

DUKE POWER
CATAWBA NUCLEAR STATION

RELIEF REQUEST

Section 5.0

5.1 PUMP GENERIC RELIEF REQUESTS

Relief Request	Applicability	Status
None		

5.2 PUMP SPECIFIC RELIEF REQUESTS

Relief Request	Applicability	Status
CN-SRP-CA-01	Auxiliary Feedwater Pumps	Revised 05/31/99

Specific Relief Request

Item Number: CN-SRP-CA-01

Pump: CA Pump 1A, CA Pump 1B,
CA Pump 2A, CA Pump 2B,

Test Requirement: Oma-1988, Part 6, Section 4.6.1.2.a requires that the full scale range of the instrument shall be three times the reference value or less.

Basis for Relief: The installed process instrumentation for the CA pumps suction pressure measurement is as follows:

<u>Pump</u>	<u>Local</u>	<u>Control Room</u>
1A/2A	0-160 psig (0.5% error)	0-90 psig (1.12% error)
1B/2B	0-160 psig (0.5% error)	0-90 psig (1.12% error)

The typical range of values for the suction pressure of the CA pumps during testing is 33-38 psig; therefore, the local process instrumentation on CA Pumps 1A/2A and 1B/2B does not meet the three times criteria. The accuracy of the process instrumentation (0.5%) is well below the requirements specified in Oma-1988 Part 6, Table 1 for pressure instrumentation accuracy (2.0%). The actual reading error at test pressure due to the process instrumentation accuracy is 2.42% (0.5% * 160/33). If a 0-90 psig test instrument is used (which meets the three times criteria) and it has an accuracy of 2.0%, then the reading error due to instrument accuracy would be 5.45% (2% * 90/33). When the requirements of Oma-1988 Part 6, Section 4.6.1.2.a and Table 1 are combined, the actual instrument error introduced to the test is less than the code allowable (2.42% vs. 5.45%). Using the process instrument for suction pressure data does not degrade the quality of the test, and meets the intent of the instrumentation requirements of the code.

Test Alternative: The installed process instrumentation at both the control room and locally at the CA pumps can be used to measure CA pump suction pressure for CA Pump 1A, CA Pump 1B, CA Pump 2A, and CA Pump 2B tests.

5.3 VALVE GENERIC RELIEF REQUESTS

Relief Request	Applicability	Status
CN-GRV-01	Safety/Relief Valves Tested Under Ambient Conditions (remove 10 minute hold time)	Written 05/31/99
CN-GRV-02	Safety/Relief Valves Tested At Other Than Ambient Conditions (reduce 10 minute hold to 5 minute hold)	Written 05/31/99
CN-GRV-03	Safety/Relief Valves Tested Under Ambient Conditions (Thermal Equilibrium)	Written 05/31/99
CN-GRV-04	Check Valve Condition Monitoring Program	Written 10/31/02

Generic Relief Request

Item Number: CN-GRV-01

Component Number (s): **All safety and relief valves tested under ambient conditions using a test medium at ambient conditions.**

Flow Diagram (s): All applicable

Function (s): Provide over-pressure protection to associated systems.

Test Requirement: OM-1, 1987 Sections 8.1.2.8 and 8.1.3.7, Time Between Valve Openings; A minimum of 10 min. shall elapse between successive openings.

Basis for Relief: This is a generic request for relief for safety and relief valves in compressible fluid service (other than steam) and liquid service applications, tested under ambient conditions using a test medium at ambient conditions. For these valves, the requirement for verifying temperature stability (by waiting 10 min. between successive openings) is inappropriate and of no value. There is negligible affect on valve setpoint due to minor temperature deviations that might occur at these ambient conditions.

The net result of having to wait 10 minutes between successive openings is an increase in manpower and time to perform the tests and an increase in radiation exposure when located in radiation areas, without a commensurate increase in test accuracy.

Note: This issue has been identified by the ASME Code Committees along with safety and relief valve industry experts and is reflected in a change made to the 1995 version of the code (Appendix I). In addition, NUREG -1482, 4.3.9 (6) STATES "Thermal equilibrium need not be verified for liquid service valves tested at ambient temperature using a test medium (at ambient) temperature."

Code Alternative: For safety and relief valves tested under ambient conditions using test medium at ambient conditions, the 10 min. hold requirement between successive openings will be deleted.

Generic Relief Request

Item Number: CN-GRV-02

Component Number (s): **All safety and relief valves tested at other than ambient conditions.**

Flow Diagram (s): All applicable

Function (s): Provide over-pressure protection to associated systems.

Test Requirement: OM-1, 1987 Sections 8.1.1.8, 8.1.2.8 and 8.1.3.7, Time Between Valve Openings; A minimum of 10 min. shall elapse between successive openings.

Basis for Relief: This is a generic request for relief for all safety and relief valves. The 1995 version of the code, Appendix I has adopted a 5 minute hold time for steam, compressible fluid, and water service applications rather than the 10 minute hold time. This change was based on actual test data that revealed insignificant effect on valve setpoint by reducing the hold time between successive openings to 5 minutes.

Code Alternative: For safety and relief valves tested at other than ambient conditions, a 5 minute hold time will be used between successive valve openings.

Generic Relief Request

Item Number: CN-GRV-03

Component Number (s): **All safety and relief valves tested under ambient conditions using a test medium at ambient conditions.**

Flow Diagram (s): All applicable

Function (s): Provide over-pressure protection to associated systems.

Test Requirement: OM-1, 1987 Sections 8.1.2.4, 8.1.3.4, Temperature Stability; the temperature of the valve body shall be known and stabilized before commencing set pressure testing.

Basis for Relief: This is a generic request for relief for safety and relief valves tested under ambient conditions using a test medium at ambient conditions. For these valves, the requirement for verifying temperature stability (by ensuring no change in measured temperature of more than 10°F in 30 minutes) is inappropriate and needlessly adds time to the test activity. Since the valves will be tested at ambient conditions, no temperature differential exists and the valves would already be considered stable per the test requirement above. There is negligible affect on valve setpoint associated with any minor temperature deviations at these ambient conditions.

Note: This issue has been identified by the ASME Code Committees along with safety and relief valve industry experts and is reflected in a change made to the 1995 version of the code, Appendix I, (“Verification of thermal equilibrium is not required for valves which are tested at ambient temperature using a test medium at ambient temperature”).

Code Alternative: For safety and relief valves tested under ambient conditions using test medium at ambient conditions, the Temperature Stability requirements of OM-1, 1987 Sections 8.1.2.4 and 8.1.3.4 will be replaced by the Thermal Equilibrium requirements in the 1995 edition of the code.

Generic Relief Request

Item Number: CN-GRV-04

Component Number (s): All check valves in the IST Program

Flow Diagram (s): All applicable

Function (s): All "active" safety functions

Test Requirement: OM-10 (OMa-1988), Sections 4.2 - Inservice Test for Category A and B valves, along with section 4.3.2 - Exercise Test for Check Valves.

Basis for Relief: In NUREG 1482, *Guidelines for Inservice Testing at Nuclear Power Plants*, the Commission approved Owners adopting later Editions or portions thereof of the ASME Code provided those Editions or portions are approved per 10 CFR 50.55a (f)(4)(iv) and provided documentation of implementation is provided in the IST program and all conditions of Commission approval are satisfied. For this relief, the licensee is requesting to partially implement the 1995 Code Edition (ISTC, OMa-1996) to selected IST program check valves.

Code Alternative: As an alternative to the testing or examination requirements of ISTC-3510, ISTC-3520, ISTC-3540, and ISTC-5221, the Owner may establish a condition monitoring program. The purpose of this program is both to improve check valve performance and to optimize testing, examination, and preventive maintenance activities in order to maintain the continued acceptable performance of a select group of check valves. The Owner may implement this program on a valve or a group of similar valves. The program shall be implemented in accordance with Appendix II, Check Valve Condition Monitoring Program. If the condition monitoring program for a valve or valve group is discontinued, then the requirements of ISTC-5221 shall apply.

5.4 VALVE SPECIFIC RELIEF REQUESTS

Relief Request	Applicability	Status
CN-SRV-FD-01	Diesel Generator Fuel Oil Regulating Valve	Written 05/31/99
CN-SRV-VG-01	Diesel Generator Starting Air System	Written 05/31/99
CN-SRV-VG-02	Diesel Generator Starting Air System	Written 10/31/02

Specific Relief Request

Item Number: CN-SRV-FD-01

Valve: 1FD0034, 1FD0074
2FD0034, 2FD0074

Flow Diagrams: CN-1609-3.0, CN1609-3.1
CN-2609-3.0, CN2609-3.1

Code Category: C

ASME Class: C

Function: Diesel Generator fuel oil regulating valve. Performs dual function of regulating fuel pressure and providing over pressure protection of the pump discharge piping.

Test Requirement: Relief valve testing.

Basis for Relief: Dual function pressure regulating and over pressure protection valve cannot be tested per OM-1 standards. The intent of relief valve testing performed per OM-1 will be verified by alternate testing.

This alternate testing has been approved via Request for Relief granted by the NRC dated 12/08/98.

Test Alternative: Diesel generator fuel oil pressure will be verified monthly during diesel generator performance test. Affected procedures are PT/1(2)/A/4350/002A&B. This is an application of skid mounted criteria per NUREG 1482, Section 3.4.

Specific Relief Request

Item Number: CN-SRV-VG-01

Valve: 1VG0005, 1VG0006, 1VG0007, 1VG0008, 1VG0049, 1VG0050,
1VG0051, 1VG0052
2VG0005, 2VG0006, 2VG0007, 2VG0008, 2VG0049, 2VG0050,
2VG0051, 2VG0052

Flow Diagrams: CN-1609-4.0, CN-1609-4.1
CN-2609-4.0, CN-2609-4.1

Code Category: C

ASME Class: C

Function: These valves remain closed to prevent depressurization of the Diesel Generator Engine Starting Air Tanks.

