DUKE POWER COMPANY

McGUIRE NUCLEAR STATION

PUMP AND VALVE INSERVICE TESTING

UNIT 1

REVISION #10

DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION
PUMP INSERVICE TESTING PROGRAM
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.

NOTE: The initials and date of the person or persons responsible for conducting and analyzing the test may be used in place of a signature in the record of tests. Initials shall be construed as signatures to meet the intent of IWP-6240 (f).

I. The following are specific requests for relief from certain code requirements.

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. The centrifugal charging pumps are tested using fixed resistance flow paths, with no flow indication provided. The Safety Injection Pumps are in a fixed resistance system that does have a flow gauge available, but unnecessary radiation exposure and manpower is required to measure the flow. Based on the design change exclusion provided by 10CFR50.55a(g)(4), we will continue to apply the criterion that it is not required to measure flow in a fixed resistance system. The Residual Heat Removal Pumps are in a fixed resistance system that does have a flow gauge available. There is no way to adjust flow in the system and the gauge is not sufficiently accurate at low flows to provide a precise indication of flow. For these pumps, a flow will be recorded but will not be used for comparison to any reference values.

D) **Table IWP-4110-1 states that vibration measurement should have an accuracy of ± 5%. McGuire has no permanently installed vibration instrumentation. The portable instruments used to measure vibration have an uncertainty of ± 11%.**

E) IWP-3100, Table IWP-3100-1 and IWP-3300 requires the measurement of bearing temperature annually. It has been demonstrated by experience that a bearing temperature rise occurs only minutes prior to bearing failure. Therefore, the detection of possible bearing failure by a yearly temperature measurement is unlikely. Obtaining these measurements requires a minimum of one-half hour of pump operation to achieve stable bearing temperatures. The small probability of detecting bearing failure by temperature measurement does not justify the additional pump operating time required to obtain the measurement. Consequently, McGuire does not require annual bearing temperature measurements per the ASME Section XI code.

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. 4

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.

SAFETY RELATED CLASS 1, 2 AND 3 PUMPS PROVIDED WITH AN EMERGENCY POWER SOURCE

	PUMPS	Safety Class	Test Frequency	Speed, N	Inlet Pres., P_i	Diff. Pres., ΔP	Flow Rate, Q	Vib. Amplitude, V	Lubricant Level	Bearing Temp, T_b	Discharge Pres., P_d	Duke Flow Diagram
10	Nuclear Service Water Pumps (1A, 1B) (RN)	3	QU	NR	X	X	X	X(1)	X	RR	X	MC-1574-1.1
10	Containment Spray Pumps (1A, 1B) (NS)	2	QU	NR	X	X	X	X(1)	X(3)	RR	X	MC-1563-1.1
10	Residual Heat Removal Pumps (1A, 1B) (ND)	2	QU	NR	X	X	X	X(1)	X(3)	RR	X	MC-1561-1.0
10	Safety Injection Pumps (1A, 1B) (NI)	2	QU	NR	X	X	NR	X(1)	X	RR	X	MC-1562-3.0
10	M/D Aux. Feedwater Pumps (1A, 1B) (CA)	3	MO	NR	X	X	X	X(1)	X	RR	X	MC-1592-1.1
10	T/D Aux. Feedwater Pump (No. 1) (CA)	3	MO	X	X	X	X	X(1)	X	RR	X	MC-1592-1.1
10	Cent. Charging Pumps (1A, 1B) (NV)	2	QU	NR	X	X	NR	X(1)	X	RR	X	MC-1554-3.1
10	Component Cooling Pumps (1A1, 1A2, 1B1, 1B2) (KC)	3	QU	NR	X	X	X	X(1)	X	RR	X	MC-1573-1.0
10	Control Area Chilled Water Pumps (CRA-P-1,2) (YC)	3	QU	NR	X	X	X	X(1)	X	RR	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
5	Standby Makeup Pump (1) (NV)	NS	QU	NR	-	-	X	X(1)	-	-	-	MC-1554-1.3

NOTES

4 1. Vibration to be measured with portable instrumentation (Accuracy ± 11%).

10 2. Deleted

3. Pump is close coupled, therefore motor lubricant level will be observed.

10 4. Deleted

LEGEND

X - Instrumentation

- - Instrumentation not available

10 NS - Non Safety Related

MO - Monthly

NR - Not required for IWP Compliance

RR - Exempted by Relief Request

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.

10 NOTE: The initials and date of the person responsible for the action may be used in place of a signature in the record of tests. Initials shall be construed as signatures to meet the intent of IWV-6230.

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 a cold shutdown (Mode 5) whose planned length is of sufficient duration to establish necessary test conditions and to perform the test. In the case of frequent shutdowns, the testing will not be performed more than once per three (3) months. Testing will commence as soon as the cold shutdown condition is achieved but not later than 48 hours after shutdown, and continue until complete or the plant is ready to return to power. Completion of all valve testing is not a prerequisite to return to power. Any testing not completed at one cold shutdown will be performed during any subsequent cold shutdowns that may occur before refueling to meet the code-specified testing frequency. Any valve specified to be tested during/at (CS) may be tested during Refueling Outage (RF) conditions.
Cold Shutdown (CS*)	Same as (CS) except testing may be performed prior to and/or after Cold Shutdown (Mode 5) as specified in alternate testing.
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. Testing may be done while in No Mode as well as Mode 6.
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.

Refueling Outage (RF#)	Valve will normally be tested on a rotating basis via a sample valve diassembly program (1 valve from a group of identical valves under similar system conditions). Failure of one valve of the group during a refueling outage will result in all remaining valves of the group being tested during that outage.
Setpoint (SP)	Valve will be tested to verify that it will relieve pressure at its specified setpoint.

GENERAL RELIEF

I. 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. Maintenance will be initiated if valve time exceeds max. limit.

(General Relief II deleted)

III. TEST REQUIREMENT: Leak rate test Category A valves in accordance with IWV-3420.

BASIS FOR RELIEF: McGuire Tech Specs require leak rate testing in accordance with 10CFR50 Appendix J. The Tech Specs establish the required acceptance criteria, which is more restrictive than that required by IWV. In order to eliminate redundant paperwork, all valve leak rate testing will be conducted as per Appendix J.

TESTING ALTERNATIVE: Category A valves will be leak tested in accordance with 10CFR50 Appendix J.

