF:	Due to interlocks in the Safety Injection System and the actual Residual Heat Removal design, it is impossible to test these valves without rendering both trains of Residual Heat Removal and both trains of Safety Injection inoperable.
ALTERNATE TESTING:	Full stroke exercise during refueling.

VALVE:	1NI-248, 1NI-249, 1NI-250, 1NI-251, 1NI-252, 1NI-253
CATEGORY:	A, C
CLASS:	A
FUNCTION:	Open when Reactor Coolant System pressure decreases below 1500 psig during accident conditions.
TEST REQUIREMENT:	Verify valves open on flow from upper head injection accumulator.
BASIS FOR RELIEF:	The pressure in the UHI accumulator (1500 psig) is not sufficient to open the valves into the Reactor Coolant System (2235 psig).
ALTERNATE TESTING:	Valves will be full stroked at refueling.

SYSTEM: STATION AIR

FLOW DIAGRAMS: MC-1605-2.2

System: Station Air

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1VS-12B	B	MC-1605-2.2	K-5	X				CT LT		RF*	Isolation time ≤15 sec.
1VS-13	B	MC-1605-2.2	I-5	X		X		MT LT	X	RF*	

VALVE:	1VS-13
CATEGORY:	A, C
CLASS:	B
FUNCTION:	Provide containment isolation.
TEST REQUIREMENT:	Verify proper valve movement once per three months.
BASIS FOR RELIEF:	The system design does not provide any indication for verifying valve closure upon flow reversal.
ALTERNATE TESTING:	Valve will be verified shut by leak test performed in accordance with Appendix J.

SYSTEM: STREAM GENERATOR BLOWDOWN RECYCLE

FLOW DIAGRAMS: MC-1580-1.0

System: Steam Generator Blowdown Recycle

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
BB-1B	B	MC-1580-1.0	H-2		X			CT Q			Isolation time ≤10 sec.
BB-5A	B	MC-1580-1.0	F-2		X			CT Q			Isolation time ≤10 sec.
BB-2B	B	MC-1580-1.0	H-4		X			CT Q			Isolation time ≤10 sec.
BB-6A	B	MC-1580-1.0	F-4		X			CT Q			Isolation time ≤10 sec.
BB-3B	B	MC-1580-1.0	H-10		X			CT Q			Isolation time ≤10 sec.
BB-7A	B	MC-1580-1.0	F-10		X			CT Q			Isolation time ≤10 sec.
BB-4B	B	MC-1580-1.0	H-12		X			CT Q			Isolation time ≤10 sec.

System: Steam Generator Blowdown Recycle

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
BB-8A	B	MC-1580-1.0	F-12		X			CT Q			Isolation time ≤10 sec.
BB-140	B	MC-1580-1.0	D-2		X			CT Q			Isolation time ≤10 sec.
BB-141	B	MC-1580-1.0	D-4		X			CT Q			Isolation time ≤10 sec.
BB-142	B	MC-1580-1.0	D-13		X			CT Q			Isolation time ≤10 sec.
BB-143	B	MC-1580-1.0	D-10		X			CT Q			Isolation time ≤10 sec.