Test Requirement: Exercise valve (full stroke) to the position required to fulfill its function and stroke every three months.

Basis for Relief: Valves are arranged in pairs (series) to prevent depressurization of the starting air tanks. System arrangement precludes independent testing of each valve.

This alternate testing has been approved via Request for Relief granted by the NRC dated 04/13/98.

Alternate Testing: Valve pairs (VG5&7, 6&8, 49&51, 50&52) will be tested at least quarterly. Starting Air Tank pressure decrease would indicate excessive leakage and would require Corrective action upon detection. Both valves would be inspected for degradation and repaired as appropriate.

Specific Relief Request

Item Number: CN-SRV-VG-02

Valve: Solenoid Valves
1VG0025 through 1VG0028, 1VG0069 through 1NV0072
2VG0025 through 2VG0028, 2VG0069 through 2VG0072
Check Valves
1VG0029 through 1VG0032, 1VG0073 through 1VG0076
2VG0029 through 2VG0032, 2VG0073 through 2VG0076

Flow Diagrams: CN-1609-4.0, CN-1609-4.1
CN-2609-4.0, CN-2609-4.1

Code Category: Solenoid Valves - B, Check Valves - C

ASME Class: C

Function: These valves are normally closed and open to provide starting air to the diesel engine.

Test Requirement: Exercise each valve (full stroke) to the position required to fulfill its function and stroke every three months.

Basis for Relief: Valves are arranged in pairs (one solenoid and one check) for each two lines to each starting air bank. The diesel can start with one line from either bank. Valves do not provide indication of position, therefore a full stroke for each valve cannot be verified. Relief was requested based on the "skid mounted" criteria and verification of acceptable starting performance from each bank.

This alternate testing has been approved via Request for Relief granted by the NRC dated 11/18/99.

Alternate Testing: Each diesel is started once monthly to prove operability. Also, during each cold shutdown, each bank of each diesel is isolated and acceptable diesel starting performance is verified. This confirms that at least one pair of valves of each bank performs acceptably and redundancy is provided.

DUKE POWER
CATAWBA NUCLEAR STATION

JUSTIFICATION FOR DEFERRAL

Section 6.0

6.1 VALVE JUSTIFICATION FOR DEFERRALS

Justification for Deferral	Applicability	Status
CN-CA-01	CA to Steam Generator Checks	
CN-CA-03	CA Pump Suction Checks	Revised 10/31/02
CN-CA-04	CA Assured M/V from RC Checks	Revised 10/31/02
CN-CA-05	CF to CA Nozzle Isolation Valves	
CN-CA-06	RN to CA Checks	Revised 10/31/02
CN-CF-01	CF Isolations	
CN-CF-02	CF Checks	Revised 10/31/02
CN-CF-03	CF to CA Checks	
CN-CF-04	CF Control Valves	
CN-CF-05	CF Bypass Control Valves	
CN-FW-01	FWST to ND Pump Suction Checks	Revised 10/31/02
CN-FW-02	FW to Refueling Cavity Check	
CN-IA-01	Personnel Air Lock Isolation Checks	
CN-KC-01	KC to NCDT Hx. Isolation Valves	
CN-KC-02	KC to NC Pump Containment Isolations	
CN-KC-03	KC Containment Check	
CN-KD-01	Diesel Generator KD Pump Discharge Check	
CN-NB-01	NB Containment Check	
CN-NC-01	NC Containment Check	
CN-NC-02	Reactor Coolant System PORV	
CN-NC-03	Reactor Vessel Head Vents	
CN-ND-01	NC to ND Pump A Isolations	
CN-ND-02	NC to ND Pump B Isolations	
CN-ND-03	ND Pump discharge Checks	
CN-ND-04	ND Cross Connect Isolations	
CN-ND-05	ND Pump Supply to NV and NI Pumps Isolations	
CN-NF-01	NF Containment Isolation Check	
CN-NI-01	NV to NC Injection Isolations	
CN-NI-02	NV to NC Injection Check	
CN-NI-03	NI Pump to Cold Leg Checks	
CN-NI-04	NI Cold Leg Checks	Revised 10/31/02
CN-NI-05	NI to Accumulator N ₂ Supply Checks	
CN-NI-06	Cold Leg Discharge Checks	Revised 10/31/02
CN-NI-07	FWST to NI Pumps Check	

6.1 VALVE JUSTIFICATION FOR DEFERRALS

Justification for Deferral	Applicability	Status
CN-NI-08	FWST to NI Pumps Isolation	
CN-NI-09	NI Pump Recirculating Isolations	
CN-NI-10	NI Pump Discharge Checks	
CN-NI-11	NI to Hot Legs Checks	
CN-NI-12	NI Cold Leg Isolation	
CN-NI-13	NI to Cold Legs Checks	
CN-NI-14	ND to Cold Legs Checks	Revised 10/31/02
CN-NI-15	ND to Cold Legs Isolation	
CN-NI-16	NI to Hot Legs Isolation	
CN-NI-17	Containment Sump Recirculating Isolations	
CN-NI-18	ND Train A to NV Pump Suction Isolation	
CN-NI-19	ND Train B to NI Pump Suction Isolation	
CN-NI-20	ND Train B to NI Pump Suction Check	
CN-NI-21	NI Pump Discharge to NC Loops Isolations	
CN-NI-22	NI Pumps Miniflow Isolations	
CN-NI-23	NI Pump Suction Isolations from ND and NV	
CN-NI-24	FWST to NI Train A and NV Pumps	
CN-NI-25	CLA Discharge Isolation Valves	Revised 10/31/02
CN-NM-01	NM to Containment Isolation	
CN-NS-01	FWST to NS Pump Checks	Revised 10/31/02
CN-NS-02	NS Spray Header Checks	
CN-NS-03	ND to NS Spray Header Isolations	
CN-NV-01	NV Letdown Containment Isolation	
CN-NV-02	NV to NC Pump Seals Return Header Cont. Isolation	
CN-NV-03	NV to VCT Outlet Isolation	
CN-NV-04	NV Charging Line Containment Isolation	
CN-NV-05	NV Pump Suction to FWST Checks	
CN-NV-06	NV Pump to Charging Line Checks	
CN-NV-07	NV Pump Miniflow Isolations	
CN-NV-08	NV Pumps Section from ND Checks	
CN-NV-09	Standby M/U Pump Cont. Header Checks	
CN-NV-10	NV Pumps Suction from FWST	
CN-NV-11	NV Letdown Orifice Outlet Valves	
CN-NV-12		Deleted 10/31/02

6.1 VALVE JUSTIFICATION FOR DEFERRALS

Justification for Deferral	Applicability	Status
CN-NW-01	NW Surge Chamber from RN Checks	
CN-NW-02	NW Supply to Cont. Isolation Valves Check	Revised 10/31/02
CN-RF-01	RF to Containment Isolation Valve Checks	
CN-RN-01	RN-Upper Containment Vent Unit Checks	
CN-RN-02	RN to Lower Containment Vent. Units Supply Header Cont. Isol.	
CN-RN-03	RN to Lower Containment Vent. Units Return Header Cont. Isol.	
CN-SA-01	Main Steam to CAPT Checks	
CN-SM-01	Main Steam Containment Isolations	Revised 10/31/02
CN-VB-01	VB Containment Isolation Valves	
CN-VG-01	D/G Starting Air Checks	
CN-VG-02	D/G Starting Air Checks	
CN-VG-03	D/G Control Air Checks	
CN-VI-01	VI Containment Header Checks	
CN-VI-02	VI Containment Isolation Valves	
CN-VI-03	N2 to NC PORV Checks	
CN-VI-04	N2 to NC PORV Checks	
CN-VS-01	VS to Unit 1 Containment Header Checks	
CN-VY-01	VY Containment Isolation Valve Checks	
CM-WL-01	WL Containment Isolation Valves	
CN-YM-01	YM Containment Isolation Checks	

Justification for Deferral

Item Number: CN-CA-01

Valve: 1CA0037, 1CA0041, 1CA0045, 1CA0049, 1CA0053,
1CA0057, 1CA0061, 1CA0065
2CA0037, 2CA0041, 2CA0045, 2CA0049, 2CA0053,
2CA0057, 2CA0061, 2CA0065

Flow Diagram: CN-1592-1.1
CN-2592-1.1

Code Category: C

ASME Class: 2

Function: Opens to allow Auxiliary Feedwater (CA) System supply to the steam generators. Closes to separate Feedwater from Auxiliary Feedwater.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every three months per Oma-1988 Part 10, 4.3.2.1. Valve closure is verified continuously by temperature monitoring.

Basis for Deferral: Full stroke testing these valves during power operation would unnecessarily thermal shock the steam generators and feedwater piping.

Test Alternative & Frequency: Valves will be full stroke exercised open following each cold shutdown of greater than 30 days prior to entering Mode 2.

Justification for Deferral

Item Number: CN-CA-03

Valve: 1CA0008, 1CA0010, 1CA0012
2CA0008, 2CA0010, 2CA0012

Flow Diagram: CN-1592-1.0
CN-2592-1.0

Code Category: C

ASME Class: 3

Function: Close to prevent diversion of flow when the system is in operation and a Nuclear Service Water (RN) to CA swapover or Condenser Circulating Water (RC) to CA swapover has occurred.

Test Requirement: Full Stroke Open/Close – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number: CN-CA-04

Valve: 1CA0173
2CA0173

Flow Diagram: CN-1592-1.0
CN-2592-1.0

Code Category: C

ASME Class: 3

Function: Open to allow assured makeup to Auxiliary Feedwater (CA) System from the Condenser Circulating Water (RC) System on RC to CA swapover signal, and allow RC supply to the Turbine Driven CA Pump in the event requiring use of the Standby Shutdown Facility (SSF).

Close to prevent diversion of flow when the system is in operation and Nuclear Service Water (RN) to CA swapover and RC to CA swapover has occurred.