SYSTEM: ANNULUS VENTILATION

FLOW DIAGRAMS: MC-1564-1

System: Annulus Ventilation

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1VE-10A	B	MC-1564-1	H-3	X				LT CT			Passive 15 sec. max. stroke time
4	1VE-11	B	MC-1564-1	H-3	X		X		LT			Passive
10	1VE-5A	B	MC-1564-1	G-4		X			CT Q			15 sec. max. stroke time
10	1VE-6B	B	MC-1564-1	G-4		X			CT Q			15 sec. max. stroke time
10	1VE-8A	B	MC-1564-1	J-2		X			CT Q			20 sec. max. stroke time

SYSTEM: AUXILIARY FEEDWATER

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

System: Auxiliary Feedwater

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
9	1CA-60 A	C	MC-1592-1.0	G-1		X			CT	X		60 sec. max. cycle time
10	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
10	1CA-66A,C	B	MC-1592-1.0	J-1		X			CT			12 sec. max. operating time
10	1CA-65	B	MC-1592-1.0	K-1			X		MT	X	CS*	
9	1CA-64 A,B	C	MC-1592-1.0	L-4		X			CT	X		60 sec. max. cycle time
9	1CA-56 A	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			12 sec. max. operating time
10	1CA-57	B	MC-1592-1.0	C-6			X		MT	X	CS*	
10	1CA-54A,C	B	MC-1592-1.0	G-7		X			CT			12 sec. max. operating time

System: Auxiliary Feedwater

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1CA-53	B	MC-1592-1.0	H-7			X		MT	X	CS*	
9	1CA-52A,B	C	MC-1592-1.0	K-7		X			CT	X		60 sec. max. cycle time
9	1CA-44B	C	MC-1592-1.0	C-11		X			CT	X		60 sec. max. cycle time
10	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
10	1CA-50B	B	MC-1592-1.0	G-8		X			CT			12 sec. max. cycle time
10	1CA-49	B	MC-1592-1.0	H-8			X		MT	X	CS*	
9	1CA-48A,B	C	MC-1592-1.0	K-8		X			CT	X		60 sec. max. cycle time
9	1CA-40B	C	MC-1592-1.0	G-14		X			CT	X		60 sec. max. cycle time
10	1CA-41	B	MC-1592-1.0	H-14			X		MT	X	CS*	

System: Auxiliary Feedwater

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1CA-42B	B	MC-1592-1.0	I-14		X			CT			10 sec. max. cycle time
10	1CA-38B	B	MC-1592-1.0	J-14		X			CT			12 sec. max. cycle time
10	1CA-37	B	MC-1592-1.0	K-14			X		MT	X	CS*	
9	1CA-36 A,B	C	MC-1592-1.0	L-10		X			CT	X		60 sec. max. cycle time
10	1CA-18B	C	MC-1592-1.1	D-4		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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1CA-7A,C	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
10	1CA-86A	C	MC-1592-1.1	C-14		X			CT			10 sec. max. cycle time
10	1CA-116B	C	MC-1592-1.1	E-14		X			CT			10 sec. max. cycle time
	1CA-26	C	MC-1592-1.1	I-4			X		MT			
10	1CA-27A	C	MC-1592-1.1	J-5		X			CT	X		60 sec. max. cycle time
10	1CA-32B	C	MC-1592-1.1	J-8		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			
10	1CA-20A,B	C	MC-1592-1.1	I-10		X			CT	X		60 sec. max. cycle time

System: Auxiliary Feedwater

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

SYSTEM: Boron Recycle

FLOW DIAGRAMS: MC-1556-3.0

System: Boron Recycle

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1NB-260B	B	MC-1556-3.0	G-5	X				CT LT		RF	Isolation time ≤15 sec.
	1NB-262	B	MC-1556-3.0	G-3	X		X		MT LT	X	RF	

System: Chemical and Volume Control

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NV-24B	A	MC-1554-1.2	D-6		X			CT			60 sec. max. cycle time
1NV-25B	A	MC-1554-1.2	D-7		X			CT			60 sec. max. cycle time
1NV-1013C	E	MC-1554-1.3	F-12		X			CT			30 sec. max. cycle time
1NV-1012C	E	MC-1554-1.3	F-12		X			CT			30 sec. max. cycle time
1NV-844	E	MC-1554-1.3	F-5			X		MT			
1NV-1007	B	MC-1554-1.3	F-13			X		MT	X	CS	
1NV-1008	B	MC-1554-1.3	F-13			X		MT	X	CS	
1NV-1009	B	MC-1554-1.3	F-14			X		MT	X	CS	
1NV-1010	B	MC-1554-1.3	F-14			X		MT	X	CS	

System: Chemical and Volume Control

Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
1NV-842A,C	B	MC-1554-1.3	F-2		X			CT			15 sec. max. cycle time
1NV-849A,C	B	MC-1554-1.3	F-8	X				LT CT			15 sec. max. cycle time
1NV-1002	B	MC-1554-1.3	F-10	X		X		LT MT	X	RF	
1NV-141A	B	MC-1554-2.0	B-8		X			CT	X	CS	10 sec. max. cycle time
1NV-142B	B	MC-1554-2.0	B-7		X			CT	X	CS	10 sec. max. cycle time
10 1NV-150B	B	MC-1554-2.0	F-2		X			CT			10 sec. max. stroke time
10 1NV-151A	B	MC-1554-2.0	G-2		X			CT			10 sec. max. stroke time
1NV-244A	B	MC-1554-3.0	K-8		X			CT	X	CS	10 sec. max. operating time
1NV-245B	B	MC-1554-3.0	K-9		X			CT	X	CS	10 sec. max. operating time

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

VALVE:	1NV-1A, 1NV-2A
CATEGORY:	B
CLASS:	A
FUNCTION:	Isolate regenerative heat exchanger
TEST REQUIREMENT:	Cycle and time every three months
BASIS FOR RELIEF:	Failure of this valve in closed position could result in loss of pressurizer level control
ALTERNATE TESTING:	Valve will be cycled and timed at cold shutdown

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 A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
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
10 1KC-81B	C	MC-1573-1.1	E-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: Component Cooling

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
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
10 1KC-54B	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-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: 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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
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 ≤5 sec.
1VX-33B	B	MC-1557-1.0	J-12	X				CT Q LT			Isolation time ≤5 sec.
10 1VX-1A	B	MC-1557-1.0	I-3		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

SYSTEM: CONTAINMENT PURGE VENTILATION

FLOW DIAGRAMS: MC-1576-1.0

System: Containment Purge Ventilation

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1VP-1B	B	MC-1576-1.0	I-6	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-2A	B	MC-1576-1.0	I-7	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-3B	B	MC-1576-1.0	K-6	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-4A	B	MC-1576-1.0	K-7	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-6B	B	MC-1576-1.0	E-6	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-7A	B	MC-1576-1.0	E-7	X				CT Q LT	X	RF*	Isolation time ≤3 sec.