Test Requirement: Full Stroke Open/Close – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number: CN-CA-05

Valve: 2CA0149, 2CA0150, 2CA0151, 2CA0152

Flow Diagram: CN-2592-1.1

Code Category: B

ASME Class: 2

Function: Close on Feedwater Isolation signal and Phase "A" Containment Isolation signal.

Test Requirement: Measure Full Stroke Time/Failed to Safe Position – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function every three months per OMa-1988 Part 10, 4.2.1.2. Test valve for fail safe actuation every three months per OMa-1988 Part 10, 4.2.1.6. Stroke time valve (full stroke) every three months per OMa-1988 Part 10, 4.2.1.8.

Basis for Deferral: The Westinghouse D-5 steam generator design requires these valves to be used for a portion of the main Feedwater flow during power operation. Closing these valves at 100% power would isolate this flow, possibly resulting in preheater damage.

Test Alternative & Frequency: These valves will be:
exercised (full stroke) during cold shutdown,
tested for fail safe actuation during cold shutdown,
and stroke timed tested during cold shutdown.

Justification for Deferral

Item Number: CN-CA-06

Valve: 1CA0291, 1CA0292
2CA0291, 2CA0292

Flow Diagram: CN-1592-1.0
CN-2592-1.0

Code Category: C

ASME Class: 3

Function: These valves are normally closed. The valves shall open on CA to RN switchover to permit RN Header A(B) flow to the Turbine Driven CA Pump Number 1(2).

Test Requirement: Full Stroke Open/Close – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number: CN-CF-01

Valve: 1CF0033, 1CF0042, 1CF0051, 1CF0060
2CF0033, 2CF0042, 2CF0051, 2CF0060

Flow Diagram: CN-1591-1.1
CN-2591-1.1

Code Category: B

ASME Class: 2

Function: Isolates main feedwater piping from the steam generators upon receipt of a feedwater isolation signal.

Test Requirement: Measure Full Stroke Time/Failed to Safe Position – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function, observe fail-safe operation, and stroke time every 3 months.

Basis for Deferral: Closing these valves during power operation is considered impractical from an operating viewpoint. Closure would isolate feedwater to the steam generator which may result in a severe transient in the steam generator, possibly causing a unit trip.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function, fail-safe operation verified, and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-CF-02

Valve: 1CF0031, 1CF0040, 1CF0049, 1CF0058
2CF0031, 2CF0040, 2CF0049, 2CF0058

Flow Diagram: CN-1591-1.1
CN-2591-1.1

Code Category: C

ASME Class: 2

Function: These valves are normally open and must close to prevent blowdown of the corresponding steam generator in the event of a feedwater line rupture.

Test Requirement: Full Stroke Closed – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number: CN-CF-03

Valve: 2CF0166, 2CF0167, 2CF0168, 2CF0169

Flow Diagram: CN-2591-1.1

Code Category: C

ASME Class: 2

Function: These valves are normally open and must close to prevent diversion of auxiliary feedwater flow to the feedwater system via the feedwater bypass line following a feedwater isolation signal.

Test Requirement: Full Stroke Closed – Quarterly
Exercise the valve to the position required to fulfill its function every three (3) months.

Basis for Deferral: Closing these valves would require removing the unit from service and reducing reactor power to less than three percent.

Test Alternative & Frequency: During each refueling one of the four check valves will be disassembled, inspected and the disk mechanically exercised. The next refueling, a different valve will be disassembled. All four valves will be tested within a four refueling time period. Should any one valve fail to stroke acceptably, the remaining three valves will also be disassembled.

Justification for Deferral

Item Number: CN-CF-04

Valve: 1CF0028, 1CF0037, 1CF0046, 1CF0055
2CF0028, 2CF0037, 2CF0046, 2CF0055

Flow Diagram: CN-1591-1.1
CN-2591-1.1

Code Category: B

ASME Class: 3

Function: Control valves normally modulated by the Digital Feedwater Control System (DFCS) to maintain proper steam generator water level. Automatic closure will occur upon transfer to the auxiliary shutdown panel, an inboard doghouse Hi-Hi water level, or a feedwater isolation signal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Closing these valves during power operation is considered impractical from an operating viewpoint. Closure would reduce feedwater to the steam generators which may result in a severe transient in the steam generator, possibly causing a unit trip.

Test Alternative & Frequency: Valves will be exercised (full stroke) to the closed position and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-CF-05

Valve: 1CF0030, 1CF0039, 1CF0048, 1CF0057
2CF0030, 2CF0039, 2CF0048, 2CF0057

Flow Diagram: CN-1591-1.1
CN-2591-1.1

Code Category: B

ASME Class: ANSI B31.1 (Class F)

Function: Bypass control valves normally modulated by the Digital Feedwater Control System (DFCS) to maintain proper steam generator water level. Automatic closure will occur upon transfer to the auxiliary shutdown panel, an inboard doghouse Hi-Hi water level, or a feedwater isolation signal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Closing these valves during power operation is considered impractical from an operating viewpoint. Closure would reduce feedwater to the steam generators which may result in a severe transient in the steam generator, possibly causing a unit trip.

Test Alternative & Frequency: Valves will be exercised (full stroke) to the closed position and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-FW-01

Valve: 1FW0028, 1FW0056
2FW0028, 2FW0056

Flow Diagram: CN-1571-1.0
CN-2571-1.0

Code Category: C

ASME Class: 2

Function: Opens on flow from Refueling Water Storage Tank to suction of Residual Heat Removal Pumps.

Test Requirement: Full Stroke Open/Close – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number:	CN-FW-02
Valve:	1FW0005 2FW0005
Flow Diagram:	CN-1571-1.0 CN-2571-1.0
Code Category:	A,C
ASME Class:	2
Function:	Provides containment isolation.
Test Requirement:	Full Stroke Closed – Quarterly Exercise check valve (Full Stroke) to the position required to fulfill its function every 3 months.
Basis for Deferral:	System does not provide any indication for verifying valve closure upon flow reversal.
Test Alternative & Frequency:	Verify valve closure during performance of leak rate testing during refueling.

Justification for Deferral

Item Number: CN-IA-01

Valve: 1IACV5340, 1IACV5350, 1IACV5360, 1IACV5370, 1IACV5380, 1IACV5390
2IACV5340, 2IACV5350, 2IACV5360, 2IACV5370, 2IACV5380, 2IACV5390

Flow Diagram: CN-1499-IA1.01
CN-2499-IA1.01

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-KC-01

Valve: 1KC320A, 1KC332B, 1KC333A
2KC320A, 2KC332B, 2KC333A

Flow Diagram: CN-1573-1.3
CN-2573-1.3

Code Category: B

ASME Class: 2

Function: Isolates flow to the reactor coolant drain tank heat exchanger upon receipt of a high containment pressure signal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: 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. This would result in boiling of the water in the reactor coolant drain tank resulting in excess heat in containment. This increased heat load could cause unit shutdown due to exceeding Tech Spec containment temperature limits.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-KC-02

Valve: 1KC0338B, 1KC0424B, 1KC0425A
2KC0338B, 2KC0424B, 2KC0425A

Flow Diagram: CN-1573-1.3
CN-2573-1.3

Code Category: B

ASME Class: 2

Function: Isolates flow to the reactor vessel support coolers, reactor coolant pump motor bearing coolers, and reactor coolant pump thermal barriers, upon receipt of a high-high containment pressure signal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Failure of these valves in the closed position during testing would inhibit flow to the reactor vessel support coolers, reactor coolant pump motor bearing coolers, and reactor coolant pump thermal barriers. This action could result in unit shutdown and possible damage to the vessel and reactor coolant pumps.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-KC-03

Valve: 1KC0047, 1KC0279, 1KC0340
2KC0047, 2KC0279, 2KC0340

Flow Diagram: CN-1573-1.3
CN-2573-1.3

Code Category: A,C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its safety function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-KD-01

Valve: 1KD0006, 1KD0021
2KD0006, 2KD0021

Flow Diagram: CN-1609-1.0
CN-2609-1.0

Code Category: C

ASME Class: 3

Function: Opens on diesel engine start to pass cooling water flow from the diesel generator engine driven jacket water circulation pump.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valve design does not provide any indication of position.

Test Alternative & Frequency: Valves will be verified to operate during monthly Tech Specs Diesel Test (PT/1/A/4350/02A, B - Diesel Generator A, B Operability Test) (PT/2/A/4350/02A, B - Diesel Generator A, B Operability Test) by verifying proper cooling is supplied during diesel run.

In addition, the valves will be disassembled (as required by IE Bulletin No. 83-03) during each refueling and the mechanical integrity of the valve internals verified.

Justification for Deferral

Item Number: CN-NB-01

Valve: 1NB0262
2NB0262

Flow Diagram: CN-1556-2.0
CN-1556-2.0

Code Category: A,C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every three (3) months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-NC-01

Valve: 1NC0057
2NC0057

Flow Diagram: CN-1553-1.1
CN-2553-1.1

Code Category: A,C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-NC-02

Valve: 1NC0032B, 1NC0034A, 1NC0036B
2NC0032B, 2NC0034A, 2NC0036B

Flow Diagram: CN-1553-1.1
CN-2553-1.1

Code Category: B

ASME Class: 1

Function: Reactor Coolant System PORV opens to relieve pressure for the primary system.

Test Requirement: Measure Full Stroke Time/Failed to Safe Position – Quarterly
Stroke time and observe fail-safe operation every three (3) months.

Basis for Deferral: PORVS do not serve a safety function when unit is at operating temperature and pressure. PORVs protect the Reactor Coolant System from over pressurization during LTOP conditions 1(2)NC0032B & 1(2)NC0034A only. Also according to NRC Branch Technical Position RSB5-2 the full stroke exercise should take place during cold shutdown vs. quarterly during power operations due to the high probability of sticking open. Tech Spec prevents Catawba from performing the surveillance test in Modes 1 and 2.

Test Alternative & Frequency: Stroke time testing and fail-safe observation will be performed at cold shutdown for 1(2)NC0032B, 1(2)NC0034A, & 1(2)NC0036B; and in all cases prior to entering LTOP conditions in accordance with Generic Letter 90-06 for 1(2)NC0032B & 1(2)NC0034A. Testing will not be required more often than once per quarter as defined in Oma-1988 Part 10.4.2.1.1.

Justification for Deferral

Item Number: CN-NC-03

Valve: 1NC0250A, 1NC0251B, 1NC0252B, 1NC0253A
2NC0250A, 2NC0251B, 2NC0252B, 2NC0253A

Flow Diagram: CN-1553-1.1
CN-2553-1.1

Code Category: B

ASME Class: 1

Function: Reactor vessel head vent.

Test Requirement: Measure Full Stroke Time – Quarterly
Stroke time test in accordance with Oma-1988 Part 10, 4.2.1.1.

Basis for Deferral: Opening these valves at full pressure could cause damage to the valve seating surfaces. A reactor coolant leak could be caused.

Test Alternative & Frequency: Valve will be cycled and timed during cold shutdown.

Justification for Deferral

Item Number: CN-ND-01

Valve: 1ND0001B, 1ND0002A
2ND0001B, 2ND0002A

Flow Diagram: CN-1561-1.0
CN-2561-1.0

Code Category: A

ASME Class: 1

Function: Valves open to provide suction to Residual Heat Removal Pump A during normal unit cooldown.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: These valves have been provided with an interlock which prevents their opening when Reactor Coolant System pressure is above approximately 425 PSIG.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-ND-02

Valve: 1ND0036B, 1ND0037A
2ND0036B, 2ND0037A

Flow Diagram: CN-1561-1.1
CN-2561-1.1

Code Category: A

ASME Class: 1

Function: Valves open to provide suction to Residual Heat Removal Pump B during normal unit cooldown.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: These valves have been provided with an interlock which prevents their opening when Reactor Coolant System pressure is above approximately 425 PSIG.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-ND-03

Valve: 1ND0010, 1ND0044
2ND0010, 2ND0044

Flow Diagram: CN-1561-1.0, CN-1561-1.1
CN-2561-1.0, CN-2561-1.1

Code Category: C

ASME Class: 2

Function: Residual heat removal pump discharge check valve.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (Full Stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: These valves can only be full stroke tested with the residual heat removal pump operating at full flow in recirculation to the refueling water storage tank. To do this requires closing one of the cold leg injection cross-tie valves and opening the manual valve (1ND0033) (2ND0033) leading back to the FWST. Based on Engineering and Westinghouse evaluation this renders both trains of ND inoperable. This is not allowed by Technical Specification in Modes 1-3 since both trains are required to be operable. Technical Specification requires one train of ND to be operable in Mode 4.

Test Alternative & Frequency: These valves will be exercised (Partial Stroke) by operating the residual heat removal pump in minimum flow mode every 3 months. These valves will be exercised (Full Stroke) during cold shutdown.

Justification for Deferral

Item Number: CN-ND-04

Valve: 1ND0032A, 1ND0065B
2ND0032A, 2ND0065B

Flow Diagram: CN-1561-1.0, CN-1561-1.1
CN-2561-1.0, CN-2561-1.1

Code Category: B

ASME Class: 2

Function: Cross connect cold leg injection flow path from the two trains of residual heat removal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (Full Stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Based on Engineering and Westinghouse evaluation, closing one of these valves renders both trains of residual heat removal inoperable. This is not allowed by Technical Specification in Modes 1-3 since both trains are required to be operable. Technical Specification requires one of train of ND to be operable in Mode 4.

Test Alternative & Frequency: Valves will be exercised (Full Stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-ND-05

Valve: 1ND0028A
2ND0028A

Flow Diagram: CN-1561-1.0
CN-2561-1.0

Code Category: B

ASME Class: 2

Function: Residual Heat Removal pump supply to NV and NI pumps.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Opening valve provides flow path from FWST to suction of centrifugal charging pumps. This could result in a plant transient due to an increase in RCS Boron inventory.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NF-01

Valve: 1NF0229, 1NF0235
2NF0229, 2NF0235

Flow Diagram: CN-1558-2.0
CN-2558-2.0

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-NI-01

Valve: 1NI0009A, 1NI0010B
2NI0009A, 2NI0010B

Flow Diagram: CN-1562-1.0
CN-2562-1.0

Code Category: B

ASME Class: 2

Function: Opens to allow flow from centrifugal charging pump discharge to reactor coolant loop cold leg.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (Full Stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Exercising these valves quarterly during power operations would result in flow of non-preheated water through the injection lines and thermal shocking of the injection nozzles.

Test Alternative & Frequency: Valve will be exercised (Full Stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-02

Valve: 1NI0012
2NI0012

Flow Diagram: CN-1562-1.0
CN-2562-1.0

Code Category: C

ASME Class: 2

Function: Opens on flow from the Centrifugal Charging Pumps.

Test Requirement: Full Stroke Open – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Using a centrifugal charging pump to provide flow to (1NI0012) (2NI0012) would result in injecting borated water into the Reactor Coolant System through the cold leg injection lines. This would result in thermal shock to the reactor coolant piping. During cold shutdowns exercising this valve could result in a low temperature overpressurization of the reactor coolant system.

Test Alternative & Frequency: Exercise check valve (full stroke) to the position required to fulfill its function at refueling.

Justification for Deferral

Item Number: CN-NI-03

Valve: 1NI0015, 1NI0017, 1NI0019, 1NI0021, 1NI0351,
1NI0352, 1NI0353, 1NI0354
2NI0015, 2NI0017, 2NI0019, 2NI0021, 2NI0351,
2NI0352, 2NI0353, 2NI0354

Flow Diagram: CN-1562-1.0
CN-2562-1.0

Code Category: C

ASME Class: 1

Function: These valves open on flow from the Centrifugal Charging Pumps.

Test Requirement: Full Stroke Open – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Operating these valves would require using a centrifugal charging pump to provide flow which would result in injecting borated water into the Reactor Coolant System thereby causing thermal shock to the reactor coolant piping. During cold shutdowns exercising this valve could result in a low temperature overpressurization of the reactor coolant system.

Test Alternative & Frequency: Exercise check valve (full stroke) to the position required to fulfill its function at refueling.

Justification for Deferral

Item Number: CN-NI-04

Valve: 1NI0060, 1NI0071, 1NI0082, 1NI0094
2NI0060, 2NI0071, 2NI0082, 2NI0094

Flow Diagram: CN-1562-1.1
CN-2562-1.1

Code Category: A, C

ASME Class: 1

Function: Opens on flow from the cold leg accumulators, safety injection pumps or residual heat removal pumps to provide flow to the reactor coolant system cold legs.

Valves are classified as Pressure Isolation Valves (PIVs) and are therefore required to close.

Test Requirement: Full Stroke Open/Close – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number: CN-NI-05

Valve: 1NI0048, 1NI0471, 1NI0485
2NI0048, 2NI0471, 2NI0485

Flow Diagram: CN-1562-1.1
CN-2562-1.1

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-NI-06

Valve: 1NI0059, 1NI0070, 1NI0081, 1NI0093
2NI0059, 2NI0070, 2NI0081, 2NI0093

Flow Diagram: CN-1562-1.1
CN-2562-1.1

Code Category: A, C

ASME Class: I

Function: Opens on flow from the cold leg accumulators to provide flow to the reactor coolant system cold legs.

Test Requirement: Full Stroke Open/Close – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number: CN-NI-07

Valve: 1NI0101
2NI0101

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: C

ASME Class: 2

Function: Opens to provide flow from refueling water storage tank to safety injection pumps suction.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valves cannot be full stroke exercised during power operation since the only full flow flowpath discharges into the reactor coolant system. Safety injection pump discharge pressure (~1520 psig) cannot overcome reactor coolant system pressure. During cold shutdown this valve cannot be full stroke exercised since this could result in a low temperature overpressurization of the reactor coolant system.

Test Alternative & Frequency: Exercise check valve (partial stroke) to the position required to fulfill its function every 3 months and exercise check valve (full stroke) to the position required to fulfill its function during refueling.

Justification for Deferral

Item Number: CN-NI-08

Valve: 1NI0100B
2NI0100B

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Provides suction for both trains of safety injection pumps from the refueling water storage tank.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Failure of this valve in the closed position during testing would render both trains of safety injection pumps inoperable.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-09

Valve: 1NI0147B
2NI0147B

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Valve is normally open to provide miniflow path to the refueling water storage tank.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Failure of this valve in the closed position during testing would result in loss of miniflow path for both trains of safety injection pumps. This would result in pump damage due to dead heading the safety injection pumps in the event of a safety injection signal with reactor coolant pressure above 1520 psig (Safety Injection Pump Discharge Pressure).

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-10

Valve: 1NI0116, 1NI0148
2NI0116, 2NI0148

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: C

ASME Class: 2

Function: Opens on flow from the safety injection pumps to the reactor coolant cold legs or hot legs.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valves cannot be full or partial stroke exercised during power operation since the only flowpath discharges into the reactor coolant system. Safety injection pump discharge pressure (~1520 psig) cannot overcome reactor coolant system pressure. During cold shutdown these valves cannot be full or partial stroke exercised since this could result in a low temperature overpressurization of the reactor coolant system.

Test Alternative & Frequency: Exercise check valve (full stroke) to the position required to fulfill its function at refueling.

Justification for Deferral

Item Number: CN-NI-11

Valve: 1NI0124, 1NI0126, 1NI0128, 1NI0134, 1NI0156,
1NI0157, 1NI0159, 1NI0160
2NI0124, 2NI0126, 2NI0128, 2NI0134, 2NI0156,
2NI0157, 2NI0159, 2NI0160

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: A, C

ASME Class: 1

Function: These valves open to provide hot leg recirculation flow from the safety injection pumps.