System: Containment Purge Ventilation

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1VP-8B	B	MC-1576-1.0	D-6	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-9A	B	MC-1576-1.0	D-7	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-10A	B	MC-1576-1.0	J-8	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-11B	B	MC-1576-1.0	J-9	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-12A	B	MC-1576-1.0	I-8	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-13B	B	MC-1576-1.0	I-9	X				CT Q LT	X	RF*	Isolation time ≤3 sec.

System: Containment Purge Ventilation

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1VP-15A	B	MC-1576-1.0	F-8	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-16B	B	MC-1576-1.0	F-9	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-17A	B	MC-1576-1.0	B-7	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-18B	B	MC-1576-1.0	B-6	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-19A	B	MC-1576-1.0	B-8	X				CT Q LT	X	RF*	Isolation time ≤3 sec.
10	1VP-20B	B	MC-1576-1.0	B-9	X				CT Q LT	X	RF*	Isolation time ≤3 sec.

SYSTEM: DIESEL GENERATOR STARTING AIR

FLOW DIAGRAMS: MC-1609-4.0

System: Diesel Generator Starting Air

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
	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		
10	1VG-63	C	MC-1609-4.0	H-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		
10	1VG-115	C	MC-1609-4.0	K-9			X		MT			
10	1VG-116	C	MC-1609-4.0	H-9			X		MT			
10	1VG-117	C	MC-1609-4.0	F-9			X		MT			
10	1VG-118	C	MC-1609-4.0	C-9			X		MT			

SYSTEM: EQUIPMENT DECONTAMINATION

FLOW DIAGRAMS: MC-1568-1.0

System: Equipment Decontamination

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
4	1WE-13	B	MC-1568-1.0	E-8	X				LT		RF*	Passive
10	1WE-23	B	MC-1568-1.0	E-10	X				LT		RF*	Passive

SYSTEM: FEEDWATER

FLOW DIAGRAMS: MC-1591-1.1

System: Feedwater

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1CF-26 A,B	B	MC-1591-1.1	H-3		X			CT Q	X	CS	Isolation time ≤ 5 sec.
10	1CF-28 A,B	B	MC-1591-1.1	H-6		X			CT Q	X	CS	Isolation time ≤ 5 sec.
10	1CF-30 A,B	B	MC-1591-1.1	H-9		X			CT Q	X	CS	Isolation time ≤ 5 sec.
10	1CF-35 A,B	B	MC-1591-1.1	H-13		X			CT Q	X	CS	Isolation time ≤ 5 sec.
10	1CF-129 B	B	MC-1591-1.1	H-3		X			CT Q	X	CS	Isolation time ≤ 10 sec.
10	1CF-137A	B	MC-1591-1.1	G-3		X			CT Q			Isolation time ≤ 10 sec.
10	1CF-128 B	B	MC-1591-1.1	H-7		X			CT Q	X	CS	Isolation time ≤ 10 sec.

System: Feedwater

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1CF-136A	B	MC-1591-1.1	G-7		X			CT Q			Isolation time ≤ 10 sec.
10	1CF-127B	B	MC-1591-1.1	H-10		X			CT Q	X	CS	Isolation time ≤ 10 sec.
10	1CF-135A	B	MC-1591-1.1	G-10		X			CT Q			Isolation time ≤ 10 sec.
10	1CF-126B	B	MC-1591-1.1	H-14		X			CT Q	X	CS	Isolation time ≤ 10 sec.
10	1CF-134A	B	MC-1591-1.1	G-13		X			CT Q			Isolation time ≤ 10 sec.
10	1CF-104A,B	B	MC-1591-1.1	K-12		X			CT Q	X	CS	Isolation time ≤ 5 sec.
10	1CF-105A,B	B	MC-1591-1.1	K-9		X			CT Q	X	CS	Isolation time ≤ 5 sec.

System: Feedwater

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1CF-106A,B	B	MC-1591-1.1	K-5		X			CT Q	X	CS	Isolation time ≤ 5 sec.
10	1CF-107A,B	B	MC-1591-1.1	K-2		X			CT Q	X	CS	Isolation time ≤ 5 sec.
9	1CF-151B	B	MC-1591-1.1	G-12		X			CT Q			10 sec. max. operating time
9	1CF-153B	B	MC-1591-1.1	F-8		X			CT Q			10 sec. max. operating time
10	1CF-155B	B	MC-1591-1.1	F-7		X			CT Q			10 sec. max. operating time
9	1CF-157B	B	MC-1591-1.1	G-12		X			CT Q			10 sec. max. operating time
10	1CF-17 A,B	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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1CF-20A,B	B	MC-1591-1.1	K-6		X			CT Q	X	CS	5 sec. max. operating time
10	1CF-23 A,B	B	MC-1591-1.1	K-9		X			CT Q	X	CS	5 sec. max. operating time
10	1CF-32A,B	B	MC-1591-1.1	K-13		X			CT Q	X	CS	5 sec. max. operating time
10	1CF-152	B	MC-1591-1.1	F-12			X		MT	X	CS	
10	1CF-154	B	MC-1591-1.1	E-8			X		MT	X	CS	
10	1CF-156	B	MC-1591-1.1	E-7			X		MT	X	CS	
10	1CF-158	B	MC-1591-1.1	F-12			X		MT	X	CS	

10 | VALVE: 1CF-26A,B; 1CF-28A,B; 1CF-30A,B; 1CF-35A,B |

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.

10 | VALVE: 1CF-20A,B; 1CF-17A,B; 1CF-23A,B: 1CF-32A,B |

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.

10 | VALVE: 1CF-129B; 1CF-128B; 1CF-127B; 1CF-126B

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 transients in steam generators. This would result in an increase in flow to the main feedwater nozzles causing vibrations in the preheater section of the steam generators.

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ALTERNATE TESTING: Valve will be cycled and timed during cold shutdowns.

10	VALVE:	1CF-104A,B; 1CF-105A,B; 1CF-106A,B; 1CF-107A,B
	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.

VALVE:	1CF-152, 1CF-154, 1CF-156, 1CF-158
CATEGORY:	C
CLASS:	B
FUNCTION:	Provides tempering flow to the steam generator auxiliary feedwater nozzles.
TEST REQUIREMENT:	Exercise valve to prove valve closes to prevent reversal of flow quarterly.
BASIS FOR RELIEF:	During normal operation, there is constant flow through these check valves to keep the auxiliary feedwater nozzles tempered. Testing these check valves would require supplying the steam generators with cold auxiliary feedwater and thus thermally shocking the nozzles.
ALTERNATE TESTING:	During cold shutdown, each valve will be exercised to each valve closes to prevent gross diversion of flow.