These valves serve as an inside containment isolation valve and are required to close if not in hot leg recirculation to prevent breach of containment. These valves are also classified as Pressure Isolation Valves (PIVs) and are required to close per Technical Specification.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valves cannot be full or partial stroke exercised during power operation since the only flowpath discharges into the reactor coolant system. Safety injection pump discharge pressure (~1520 psig) cannot overcome reactor coolant system pressure. During cold shutdown these valves cannot be full or partial stroke exercised since this could result in a low temperature overpressurization of the reactor coolant system.

Test Alternative & Frequency: Exercise check valve (full stroke) to the position required to fulfill its function at refueling.

Justification for Deferral

Item Number: CN-NI-12

Valve: 1NI0162A
2NI0162A

Flow Diagram: CN-1562-1.3
CN-2562-1.3

Code Category: B

ASME Class: 2

Function: Valve is normally open to provide cold leg injection flow from both trains of safety injection pumps.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Failure of this valve in the closed position during testing would result in loss of cold leg injection flow from the safety injection pumps rendering both trains of safety injection inoperable.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-13

Valve: 1NI0165, 1NI0167, 1NI0169, 1NI0171
2NI0165, 2NI0167, 2NI0169, 2NI0171

Flow Diagram: CN-1562-1.3
CN-2562-1.3

Code Category: A, C

ASME Class: I

Function: Valves open on cold leg injection flow from the safety injection pumps.

Valves are classified as Pressure Isolation Valves (PIVs) and are therefore required to close.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valves cannot be full or partial stroke exercised during power operation since the only flowpath discharges into the reactor coolant system. Safety Injection Pump Discharge Pressure (~ 1520 psig) cannot overcome reactor coolant system pressure. During cold shutdown these valves cannot be full or partial stroke exercised since this could result in a low temperature overpressurization of the reactor coolant system.

Test Alternative & Frequency: Exercise check valve (full stroke) to the position required to fulfill its function at refueling.

Justification for Deferral

Item Number: CN-NI-14

Valve: 1NI0175, 1NI0176, 1NI0180, 1NI0181
2NI0175, 2NI0176, 2NI0180, 2NI0181

Flow Diagram: CN-1562-1.3
CN-2562-1.3

Code Category: A, C

ASME Class: 1

Function: Valves open on cold leg injection from the residual heat removal pumps.

Test Requirement: Full Stroke Open/Close – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number: CN-NI-15

Valve: 1NI0173A, 1NI0178B
2NI0173A, 2NI0178B

Flow Diagram: CN-1562-1.3
CN-2562-1.3

Code Category: B

ASME Class: 2

Function: Each valve isolates two of the four cold leg injection flow paths from the residual heat removal discharge crossover line.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise (Full Stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Based on Engineering and Westinghouse evaluation, closing one of these valves renders both trains of residual heat removal inoperable. This is not allowed by Technical Specification in Modes 1-3 since both trains are required to be operable. Technical Specification requires one train of ND to be operable in Mode 4.

Test Alternative & Frequency: Valves will be exercised (Full Stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-16

Valve: 1NI0183B
2NI0183B

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Opens to align hot leg injection during recirculation phase following safety injection actuation.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (Full Stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Based on Engineering and Westinghouse evaluation, in order for a train of ND to be operable to perform its ECCS function, it must be able to discharge into all four cold leg injection lines. This is in the event of single train failure. With this additional valve open, one ND pump could then be aligned to all four cold leg injection paths plus two hot leg paths during an ECCS actuation.

Test Alternative & Frequency: Valve will be exercised (Full Stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-17

Valve: 1NI0184B, 1NI0185A
2NI0184B, 2NI0185A

Flow Diagram: CN-1562-1.3
CN-2562-1.3

Code Category: B

ASME Class: 2

Function: Opens to provide flow from the Containment Sump to the suction of Residual Heat Removal and Containment Spray Pumps during post accident recirculation phase.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (Full Stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: To prevent water from entering lower containment when cycling these valves, piping downstream must be drained. This results in making one train of ECCS inoperable for an extended period of time until completion of the test, refilling the piping and realignment of isolation valves. Also, the large amount of potentially contaminated water that must be drained is a major Health Physics and Radwaste Chemistry problem.

Test Alternative & Frequency: Valve will be exercised (Full Stroke) to the position required to fulfill its function and stroke time during Cold Shutdown.

Justification for Deferral

Item Number: CN-NI-18

Valve: INI0332A, 1NI0333B
2NI0332A, 2NI0333B

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Aligns discharge of ND Pump 1A to suction of NI and NV Pumps.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: If one of these valves were to fail in the open position during testing, the FWST would be aligned to the suction of the charging pumps. This could result in an increase in RCS Boron inventory and could result in plant shutdown.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its safety function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-19

Valve: 1NI0136B
2NI0136B

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Valve is opened for the recirculation phase of ECCS operation to allow flow from the residual heat removal pumps to the safety injection pumps.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (Full Stroke) to the position required to fulfill its function and stroke time every three months.

Basis for Deferral: Based on Engineering evaluation, opening this valve during power operation could degrade ND system flow in the event of a Large Break LOCA.

Test Alternative & Frequency: Valve will be exercised (Full Stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-20

Valve: 1NI0342
2NI0342

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: C

ASME Class: 2

Function: Opens to provide suction to the safety injection pumps from residual heat removal pump (1B) (2B) discharge during the recirculation phase following safety injection actuation.

Closes if Train A ND recirculation is in service via the NI pump suction header and Train B ND is shutdown and depressurized.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valve cannot be full stroke exercised during power operation since the only full flow flowpath discharges into the Reactor Coolant system. Safety injection pump discharge pressure (approximately 1520 psig) cannot overcome Reactor Coolant System pressure.

Valve cannot be full stroke exercised during cold shutdown since this could result in a cold overpressurization of the Reactor Coolant System.

Valve cannot be partial stroke exercised during power operation since the valve lineup would require opening (1NI0136B) (2NI0136B). If an accident would occur with (1NI0136B) (2NI0136B) open, injection flow would be diverted from both trains of the ND system.

Test Alternative & Frequency: Exercise check valve (partial stroke) to the position required to fulfill its function at cold shutdown. Exercise check valve (full stroke, open & close) to the position required to fulfill its function at refueling.

Justification for Deferral

Item Number: CN-NI-21

Valve: 1NI0121A, 1NI0152B
2NI0121A, 2NI0152B

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Valves 1(2)NI0121A and 1(2)NI0152B are motor operated gate valves on the discharge side of NI Pump A and B to NC Loops B&C and A&D, respectively. The valves are normally closed during the injection phase and cold leg recirculation phases of ECCS operation to prevent diversion of flow via the NC hot legs.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve full-stroke to position required to fulfill its function and stroke time every three months per Oma-1988 Part 10, 4.2.1.1.

Basis for Deferral: Exercising the valves in modes 1-3 can result in challenging NI pump discharge relief valves and overpressurization of NI piping due to reactor coolant leakage pressurizing piping downstream.

Alternate Testing & Frequency: These valves will be exercised (full-stroked) to position to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NI-22

Valve: 1NI0144A, 2NI0144A

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Valves NI0144A are motor operated valves on the NI Pump B miniflow line. The valves are open during the injection mode when the NI Pumps are operating. During the recirculation mode, when the NI Pumps are taking suction from the containment sump (via the ND System), the valves are closed to isolate the miniflow line. Closure of the valves prevents the possibility of introducing reactor coolant water into the FWST and diversion of flow from the NC System. The valves are also interlocked with valves ND0028A & NI0136B such that they can not be opened unless valves ND0028A and NI0136B are closed.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve full-stroke to position required to fulfill its function and stroke time every three months per OMa-1988 Part 10, 4.2.1.1.

Basis for Deferral: If NI0144A was closed for testing and of a loss of offsite power with the loss of Train A diesel generator as the single failure occurred, the valve could not be reopened which would result in a loss of both NI pumps.

Test Alternative & Frequency: These valves will be exercised (full-stroked) to position to fulfill its function during cold shutdown.

Justification for Deferral

Item Number: CN-NI-23

Valve: INI0334B, 2NI0334B

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Provides flowpath from B Train of Residual Heat Removal to B Train of Chemical and Volume Control, and from A Train of Residual Heat Removal to A Train of Safety Injection.

Test Requirement: Measure Full Stroke Time – Quarterly
Stroke time test in accordance with Oma-1988 Part 10,4.2.1.1.

Basis for Deferral: Closing this valve during power operation degrades both trains of Safety Injection. With the single failure of Train B diesel generator, Train A of Safety Injection, which is provided suction from Residual Heat Removal via NI0334B or NI0136B, would be inoperable (since NI0136B is normally closed). Train B of Safety Injection would already be inoperable due to the single failure.

Test Alternative & Frequency: Valve will be cycled and stroke timed tested during cold shutdown.

Justification for Deferral

Item Number: CN-NI-24

Valve: 1NI0103A, 2NI0103A

Flow Diagram: CN-1562-1.2
CN-2562-1.2

Code Category: B

ASME Class: 2

Function: Provides flow from the Refueling Water Storage Tank to the A Train Safety Injection Pump suction. This valve also provides a flow path from the B Train Residual Heat Removal Pump to the A Train Safety Injection Pump and both Centrifugal Charging Pumps.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve full-stroke to position required to fulfill its function and stroke time every three months per Oma-1988 Part 10, 4.2.1.1.

Basis for Deferral: Closing this valve during power operations degrades both trains of the Chemical and Volume Control System. In the event of a loss of offsite power with the loss of the Train A Diesel Generator as the single failure when the valve was closed, B Train NV would be lost for sump recirculation mode of operation. Train A NV would already be inoperable due to the single failure.

Alternate Testing & Frequency: These valves will be exercised to the position to fulfill their function during cold shutdown.

Justification for Deferral

Item Number: CN-NI-25

Valve: 1NI0054A, 1NI0065B, 1NI0076A, 1NI0088B
2NI0054A, 2NI0065B, 2NI0076A, 2NI0088B

Flow Diagram: CN-1562-1.1
CN-2562-1.1

Code Category: B

ASME Class: 2

Function: Valve is administratively open with power removed during normal operation. Some accidents require closure of these valves to prevent injecting nitrogen into the NC System.

Test Requirement: Measure Full Stroke Time - Quarterly
Exercise valve full stroke to the position required to fulfill its function and stroke time every three months per OMa-1988 Part 10, 4.2.1.1.

Basis for Deferral: Valves cannot be full or partial stroke exercised during power operations since closure of any of the four valve violates TS 3.5.1.

Test Alternative & Frequency: These valves will be exercised (closed) to the position to fulfill their function during refueling.

Justification for Deferral

Item Number:	CN-NM-01
Valve:	1NM0424, 1NM0425 2NM0424, 2NM0425
Flow Diagram:	CN-1572-1.0 CN-2572-1.0
Code Category:	A, C
ASME Class:	2
Function:	Provides containment isolation.
Test Requirement:	Full Stroke Closed – Quarterly Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.
Basis for Deferral:	System does not provide any indication for verifying valve closure upon flow reversal.
Test Alternative & Frequency:	Verify valve closure during performance of leak rate testing during refueling.

Justification for Deferral

Item Number: CN-NS-01

Valve: 1NS0004, 1NS0021, 1NS0098, 1NS0099
2NS0004, 2NS0021, 2NS0098, 2NS0099

Flow Diagram: CN-1563-1.0
CN-2563-1.0

Code Category: C

ASME Class: 2

Function: Valves open to provide flow from the refueling water storage tank to the spray headers.

Test Requirement: Full Stroke Open/Close – Quarterly

Basis for Deferral: Adoption of the 1995 ASME OM Code, specifically Appendix II or Condition Monitoring.

Test Alternative & Frequency: These valves are part of the Condition Monitoring Program. Based on the maintenance history, the testing interval has been extended. Additional information can be obtained from the Condition Monitoring database.

Justification for Deferral

Item Number: CN-NS-02

Valve: 1NS0013, 1NS0016, 1NS0030, 1NS0033, 1NS0041, 1NS0046
2NS0013, 2NS0016, 2NS0030, 2NS0033, 2NS0041, 2NS0046

Flow Diagram: CN-1563-1.0
CN-2563-1.0

Code Category: C

ASME Class: 2

Function: Opens to flow from the containment spray and residual heat removal pumps to the containment spray headers.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: To full or partial stroke these valves flow from the containment spray or residual heat removal pumps would have to be initiated. This would result in spraying water through the spray nozzles into containment.

Test Alternative & Frequency: During each refueling one of the six check valves will be disassembled and the disk will be mechanically exercised. The next refueling a different valve in this group will be disassembled and so on, such that all six valves will be tested within a six refueling time period. Should any one valve fail to stroke acceptably, the remaining five valves will also be disassembled.

Justification for Deferral

Item Number: CN-NS-03

Valve: 1NS0038B, 1NS0043A
2NS0038B, 2NS0043A

Flow Diagram: CN-1563-1.0
CN-2563-1.0

Code Category: B

ASME Class: 2

Function: Residual Heat Pump A (and B) to Containment Spray Header
Containment Isolation Valve.

Test Requirement: Measure Full Stroke Time – Quarterly
Stroke time test in accordance with Oma-1988, Part 10, 4.1.1.1.

Basis for Deferral: If an accident occurred with one of these valves open, injection flow
would be diverted from both trains of the ND System.

Test Alternative & Frequency: Valves will be exercised (full stroke) to the position required to fulfill
its function and stroke timed during Cold Shutdown.

Justification for Deferral

Item Number: CN-NV-01

Valve: 1NV0015B
2NV0015B

Flow Diagram: CN-1554-1.0
CN-2554-1.0

Code Category: A

ASME Class: 2

Function: Valves closes to isolate flow to the letdown heat exchanger.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Failure of this valve in the closed position during testing would result in loss of pressurizer level control and could result in plant shutdown.

Test Alternative & Frequency: Valve will be exercise (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NV-02

Valve: 1NV0089A, 1NV0091B
2NV0089A, 2NV0091B

Flow Diagram: CN-1554-1.0
CN-2554-1.0

Code Category: B

ASME Class: 2

Function: These valves isolate the return flow path from the reactor coolant pump seal water supply.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Closure of one of these valves during power operation would increase backpressure on the seals, reducing leakoff flow and lifting relief valve 1(2)NV0087 to divert leakoff to the PRT. Damage to RCP seals could result.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NV-03

Valve: INV0188A, INV0189B
2NV0188A, 2NV0189B

Flow Diagram: CN-1554-1.1
CN-2554-1.1

Code Category: B

ASME Class: 2

Function: Valves close to isolate the volume control tank (normal charging supply) upon receipt of a safety injection signal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Closure of one of these valves during normal unit operation would isolate the normal suction for the charging pumps. Alternate suction paths would result in increasing the reactor coolant system boron inventory and could result in plant shutdown. In addition, seal water for the reactor coolant pumps would be inhibited. This may result in damage to the reactor coolant pump seals.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NV-04

Valve: INV0312A, INV0314B
2NV0312A, 2NV0314B

Flow Diagram: CN-1554-1.2
CN-2554-1.2

Code Category: B

ASME Class: 2

Function: Valves close to isolate the charging line to the Reactor Coolant System upon receipt of a safety injection signal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Closure of one of these valves during power operation would isolate charging flow to the Reactor Coolant System. This could result in loss of pressurizer level control and cause plant shutdown.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NV-05

Valve: INV0254
2NV0254

Flow Diagram: CN-1554-1.7
CN-2554-1.7

Code Category: C

ASME Class: 2

Function: Valve opens on flow from the refueling water storage tank to suction of the centrifugal charging pumps.

Valve serves as a backup to, and must close to prevent over-pressurization of the FW System piping if up stream isolation valves NV0252A and NV0253B are open and the charging pump suction is pressurized from one of the alternate sources.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valve cannot be full or partial stroke exercised during power operation as this would increase the reactor coolant system boron inventory and possibly cause plant shutdown. This valve cannot be full stroke exercised during cold shutdown since this could result in a cold overpressurization of the reactor coolant system.

Test Alternative & Frequency: Exercise check valve (partial stroke) to the position required to fulfill its function at cold shutdown. Exercise check valve (full stroke) to the position required to fulfill its function at refueling.

Justification for Deferral

Item Number: CN-NV-06

Valve: 1NV0270, 1NV0290
2NV0270, 2NV0290

Flow Diagram: CN-1554-1.7
CN-2554-1.7

Code Category: C

ASME Class: 2

Function: Open to provide flow from the centrifugal charging pumps to the normal charging line or Cold Leg Injection Header.

Closes to prevent overpressurization of the charging pump suction header from opposite train operating pump back through idle same train pump.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valves cannot be full stroke exercised during power operation. The only full flow flowpath is through the Cold Leg Injection Header into the reactor coolant system. This would cause an increase in reactor coolant system boron inventory and possibly cause plant shutdown. Valves cannot be full stroke exercised during cold shutdown since this could result in a cold overpressurization of the reactor coolant system.

Test Alternative & Frequency: Exercise check valve (partial stroke) to the position required to fulfill its function every 3 months. Exercise check valve (full stroke) to the position required to fulfill its function at refueling.

Justification for Deferral

Item Number: CN-NV-07

Valve: INV0202B, INV0203A
2NV0202B, 2NV0203A

Flow Diagram: CN-1554-1.6
CN-2554-1.6

Code Category: B

ASME Class: 2

Function: Valves can be closed to isolate the centrifugal charging pump miniflow line during cold leg injection phase following a LOCA.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Failure of one of these valves in the closed position during test would isolate the centrifugal charging pumps miniflow line. This path must remain open in the event of a LOCA until the operator verifies a primary side break at which time the valves are closed. In the event of a secondary side break, the miniflow path must remain open in order to prevent possible dead heading and damaging the centrifugal charging pumps.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number:	CN-NV-08
Valve:	1NV0813 2NV0813
Flow Diagram:	CN-1554-1.7 CN-2554-1.7
Code Category:	C
ASME Class:	2
Function:	Opens to provide suction to the centrifugal charging pumps from residual heat removal pump discharge during the recirculation phase following safety injection actuation. Closes if Train B ND is in recirculation via NI pump suction header and Train A ND is shutdown and depressurized.
Test Requirement:	Full Stroke Open/Close – Quarterly Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.
Basis for Deferral:	Valve cannot be full stroke exercised during power operation since the only full flow flowpath discharges into the Reactor Coolant System. This would cause an increase in Reactor Coolant System boron inventory and possibly cause plant shutdown. Valve cannot be partial stroke exercised during power operation. Use of the partial stroke flowpath (through the miniflow line to the seal water heat exchanger) would: 1) Cause an increase in the boron concentration in the volume control tank which is the normal source of makeup water for the positive displacement charging pump. This would cause an increase in the Reactor Coolant System boron inventory and possibly cause plant shutdown. 2) Cause the return path for the reactor coolant pump seal water to be deadheaded due to the miniflow path pressure. This would result in reduced seal cooling, diversion of seal leakoff to the PRT, and cause possible pump damage. Valve cannot be full stroke exercised during cold shutdown since this could result in a low temperature overpressurization of the Reactor Coolant System.
Test Alternative & Frequency:	Exercise check valve (partial stroke) to the position required to fulfill its function during cold shutdown and exercise check valve (full stroke open & close) to the position required to fulfill its function during refueling.