SYSTEM: FIRE PROTECTION

FLOW DIAGRAMS: MC-1599-2.2

System: Fire Protection

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1RF-821 A	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*	

SYSTEM: ICE CONDENSER REFRIGERATION

FLOW DIAGRAMS: MC-1558-4.0

System: Ice Condenser Refrigeration

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
	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.
10	1NF-228A	B	MC-1558-4.0	H-13	X				CT Q LT		RF*	Isolation time ≤ 15 sec.
4	1NF-229	B	MC-1558-4.0	F-13	X		X		MT Q LT	X	RF*	

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	B	C	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.
4	1VI-124	B	MC-1605-1.2	B-4	X		X		MT Q LT	X	RF*	
4	1VI-149	B	MC-1605-1.2	E-5	X		X		MT Q LT	X	RF*	
10	1VI-362A	B	MC-1605-1.2	D-4	X				LT CT Q		RF*	Isolation time $\leq$ 15 sec.
	1VI-129B	B	MC-1605-1.3	J-11	X				CT Q LT		RF*	Isolation time $\leq$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*	

10

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.

SYSTEM: LIQUID WASTE RECYCLE

10 | FLOW DIAGRAMS: MC-1562-4.0
MC-1565-1.0
MC-1565-1.1
MC-1565-7.0

System: Liquid Waste 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
1WL-1301B	B	MC-1562-4.0	G-3	X				LT CT			Isolation time ≤ 10 sec.
1WL-1302A	A	MC-1562-4.0	E-4	X				LT CT			Isolation time ≤ 10 sec.

System: Liquid Waste Recycle

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
	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.
10	1WL-264	B	MC-1565-1.0	J-2	X		X		LT		RF*	Passive
10	1WL-466	F	MC-1565-1.0	G-13			X		MT Q	X	RF	
	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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
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		MT Q LT	X	RF*	

VALVE:	1WL-466
CATEGORY:	C
CLASS:	F
FUNCTION:	Prevents steam flow from lower containment to upper containment bypassing the ice condenser in an accident.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	The check valve is on a drain line from the VX Fan Pit to lower containment. The valve is located at the end of a six inch pipe in lower containment and cannot be accessed without radiation exposure and safety related risks. The check valve is normally closed and has no fluid on the valve.
ALTERNATE TESTING:	The valve will be visually inspected during refueling outages to ensure free movement. (No disassembly will be required).

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.

4	SYSTEM:	MAIN STEAM
	FLOW DIAGRAMS:	MC-1593-1.0
10		MC-1593-1.3

System: Main Steam

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10												
10												
10												
10												
10	1SM-5AB	B	MC-1593-1.0	I-14		X			CT	X	CS*	Isolation time ≤5 sec.
10	1SM-11AB	B	MC-1593-1.0	I-13		X			CT	X	CS*	Isolation time ≤5 sec.
10	1SM-7AB	B	MC-1593-1.0	C-14		X			CT	X	CS*	Isolation time ≤5 sec.
10	1SM-12AB	B	MC-1593-1.0	C-13		X			CT	X	CS*	Isolation time ≤5 sec.
10	1SM-1AB	B	MC-1593-1.3	I-14					CT	X	CS*	Isolation time ≤ 5 sec.
10	1SM-9AB	B	MC-1593-1.3	I-13		X			CT	X	CS*	Isolation time ≤ 5 sec.
10	1SM-3AB	B	MC-1593-1.3	C-14		X			CT	X	CS*	Isolation time ≤ 5 sec.
10	1SM-10AB	B	MC-1593-1.3	C-13		X			CT	X	CS*	Isolation time ≤ 5 sec.

10	VALVE:	1SM-5AB, 1SM-7AB
	CATEGORY:	B
	CLASS:	B
8	FUNCTION:	Main Steam Isolation Valves (MSIV's).
	TEST REQUIREMENT:	Cycle and Time Valves Quarterly.
8 10	BASIS FOR RELIEF:	1SM-1, 3, 5, and 7, MSIV's, cannot be full stroke exercised during power operation, because closure of these valves would result in unit shutdown. The plant Tech. Specs. do not permit isolation of a steam generator.
8 10	ALTERNATE TESTING:	These valves will be partially stroked quarterly while in Modes 1, 2, or 3. These valves will be full stroked and timed at hot shutdown conditions or cold shutdown.

10| VALVE: 1SM-11AB, 1SM-12AB |

CATEGORY: B

CLASS: B

FUNCTION: Main Steam Isolation Valve Bypass Valves (MSIV Bypass Valves).

TEST REQUIREMENT: Cycle and Time Valves Quarterly.

BASIS FOR RELIEF: 1SM-9, 10, 11, and 12, MSIV Bypass valves, can be full stroke exercised quarterly. However, these valves cannot be timed at this frequency since its operation is done utilizing a manual loader.

ALTERNATE TESTING: These valves will be full stroked quarterly and will be full stroked and timed either in hot shutdown or cold shutdown conditions.

VALVE:	1SM-1AB, 1SM-3AB
CATEGORY:	B
CLASS:	B
FUNCTION:	Main Steam Isolation Valves (MSIV's).
TEST REQUIREMENT:	Cycle and Time Valves Quarterly.
BASIS FOR RELIEF:	1SM-1, 3, 5, and 7, MSIV's, cannot be full stroke exercised during power operation, because closure of these valves would result in unit shutdown. The plant Tech. Specs. do not permit isolation of a steam generator.
ALTERNATE TESTING:	These valves will be partially stroked quarterly while in Modes 1, 2, or 3. These valves will be full stroked and timed at hot shutdown conditions or cold shutdown.

VALVE:	1SM-9AB, 1SM-10AB
CATEGORY:	B
CLASS:	B
FUNCTION:	Main Steam Isolation Valve Bypass Valves (MSIV Bypass Valves).
TEST REQUIREMENT:	Cycle and Time Valves Quarterly.
BASIS FOR RELIEF:	1SM-9, 10, 11, and 12, MSIV Bypass valves, can be full stroke exercised quarterly. However, these valves cannot be timed at this frequency since its operation is done utilizing a manual loader.
ALTERNATE TESTING:	These valves will be full stroked quarterly and will be full stroked and timed either in hot shutdown or cold shutdown conditions.

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	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1SA-48AB,C	B	MC-1593-1.2	E-4		X			CT			50 sec. max. cycle time
	1SA-49AB	B	MC-1593-1.2	F-2		X			CT			50 sec. max. cycle time
10	1SA-5	B	MC-1593-1.2	F-4			X		MT	X	RF#	
10	1SA-6	B	MC-1593-1.2	F-4			X		MT	X	RF#	

VALVE:	1SA-5, 1SA-6
CATEGORY:	C
CLASS:	B
FUNCTION:	1) Passes steam to supply the turbine driven auxiliary feedwater pump. 2) Prevents cross connecting steam generators 1B and 1C.
TEST REQUIREMENT:	1) Full stroke exercise quarterly. 2) Verify valve prevents reversal of flow quarterly.
BASIS FOR RELIEF:	1) None required. 2) System configuration and design do not provide a suitable means to prove the valve prevents reversal of flow. To check this valve on line would risk personnel safety since high energy steam would be involved.
ALTERNATE TESTING:	1) None required. 2) At least one of the two valves will be disassembled and inspected (verified to close) during each refueling. Both valves will have been disassembled and inspected after two consecutive refueling outages. Failure of one valve to function properly during a refueling outage will result in the remaining valve being disassembled and inspected during that outage.