Justification for Deferral

Item Number: CN-NV-09

Valve: 1NV0090, 1NV0874
2NV0090, 2NV0874

Flow Diagram: CN-1554-1.8
CN-2554-1.8

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-NV-10

Valve: INV0252A, INV0253B
2NV0252A, 2NV0253B

Flow Diagram: CN-1554-1.7
CN-2554-1.7

Code Category: B

ASME Class: 2

Function: Aligns refueling water storage tank (FWST) to the suction of the centrifugal charging pumps upon receipt of a safety injection signal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: If one of these valves were to fail in the open position during testing, the FWST would be aligned to the suction of the charging pumps. This would result in an increase in RCS Boron inventory and could result in a plant shutdown.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NV-11

Valve: 1NV0010A, 1NV0011A, 1NV0013A
2NV0010A, 2NV0011A, 2NV0013A

Flow Diagram: CN-1554-1.0
CN-2554-1.0

Code Category: B

ASME Class: 2

Function: These valves must automatically close to isolate containment upon receipt of a Pressurizer Low Level signal, if either valve 1(2)NV0001A or 1(2)NV0002A closes, upon receipt of a Phase A Containment Isolation Signal (ST), or on a concurrent failure of the PD pump and both centrifugal charging pumps. These valves are cross-interlocked with valves 1(2)NV0001A and 1(2)NV0002A such that they will automatically close if either 1(2)NV0001A or 1(2)NV0002A is not in the "Open" position. These valves can be operated from the Auxiliary Shutdown Panel, and cannot be opened unless valves 1(2)NV0001A and 1(2)NV0002A are both open.

Test Requirement: Measure Full Stroke Time/Failed to Safe Position – Quarterly
Stroke time and observe fail-safe operation every three (3) months.

Basis for Deferral: Letdown header relief valve 1(2)NV0014 has experienced lifting and subsequent seat leakage as a result of pressure transients during orifice swaps for stroke time testing of valves 1(2)NV0010A, 1(2)NV0011A, and 1(2)NV0013A. Leakage past 1(2)NV0014 is considered Reactor Coolant (NC) system leakage. This leakage directly impacts Technical Specification.

Based on the above, testing of these valves is impractical and non-conservative during power operation.

Test Alternative & Frequency: Valves 1(2)NV0010A, 1(2)NV0011A, and 1(2)NV0013 will be stroke time tested and fail-safe operation verified during cold shutdown.

Justification for Deferral

Item Number: CN-NV-12

Valve: INV0001A, 1NV0002A
2NV0001A, 2NV0002A

Flow Diagram: CN-1554-1.0
CN-2554-1.0

Code Category: B

ASME Class: 1

Function: Valves closes to isolate flow to the letdown heat exchanger.

Test Requirement: Measure Full Stroke Time/Failed to Safe Position – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function, observe fail-safe operation, and stroke time every 3 months.

Basis for Deferral: Failure of this valve in the closed position during testing would result in loss of pressurizer level control and could result in plant shutdown. Also causes letdown pressure transient, refer to CN-NV-11 Deferral.

Test Alternative & Frequency: Valve will be exercise (full stroke) to the position required to fulfill its function, fail-safe operation verified, and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-NW-01

Valve: 1NW0006, 1NW0063
2NW0006, 2NW0063

Flow Diagram: CN-1569-1.0
CN-2569-1.0

Code Category: C

ASME Class: 2

Function: Open to provide flow from Nuclear Service Water System to the containment valve injection water surge chambers.

Test Requirement: Full Stroke Open – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Operating these valves would result in placing raw water in the NW System.

Test Alternative & Frequency: Exercise check valve (full stroke) to the position required to fulfill its function at refueling (NW surge chamber can be drained and isolated at this time.)

Justification for Deferral

Item Number: CN-NW-02

Valve: 1NW0017, 1NW0021, 1NW0024, 1NW0027, 1NW0037, 1NW0040,
1NW0043, 1NW0047, 1NW0050, 1NW0070, 1NW0074, 1NW0077,
1NW0080, 1NW0086, 1NW0089, 1NW0092, 1NW0095, 1NW0098,
1NW0101, 1NW0107, 1NW0109, 1NW0111, 1NW0114, 1NW0120,
1NW0121, 1NW0123 through 1NW0133, 1NW0135, 1NW0136,
1NW0138, 1NW0139, 1NW0140, 1NW0141, 1NW0147, 1NW0148,
1NW0159, 1NW0160, 1NW0163, 1NW0164, 1NW0168, 1NW0169,
1NW0171, 1NW0172, 1NW0178, 1NW0179, 1NW0183, 1NW0184,
1NW0188, 1NW0189, 1NW0196, 1NW0197, 1NW0201, 1NW0202,
1NW0205, 1NW0206, 1NW0209, 1NW0210, 1NW0213, 1NW0214,
1NW0218, 1NW0219, 1NW0223, 1NW0224, 1NW0230, 1NW0231,
1NW0240, 1NW0241, 1NW0245, 1NW0246

2NW0017, 2NW0021, 2NW0024, 2NW0027, 2NW0037, 2NW0040,
2NW0043, 2NW0047, 2NW0050, 2NW0070, 2NW0074, 2NW0077,
2NW0080, 2NW0086, 2NW0089, 2NW0092, 2NW0095, 2NW0098,
2NW0101, 2NW0107, 2NW0109, 2NW0111, 2NW0114, 2NW0120,
2NW0121, 2NW0123 through 2NW0133, 2NW0135, 2NW0136,
2NW0138, 2NW0139, 2NW0140, 2NW0141, 2NW0147, 2NW0148,
2NW0159, 2NW0160, 2NW0163, 2NW0164, 2NW0168, 2NW0169,
2NW0171, 2NW0172, 2NW0178, 2NW0179, 2NW0183, 2NW0184,
2NW0188, 2NW0189, 2NW0196, 2NW0197, 2NW0201, 2NW0202,
2NW0205, 2NW0206, 2NW0209, 2NW0210, 2NW0213, 2NW0214,
2NW0218, 2NW0219, 2NW0223, 2NW0224, 2NW0230, 2NW0231,
2NW0240, 2NW0241, 2NW0245, 2NW0246

Flow Diagram: CN-1569-1.0
CN-2569-1.0

Code Category: C

ASME Class: 2

Function: These valves open to supply containment valve injection water to certain containment isolation valves.

Justification for Deferral

Item Number: CN-NW-02 (Continued)

Test Requirement: Full Stroke Open – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its functions every 3 months.

Basis for Deferral: Normal plant conditions will not allow these check valves to operate since the valves fed by the NW System are in systems which are normally pressurized with flow passing through them.

To operate the check valves normal system pressures would have to be bled off in order to allow NW pressure to open the check valves. This is not possible during normal plant operation.

Test Alternative & Frequency: Valves will be full stroked open each refueling outage.

Justification for Deferral

Item Number: CN-RF-01

Valve: 1RF0392, 1RF0448
2RF0392, 2RF0448

Flow Diagram: CN-1599-2.2
CN-2599-2.2

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-RN-01

Valve: 1RN0405, 1RN0438, 1RN0485
2RN0405, 2RN0438, 2RN0485

Flow Diagram: CN-1574-2.8, CN-1574-2.2
CN-2574-2.2, CN-2574-2.7

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-RN-02

Valve: IRN0437B
2RN0437B

Flow Diagram: CN-1574-2.8
CN-2574-2.2

Code Category: B

ASME Class: 2

Function: This valve closes on a high-high containment pressure signal to isolate the supply header to lower containment.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke every 3 months.

Basis for Deferral: Failure of this valve in the closed position during testing would result in loss of nuclear service water flow to the reactor coolant pump motor coolers. This would result in unit shutdown and possible damage to the reactor coolant pumps.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown.

Justification for Deferral

Item Number: CN-SA-01

Valve: 1SA0003, 1SA0006
2SA0003, 2SA0006

Flow Diagram: CN-1593-1.1
CN-2593-1.1

Code Category: C

ASME Class: 2

Function: Closes to prevent steam flow reversal in the event of a loss of steam generator.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months per Oma-1988 Part 10,4.3.2.1. Check valve reverse flow test per GL 89-04.

Basis for Deferral: System design does not provide any indication for verifying valve position. No means exist to test for valve closure.

Test Alternative & Frequency: Verification of ability to prevent reverse flow will be performed during refueling. During each refueling one of the two check valves will be disassembled and the disk will be mechanically exercised. The next refueling the other valve will be disassembled, such that both valves will be tested within a two refueling time period. Should any one valve fail to stroke acceptably, the remaining valve will also be disassembled.

Justification for Deferral

Item Number: CN-SM-01

Valve: 1SM0001, 1SM0003, 1SM0005, 1SM0007
2SM0001, 2SM0003, 2SM0005, 2SM0007

Flow Diagram: CN-1593-1.0
CN-2593-1.0

Code Category: B

ASME Class: 2

Function: Main steam isolation valves.

Test Requirement: Measure Full Stroke Time/Failed to Safe Position – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function, stroke time, and verify fail safe actuation every 3 months.

Basis for Deferral: Closure of these valves during power operation could introduce a severe transient in the main steam lines which could cause a unit trip.

Test Alternative & Frequency: Valves will be exercised (full stroke) to the position required to fulfill its function, stroke timed, and fail safe actuation verified during startup after cold shutdown.

Justification for Deferral

Item Number: CN-VB-01

Valve: 1VB0085
2VB0085

Flow Diagram: CN-1605-3.2
CN-2605-3.2

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-VG-01

Valve: 1VG0015, 1VG0016, 1VG0029, 1VG0030, 1VG0031, 1VG0032,
1VG0059, 1VG0060, 1VG0073, 1VG0074, 1VG0075, 1VG0076
2VG0015, 2VG0016, 2VG0029, 2VG0030, 2VG0031, 2VG0032,
2VG0059, 2VG0060, 2VG0073, 2VG0074, 2VG0075, 2VG0076

Flow Diagram: CN-1609-4.0, CN-1609-4.1
CN-2609-4.0, CN-2609-4.1

Code Category: C

ASME Class: 3

Function: Open to supply starting air to Diesel Generators.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its
function every 3 months.

Basis for Deferral: No method exists of directly verifying valve movement. Failure of one
valve to operate will result in increase in start time of diesel generator
during performance of monthly Tech Spec Surveillance Requirement.