SYSTEM: MAIN STEAM VENT TO ATMOSPHERE

FLOW DIAGRAMS: MC-1593-1.0
10 | MC-1593-1.3 |

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				
10											
10											
10											
10											
10											
10											
10											
10											
10											
10											
10											
10											

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				
10												
10												
10	1SV-13AB	B	MC-1593-1.0	L-4		X			CT			60 sec. max. cycle time
10	1SV-14	B	MC-1593-1.0	K-5			X		SP			
10	1SV-15	B	MC-1593-1.0	K-7			X		SP			
10	1SV-16	B	MC-1593-1.0	K-9			X		SP			
10	1SV-17	B	MC-1593-1.0	K-10			X		SP			
10	1SV-18	B	MC-1593-1.0	K-12			X		SP			
10	1SV-19AB	B	MC-1593-1.0	G-4		X			CT			60 sec. cycle time
10	1SV-20	B	MC-1593-1.0	E-5			X		SP			

System: Main Steam Vent to Atmosphere

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1SV-21	B	MC-1593-1.0	E-7			X		SP			
10	1SV-22	B	MC-1593-1.0	E-9			X		SP			
10	1SV-23	B	MC-1593-1.0	E-10			X		SP			
10	1SV-24	B	MC-1593-1.0	E-12			X		SP			
10	1SV-1AB	B	MC-1593-1.3	L-5		X			CT			60 sec. max. cycle time
10	1SV-2	B	MC-1593-1.3	K-6			X		SP			
10	1SV-3	B	MC-1593-1.3	K-7			X		SP			
10	1SV-4	B	MC-1593-1.3	K-9			X		SP			
10	1SV-5	B	MC-1593-1.3	K-11			X		SP			
10	1SV-6	B	MC-1593-1.3	K-12			X		SP			
10	1SV-7ABC	B	MC-1593-1.3	G-5		X			CT			60 sec. max. cycle time
10	1SV-8	B	MC-1593-1.3	E-6			X		SP			
10	1SV-9	B	MC-1593-1.3	E-7			X		SP			
10	1SV-10	B	MC-1593-1.3	E-9			X		SP			
10	1SV-11	B	MC-1593-1.3	E-11			X		SP			
10	1SV-12	B	MC-1593-1.3	E-12			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	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1YM-115B	B	MC-1601-2.4	C-9	X				CT LT		RF*	Isolation time ≤5 seconds
10	1YM-116	B	MC-1601-2.4	C -11	X		X		MT LT	X	RF*	

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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1NM-3A,C	B	MC-1572-1.0	K-3	X				CT Q LT		RF*	Isolation time ≤15 sec.
10	1NM-6A,C	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.
9												
	1NM-26B	B	MC-1572-1.0	K-8	X				CT Q LT		RF*	Isolation time ≤15 sec.
10	1NM-25A,C	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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1NM-22A,C	B	MC-1572-1.0	J-12	X				CT Q LT		RF*	Isolation time ≤15 sec.
9												
	1NM-420	B	MC-1572-1.0	J-3	X				LT		RF*	
9	1NM-421	B	MC-1572-1.0	J-12	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				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
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 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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
5	ORN-7A	C	MC-1574-1.0	J-9		X			CT			60 sec. max. cycle time
5	ORN-2B	C	MC-1574-1.0	K-10		X			CT			60 sec. max. cycle time
5	ORN-3A	C	MC-1574-1.0	K-10		X			CT			60 sec. max. cycle time
5	ORN-13A	C	MC-1574-1.0	J-11		X			CT			60 sec. max. cycle time
5	ORN-12A,C	C	MC-1574-1.0	I-11		X			CT			60 sec. max. cycle time
5	ORN-14A	C	MC-1574-1.0	I-13		X			CT			60 sec. max. cycle time
5	ORN-15B	C	MC-1574-1.0	F-13		X			CT			60 sec. max. cycle time
10	ORN-4A,C	C	MC-1574-1.0	F-12		X			CT			60 sec. max. cycle time
5	ORN-5B	C	MC-1574-1.0	E-12		X			CT			60 sec. max. cycle time
5	ORN-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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
5	0RN-11B	C	MC-1574-1.0	F-11		X			CT			60 sec. max. cycle time
10												
5	0RN-301A,C	C	MC-1574-1.0	G-10		X			CT			60 sec. max. cycle time
5	0RN-302B	C	MC-1574-1.0	F-10		X			CT			60 sec. max. cycle time
5	0RN-9B	C	MC-1574-1.0	D-9		X			CT			60 sec. max. cycle time
5	0RN-149A	C	MC-1574-1.0	J-7		X			CT			60 sec. max. cycle time
5	0RN-152B	C	MC-1574-1.0	E-7		X			CT			60 sec. max. cycle time
5	0RN-150A	C	MC-1574-1.0	I-6		X			CT			60 sec. max. cycle time
5	0RN-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	B	C	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
4	1RN-63B	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
5	0RN-147A,C	C	MC-1574-1.0	H-2		X			CT			60 sec. max. cycle time
10	0RN-148A,C	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
5	0RN-283A,C	C	MC-1574-1.0	F-2		X			CT			60 sec. max. cycle time
5	0RN-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 A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
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			
10 | 1RN-68A	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 A	Valve Category B	Valve Category C	Valve Category D	Test Requirements	Relief Requests	Testing Alternative	Remarks
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			
10 1RN-161B	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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1RN-166A	C	MC-1574-2.0	J-2		X			CT			60 sec. max. cycle time
10	1RN-70A	C	MC-1574-2.0	F-3		X			CT			60 sec. max. cycle time
	1RN-69A	C	MC-1574-2.0	K-3		X			CT			10 sec. max. cycle time
10	1RN-73A	C	MC-1574-2.0	I-3		X			CT			60 sec. max. cycle time
10	1RN-112A	C	MC-1574-2.0	I-6		X			CT			60 sec. max. cycle time
10	1RN-117A	C	MC-1574-2.0	I-8		X			CT			60 sec. max. cycle time
	1RN-86A	C	MC-1574-2.0	D-9		X			CT			60 sec. max. cycle time
10	1RN-89A	C	MC-1574-2.0	J-10		X			CT			60 sec. max. cycle time
10	1RN-140A	C	MC-1574-2.0	E-13		X			CT			15 sec. max. cycle time

System: Nuclear Service Water

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1RN-103A	C	MC-1574-2.1	C-6		X			CT			10 sec. max. cycle time
10												
	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
10												

System: Nuclear Service Water

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1RN-170B	C	MC-1574-3.0	I-1		X			CT			60 sec. max. cycle time
10	1RN-171B	C	MC-1574-3.0	E-3		X			CT			40 sec. max. cycle time
10	1RN-174B	C	MC-1574-3.0	I-3		X			CT			60 sec. max. cycle time
10	1RN-162B	C	MC-1574-3.0	K-3		X			CT			10 sec. max. cycle time
10	1RN-213B	C	MC-1574-3.0	J-6		X			CT			60 sec. max. cycle time
10	1RN-218B	C	MC-1574-3.0	I-8		X			CT			60 sec. max. cycle time
10	1RN-187B	C	MC-1574-3.0	E-10		X			CT			60 sec. max. cycle time
10	1RN-190B	C	MC-1574-3.0	J-10		X			CT			60 sec. max. cycle time
10	1RN-240B	C	MC-1574-3.0	E-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-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

SYSTEM: REACTOR COOLANT SYSTEM

FLOW DIAGRAMS: MC-1553-2.0
10 MC-1553-2.1
MC-1553-4.0

System: Reactor Coolant

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1NC-36B	A	MC-1553-2.0	J -2		X			CT	X		2.0 second cycle time
10	1NC-34A	A	MC-1553-2.0	J-4		X			CT	X		2.0 second cycle time
10	1NC-32B	A	MC-1553-2.0	J-6		X			CT	X		2.0 second cycle time
10	1NC-1	A	MC-1553-2.0	J-9			X		SP			Set at 2485 PSIG
10	1NC-2	A	MC-1553-2.0	J-10			X		SP			Set at 2485 PSIG
10	1NC-3	A	MC-1553-2.0	J-11			X		SP			Set at 2485 PSIG
10												
10	1NC-35B	A	MC-1553-2.0	H-2		X			CT			10 sec. max. stroke time
10												
10	1NC-33A	A	MC-1553-2.0	H-4		X			CT			10 sec. max. stroke time
10												
10	1NC-31B	A	MC-1553-2.0	H-6		X			CT			10 sec. max. stroke time

System: Reactor Coolant

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
1NC-29C	A	MC-1553-2.0	E-12		X			CT	X		
1NC-27C	A	MC-1553-2.0	C-12		X			CT	X		
1NC-54A	B	MC-1553-2.1	I-8	X				CT LT			Isolation time $\leq$ 10 sec.
1NC-53B	B	MC-1553-2.1	I-10	X				CT LT			Isolation time $\leq$ 10 sec.
1NC-57	B	MC-1553-2.1	G-12	X		X		LT			Passive
1NC-56B	B	MC-1553-2.1	E-13	X				CT LT			Isolation time $\leq$ 10 sec.
1NC-272A,C	A	MC-1553-2.1	L-7		X			CT	X	CS	Max. cycle time $\leq$ 60 sec.
1NC-273A,C	A	MC-1553-2.1	L-7		X			CT	X	CS	Max. cycle time $\leq$ 60 sec.
1NC-274B	A	MC-1553-2.1	K-7		X			CT	X	CS	Max. cycle time $\leq$ 60 sec.
1NC-275B	A	MC-1553-2.1	K-7		X			CT	X	CS	Max. cycle time $\leq$ 60 sec.

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
10												
10	INC-195B	B	MC-1553-4.0	K-7	X				LT			Passive
10	INC-196A	B	MC-1553-4.0	I-7	X				LT			Passive
10	INC-141	B	MC-1553-4.0	B-6	X				PC LT		RF*	
10	INC-142	B	MC-1553-4.0	B-5	X				PC LT		RF*	
10	INC-261	B	MC-1553-4.0	B-7	X		X		LT	X	RF*	
	INC-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.

VALVE:	1NC-36B, 1NC-34A, 1NC-32B
CATEGORY:	B
CLASS:	A
FUNCTION:	Reactor Coolant System PORV.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	PORV's do not serve a safety related function when unit is at operating temperature and pressure. PORV's protect RCS from low temp. overpressurization.
ALTERNATE TESTING:	Valves will be tested in accordance with technical specifications which require cycling of PORV every 18 months.

10	VALVE:	1NC-272A,C, 1NC-273A,C, 1NC-274B, 1NC-275B
	CATEGORY:	B
	CLASS:	A
	FUNCTION:	Reactor Vessel Head Vent
	TEST REQUIREMENT:	Cycle and time every three months.
10	BASIS FOR RELIEF:	Opening of any of these valves during power operation could cause a loss of coolant.
	ALTERNATE TESTING:	Valves will be cycled at cold shutdown.

9	VALVE:	1NC-27C, 1NC-29C
	CATEGORY:	B
	CLASS:	A
	FUNCTION:	Pressurizer Spray Control
	TEST REQUIREMENT:	Cycle and time valve quarterly
10	BASIS FOR RELIEF:	Full opening of either of these valves during normal power operation could cause a low NC pressure reactor trip and safety injection.
	ALTERNATE TESTING:	Valve will be verified operable quarterly by partial stroking. A change in RCS pressure will indicate proper valve operation.

System: Refueling Water

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1FW-27A	B	MC-1571-1.0	C-12		X			CT Q	X	CS*	30 sec. max. cycle time
9	1FW-28	B	MC-1571-1.0	B-11			X		MT Q	X	RF	
	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 during/after cold shutdown, but prior to Mode 3 (Hot Standby).

10

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM

FLOW DIAGRAMS: MC-1561-1.0

System: Residual Heat Removal

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	IND-1B	A	MC-1561-1.0	I-13	X				CT LT	X	CS	60 sec. max. cycle time
10	IND-2A ,C	A	MC-1561-1.0	H-13	X				CT LT	X	CS	60 sec. max. cycle time
	IND-4B	B	MC-1561-1.0	F-12		X			CT			60 sec. max. cycle time
	IND-15A	B	MC-1561-1.0	H-12		X			CT			60 sec. max. cycle time
9	IND-23	B	MC-1561-1.0	J-8			X		MT	X	RF	
9	IND-8	B	MC-1561-1.0	D-8			X		MT	X	RF	
	IND-18	B	MC-1561-1.0	F-7		X			CT			60 sec. max. cycle time
	IND-33	B	MC-1561-1.0	H-7		X			CT			60 sec. max. cycle time
	IND-67B	B	MC-1561-1.0	B-9		X			CT			10 sec. max. cycle time
	IND-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				
4	IND-71	B	MC-1561-1.0	C-4			X		MT	X	RF	
	IND-14	B	MC-1561-1.0	D-3		X			CT			60 sec. max. cycle time
4	IND-70	B	MC-1561-1.0	K-3			X		MT	X	RF	
19	IND-58A	B	MC-1561-1.0	K-3		X			CT	X	CS	10 sec. max. cycle time
	IND-29	B	MC-1561-1.0	J-3		X			CT			60 sec. max. cycle time
10	IND-15B	B	MC-1561-1.0	E-3		X			CT	X	CS	10 sec. max. cycle time
10	IND-30A	B	MC-1561-1.0	I-3		X			CT	X	CS	10 sec. max. cycle time
	IND-34	B	MC-1561-1.0	G-5		X			CT			60 sec. max. cycle time

9	VALVE:	1ND-1B, 1ND-2A,C
4	CATEGORY:	A
	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
4		pressure is greater than 385 psig.
10	ALTERNATE TESTING:	Valves will be cycled during cold shutdowns. Valves will be leak tested in accordance with Technical Specifications.

4	VALVE:	1ND-70
	CATEGORY:	C
	CLASS:	B
4	FUNCTION:	RHR to SI Suction Check.
	TEST REQUIREMENT:	Full stroke exercise quarterly.
4	BASIS FOR RELIEF:	1ND-70 cannot be full stroked during power operation or cold shutdown since the only full flow path is into the RCS and this can only be performed during refueling outages.
10		
	ALTERNATE TESTING:	1ND-70 will be full stroke exercised at refueling and partial stroked quarterly.
4		

9	VALVE:	1ND-58A
	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.

VALVE:	1ND-71
CATEGORY:	C
CLASS:	B
FUNCTION:	RHR to SI Suction Check.
TEST REQUIREMENT:	Full stroke exercise quarterly.
BASIS FOR RELIEF:	Valve cannot be full stroked at power since the only full flow path is into the RCS and this can only be done at refueling. 1ND-71 cannot be partial stroked during power since the required valve lineup would render both trains of safety injection inoperable. During cold shutdown, both SI pumps are tagged out to prevent a low temperature overpressurization.
ALTERNATE TESTING:	Valve will be full stroked at refueling.

10

VALVE:	1ND-8, 1ND-23
CATEGORY:	C
CLASS:	B
FUNCTION:	Prevents reverse flow through the ND Pumps
TEST REQUIREMENT:	Full stroke exercise quarterly
BASIS FOR RELIEF:	1ND-8 and 1ND-23 cannot be full stroked during power operation since the only full flow path is into the RCS and the ND Pumps cannot overcome RCS pressure.
ALTERNATE TESTING:	Valves will be full stroke exercised at refueling and partial stroked quarterly.

VALVE:	1ND-15B, 1ND-30A
CATEGORY:	B
CLASS:	B
FUNCTION:	ND Heat Exchanger Outlet Crossover Block Valves
TEST REQUIREMENT:	Cycle and time valve quarterly.
BASIS FOR RELIEF:	One of the ECCS safety analysis assumptions is that each train of ND can supply flow to all four cold legs. If either of these valves fails closed during testing, then only two cold legs could be supplied by each train of ND. This would make both trains of ND inoperable.
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	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
8												
8												
9												
9												
9												
9												
10	INI-9A	B	MC-1562-1.0	H-9		X			CT	X	CS	11 sec. max. cycle time
10	INI-10B	B	MC-1562-1.0	G-9		X			CT	X	CS	11 sec. max. cycle time
10	INI-32	B	MC-1562-1.0	G-8			X		MT	X	RF	
10	INI-15	A	MC-1562-1.0	K-7			X		MT	X	RF	

System: Safety Injection

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1NI-17	A	MC-1562-1.0	I-7			X		MT	X	RF	
10	1NI-347	A	MC-1562-1.0	I-7			X		MT	X	RF	
10	1NI-19	A	MC-1562-1.0	F-7			X		MT	X	RF	
10	1NI-348	A	MC-1562-1.0	F-7			X		MT	X	RF	
10	1NI-21	A	MC-1562-1.0	D-7			X		MT	X	RF	
10	1NI-349	A	MC-1562-1.0	D-7			X		MT	X	RF	
10	1NI-354	A	MC-1562-1.0	K-7			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 A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
	1NI-70	A	MC-1562-2.0	H-13	X		X		LT MT	X	CS RF	
10	1NI-71	A	MC-1562-2.0	H-13	X		X		LT MT	X	CS	
	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	
9	1NI-60	A	MC-1562-2.0	D-14	X		X		LT MT	X	CS	
10	1NI-47A	B	MC-1562-2.0	K-5	X				CT LT		RF*	Isolation time ≤15 sec.
4	1NI-48	B	MC-1562-2.0	K-3	X		X		MT LT	X	RF*	

System: Safety Injection

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
	1NI-81	A	MC-1562-2.1	C-3	X		X		LT MT	X	CS RF	
9	1NI-82	A	MC-1562-2.1	C-3	X		X		LT MT	X	CS	
10	1NI-93	A	MC-1562-2.1	C-8	X		X		MT LT	X	RF CS	
10	1NI-94	A	MC-1562-2.1	C-8	X		X		MT LT	X	RF CS	
10	1NI-95A	B	MC-1562-2.1	F-12	X				CT LT		RF*	Isolation time ≤10 sec.
10	1NI-96B	B	MC-1562-2.1	E-13	X				CT LT		RF*	Isolation time ≤10 sec.
4	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	B	C	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
9	1NI-332A	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
10	1NI-103A	B	MC-1562-3.0	J-14		X			CT			10 sec. max. cycle time
10	1NI-101	B	MC-1562-3.0	F-13			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
10| 1NI-120B	B	MC-1562-3.0	J-7	X				CT LT		RF*	Isolation time <10 sec. |
6| 1NI-121A	B	MC-1562-3.0	J-6		X			CT	X	CS	Isolation time <10 sec. |

System: Safety Injection

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

System: Safety Injection

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
30	1NI-159	A	MC-1562-3.0	B-4	X		X		MT LT	X	RF CS	
10	1NI- 160	A	MC-1562-3.0	B-3	X		X		MT LT	X	RF CS	
10	1NI-156	A	MC-1562-3.0	D-3	X		X		MT LT	X	RF CS	
10	1NI-157	A	MC-1562-3.0	D-2	X		X		MT LT	X	RF CS	
10	1NI-125	A	MC-1562-3.0	I-3	X		X		LT MT	X	CS CS	
4												

System: Safety Injection

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
	1NI-162A	B	MC-1562-3.1	K-11		X			CT	X	CS	10 sec. max. cycle time
10	1NI-171	A	MC-1562-3.1	J-7	X		X		MT LT	X	RF CS	
10	1NI-169	A	MC-1562-3.1	J-6	X		X		MT LT	X	RF CS	
10	1NI-167	A	MC-1562-3.1	J-5	X		X		MT LT	X	RF CS	
10	1NI-165	A	MC-1562-3.1	J-3	X		X		MT LT	X	RF CS	
6	1NI-173A	B	MC-1562-3.1	I-12		X			CT	X	CS	10 sec. max. cycle time
10	1NI-175	A	MC-1562-3.1	I-8	X		X		MT LT	X	CS CS	
10	1NI-176	A	MC-1562-3.1	H-8	X		X		MT LT	X	CS CS	
6	1NI-178B	B	MC-1562-3.1	F-12		X			CT	X	CS	10 sec. max. cycle time
10	1NI-180	A	MC-1562-3.1	F-6	X		X		MT LT	X	CS CS	

System: Safety Injection

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1NI-181	A	MC-1562-3.1	D-5	X		X		MT LT	X	CS CS	
	1NI-184B	B	MC-1562-3.1	D-12		X			CT	X	RF	60 sec. max. cycle time
9	1NI-185A	B	MC-1562-3.1	B-12		X			CT	X	RF	60 sec. max. cycle time
10												
10												
10												
10												

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				
10											
10											
10											
10											
10											
10											
10											
10											
10											
10											

System: Safety Injection

Valve Number	Class	Drawing Number	Coordinates	Valve Category				Test Requirements	Relief Requests	Testing Alternative	Remarks
				A	B	C	D				

	VALVE:	1NI-15, 1NI-354, 1NI-17, 1NI-347, 1NI-19, 1NI-348, 1NI-21, 1NI-349
	CATEGORY:	C
	CLASS:	A
8	FUNCTION:	Provides safety injection flow path.
	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
8	FUNCTION:	Provides safety injection flow path.
	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
10	FUNCTION:	Supplies nitrogen to low pressure PORV's during blackout.
	TEST REQUIREMENT:	Cycle time quarterly.
10	BASIS FOR RELIEF:	The piping downstream of these valves is not seismic (non-safety). If a valve fails open and there is a loss of integrity on the non-safety piping, a cold leg accumulator will be made inoperable.
	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.

4	VALVE:	1NI-81, 1NI-70, 1NI-59, 1NI-93
	CATEGORY:	A, C
	CLASS:	A
4	FUNCTION:	Opens on flow from the NI cold leg accumulator to the Reactor Coolant System.
	TEST REQUIREMENT:	Verify valve opens when Reactor Coolant System pressure decreases below Safety Injection System pressure.
10 4	BASIS FOR RELIEF:	Valves cannot be full or partial stroked during power operation since the accumulator pressure is ≈600 psi and cannot overcome RCS pressure. During cold shutdown exercising these valves could result in a low temperature overpressurization of the RCS.
10	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. Valves will be leak tested in accordance with Technical Specifications.

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-71, 1NI-60, 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 Reactor Coolant System pressure decreases below Safety Injection System pressure.
BASIS FOR RELIEF:	Valves cannot be full or partial stroked at power since a driving head to force the valves open does not exist.
ALTERNATE TESTING:	Valve will be full stroked during cold shutdowns, but no more often than once per nine months. Valves will be leak tested in accordance with Technical Specifications.

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:	Valves cannot be full or partial stroked during power operation since the safety injection pumps cannot discharge into the RCS at operating pressure. During cold shutdown, these valves cannot be full or partial stroked since this could result in low temperature overpressurization.
ALTERNATE TESTING:	Valves will be cycled open during refueling. Valves will be leak tested in accordance with Technical Specifications.

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. RHR pumps, also, do not develop enough discharge pressure to overcome RCS pressure at power operation.
ALTERNATE TESTING:	Valve will be full stroke exercised during cold shutdowns, but not more often than once per nine months. Valves will be leak tested in accordance with Technical Specifications.

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.
4	BASIS FOR RELIEF:	Valves cannot be cycled during power operation since the SI pumps cannot overcome RCS pressure to permit flow through the valves. During cold shutdowns exercising these valves could result in low temperature overpressurization.
10	ALTERNATE TESTING:	Full stroke exercise at refueling. Valves will be leak tested in accordance with Technical Specifications.

4	VALVE:	1NI-180, 1NI-181, 1NI-175, 1NI-176
	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. Valves will be leak tested in accordance with Technical Specifications.
10		

9	VALVE:	1NI-184B, 1NI-185A
	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 Remival 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
4		inoperable. During cold shutdowns, the RHR pumps are required for decay heat removal.
	ALTERNATE TESTING:	Full stroke exercise during refueling.

MC-1562-3.1

VALVE:	1NI-183B
CATEGORY:	B
CLASS:	B
FUNCTION:	Isolates ND flow to the hot legs.
TEST REQUIREMENT:	Cycle and time valve quarterly.
BASIS FOR RELIEF:	The valve is normally aligned for safety injection with power removed, as required by McGuire Technical Specification 4.5.2. Cycling the valve with the plant in operation requires that the power be restored to the valve and moved from the event-initiation position. The valve is required for alignment for hot-leg recirculation following an accident. It is not required to automatically actuate on initiation of a safety event. The past test history of the valve is very good.
ALTERNATE TESTING:	Cycle and time the valve at cold shutdown.

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SYSTEM: STREAM GENERATOR BLOWDOWN RECYCLE

FLOW DIAGRAMS: MC-1580-1.0

System: Steam Generator Blowdown Recycle

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
8	1BB-1B	B	MC-1580-1.0	H-2		X			CT Q			Isolation time ≤10 sec.
8	1BB-5A	B	MC-1580-1.0	F-2		X			CT Q			Isolation time ≤10 sec.
8	1BB-2B	B	MC-1580-1.0	H-4		X			CT Q			Isolation time ≤10 sec.
8	1BB-6A	B	MC-1580-1.0	F-4		X			CT Q			Isolation time ≤10 sec.
8	1BB-3B	B	MC-1580-1.0	H-10		X			CT Q			Isolation time ≤10 sec.
10	1BB-7A	B	MC-1580-1.0	F-12		X			CT Q			Isolation time ≤10 sec.
10	1BB-4B	B	MC-1580-1.0	H-10		X			CT Q			Isolation time ≤10 sec.

System: Steam Generator Blowdown Recycle

	Valve Number	Class	Drawing Number	Coordinates	Valve Category A	B	C	D	Test Requirements	Relief Requests	Testing Alternative	Remarks
10	1BB-8A	B	MC-1580-1.0	F-10		X			CT Q			Isolation time ≤10 sec.
8												
8												
8												
8												