Test Alternative & Frequency: Valve will be verified to operate during monthly Tech Spec Diesel Test
(PT/1/A/4350/02A,B - Diesel Generator A, B Operability Test)
(PT/2/A/4350/02A,B - Diesel Generator A, B Operability Test)
by verifying diesel starts within required time. In addition, during cold
shutdown, a test will be performed which verifies the diesel is able to
start within required time with one starting air tank disabled at a time.
The test will be performed twice, first with one bank disabled, then with
the opposite bank disabled.

Justification for Deferral

Item Number: CN-VG-02

Valve: 1VG0025, 1VG0026, 1VG0027, 1VG0028, 1VG0069, 1VG0070,
1VG0071, 1VG0072
2VG0025, 2VG0026, 2VG0027, 2VG0028, 2VG0069, 2VG0070,
2VG0071, 2VG0072

Flow Diagram: CN-1609-4.0, CN-1609-4.1
CN-2609-4.0, CN-2609-4.1

Code Category: B

ASME Class: 3

Function: Open to supply starting air to Diesel Generators

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months. Verify remote position indication every 2 years.

Basis for Deferral: Valve design does not provide any indication of position. Failure of this valve to perform its required function will result in increase in start time of Diesel Generator during performance of monthly Tech Spec Surveillance Requirement.

Test Alternative & Frequency: Valves will be verified to operate during monthly Tech Spec Diesel Test (PT/1/A/4350/02A, B - Diesel Generator A, B Operability Test) Test (PT/2/A/4350/02A, B - Diesel Generator A, B Operability Test) by verifying diesel starts within required time. In addition, during cold shutdown a test will be performed which verifies the diesel is able to start within required time with one starting air bank disabled at a time. The test will be performed twice, first with one bank disabled, then with the opposite bank disabled.

Justification for Deferral

Item Number: CN-VG-03

Valve: 1VG0133, 1VG0134, 1VG0135, 1VG0136
2VG0133, 2VG0134, 2VG0135, 2VG0136

Flow Diagram: CN-1609-4.0, CN-1609-4.1
CN-2609-4.0, CN-2609-4.1

Code Category: C

ASME Class: 3

Function: Opens during diesel operation to provide air to the engine control panel.
Closes if starting air tank is depressurized to prevent diversion of air from the opposite starting air tank to the control panel.

Test Requirement: Full Stroke Open/Close – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: Valve design does not provide any indication of position. Test connections are not available to facilitate individual valve testing.

Test Alternative & Frequency: During each refueling, one of the four check valves will be disassembled and the disc mechanically exercised. The next refueling, a different valve will be disassembled, and so on, such that all four valves will be tested within a four refueling time period. Should any one valve fail to stroke acceptably, the remaining three valves will also be disassembled.

Justification for Deferral

Item Number: CN-VI-01

Valve: 1VI0079
2VI0079

Flow Diagram: CN-1605-1.4
CN-2605-1.5

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-VI-02

Valve: 1VI0077B
2VI0077B

Flow Diagram: CN-1605-1.4
CN-2605-1.5

Code Category: A

ASME Class: 2

Function: Provides containment isolation. Closes upon receipt of a containment high-high pressure signal.

Test Requirement: Measure Full Stroke Time – Quarterly
Exercise valve (full stroke) to the position required to fulfill its function and stroke time every 3 months.

Basis for Deferral: Failure of this valve in the closed position during testing would result in loss of instrument air supply to valves and controls within containment. This would result in loss of normal reactor coolant letdown, containment ventilation unit controls, normal air supply to the power operated relief valves, etc., thereby possibly causing unit shutdown.

Test Alternative & Frequency: Valve will be exercised (full stroke) to the position required to fulfill its function and stroke timed during cold shutdown. Leak rate performance testing will be performed at refueling.

Justification for Deferral

Item Number: CN-VI-03

Valve: 1VI0367, 1VI0368
2VI0367, 2VI0368

Flow Diagram: CN-1605-1.14
CN-2605-1.5

Code Category: C

ASME Class: N, A

Function: Close to prevent reverse flow of nitrogen from cold leg accumulator when supplying PORV's from safety air source.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during cold shutdown by stroking the PORV's using the safety air source.

Justification for Deferral

Item Number: CN-VI-04

Valve: 1VI0369, 1VI0370
2VI0369, 2VI0370

Flow Diagram: CN-1605-1.14
CN-2605-1.5

Code Category: C

ASME Class: N, A

Function: Open to provide flowpath for nitrogen from cold leg accumulator when supplying PORV's from safety air source.

Test Requirement: Full Stroke Open – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve operation when passing flow.

Test Alternative & Frequency: Verify proper valve operation during cold shutdown by stroking the PORV's using the safety air source.

Justification for Deferral

Item Number: CN-VS-01

Valve: 1VS0056
2VS0056

Flow Diagram: CN-1605-2.1

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function ever 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-VY-01

Valve: 1VY0016
2VY0016

Flow Diagram: CN-1559-1.0
CN-2559-1.0

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-WL-01

Valve: 1WLA022, 1WL0321, 1WL0806, 1WL0868
2WLA022, 2WL0321, 2WL0806, 2WL0868

Flow Diagram: CN-1565-2.6, 2.4, 2.0, 2.1
CN-2565-2.6, 2.4, 2.0, 2.1

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

Justification for Deferral

Item Number: CN-YM-01

Valve: 1YM0121
2YM0121

Flow Diagram: CN-1601-3.1
CN-1601-3.1

Code Category: A, C

ASME Class: 2

Function: Provides containment isolation.

Test Requirement: Full Stroke Closed – Quarterly
Exercise check valve (full stroke) to the position required to fulfill its function every 3 months.

Basis for Deferral: System design does not provide any indication for verifying valve closure upon flow reversal.

Test Alternative & Frequency: Verify valve closure during performance of leak rate test during refueling.

DUKE POWER
CATAWBA NUCLEAR STATION

SUPPLEMENTAL TEST PROGRAM

Section 7.0

Catawba Nuclear Station

Supplemental Testing Program - Valves

10/31/2002

Interval 2, Revision 26

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
CA - Auxiliary Feedwater System												
1CAK360	CN-1499-CA10	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK360	CN-2499-CA10	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK361	CN-1499-CA10	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK361	CN-2499-CA10	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK400	CN-1499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK400	CN-2499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK401	CN-1499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK401	CN-2499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK440	CN-1499-CA7	00	C	Yes	C	Self Actuated	None	No				

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
1CAK560	CN-1499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK560	CN-2499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK561	CN-1499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK561	CN-2499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK600	CN-1499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK600	CN-2499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK601	CN-1499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK601	CN-2499-CA7	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK640	CN-1499-CA10	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK640	CN-2499-CA10	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
1CAK641	CN-1499-CA10	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None
2CAK641	CN-2499-CA10	00	C	Yes	C	Self Actuated	None	No	FS	Full-Stroke Exercise	Open to Closed	None

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
1KC0313	CN-1573-1.3	I12	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0313	CN-2573-1.3	I12	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0330	CN-1573-1.3	B1	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0330	CN-2573-1.3	B1	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0355	CN-1573-1.7	K10	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0355	CN-2573-1.7	K10	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0361	CN-1573-1.7	H8	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0361	CN-2573-1.7	H8	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0374	CN-1573-1.7	K4	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0374	CN-2573-1.7	K4	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0380	CN-1573-1.7	H2	C	Yes	C	Self Actuated	None	No				

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
								RV	Safety and Relief Valve	Closed to Open	None	
2KC0380	CN-2573-1.7	H2	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0386	CN-1573-1.4	H12	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0386	CN-2573-1.4	H12	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0392	CN-1573-1.4	K10	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0392	CN-2573-1.4	K10	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0404	CN-1573-1.4	H6	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0404	CN-2573-1.4	H6	C	Yes	C	Self Actuated	None	No	PV	MOVATS/VOTES -	Closed to Open	None
1KC0410	CN-1573-1.4	J4	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0410	CN-2573-1.4	J4	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1KC0814	CN-1573-1.5	G1	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2KC0814	CN-2573-1.5	G1	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
<i>NB - Boron Recycle System</i>												
1NB0331	CN-1556-2.0	G8	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2NB0331	CN-2556-2.0	G7	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
<i>NF - Ice Condenser Refrigeration System</i>												
1NF0895	CN-1558-2.6	G2	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2NF0895	CN-2558-2.6	G2	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
<i>NI - Safety Injection System</i>												
1NI0125	CN-1562-1.2	H04	I	Yes	AC	Self Actuated	No	FS	Full-Stroke Exercise	Closed to Open	None	
2NI0125	CN-2562-1.2	H04	I	Yes	AC	Self Actuated	No	FS	Full-Stroke Exercise	Closed to Open	None	
1NI0129	CN-1562-1.2	J03	I	Yes	AC	Self Actuated	No	FS	Full-Stroke Exercise	Closed to Open	None	
2NI0129	CN-2562-1.2	J03	I	Yes	AC	Self Actuated	No	FS	Full-Stroke Exercise	Closed to Open	None	
1NI0481	CN-1562-1.2	D12	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2NI0481	CN-2562-1.2	E12	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request
<i>NV - Chemical & Volume Control System</i>											
1NV0001A	CN-1554-1.0	H01	1	Yes	B	Air	Yes	SFT	Failed to Safe Position	Open to Closed	None
2NV0001A	CN-2554-1.0	H02	1	Yes	B	Air	Yes	SFT	Failed to Safe Position	Open to Closed	None
1NV0002A	CN-1554-1.0	H02	1	Yes	B	Air	Yes	SFT	Failed to Safe Position	Open to Closed	None
2NV0002A	CN-2554-1.0	H02	1	Yes	B	Air	Yes	SFT	Failed to Safe Position	Open to Closed	None

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
1RN0499	CN-1574-2.3	J4	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2RN0499	CN-2574-2.3	J4	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1RN0807	CN-1574-2.3	J7	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2RN0807	CN-2574-2.3	J7	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1RN0815	CN-1574-2.3	J9	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2RN0815	CN-2574-2.3	J9	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1RN0823	CN-1574-2.3	J12	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2RN0823	CN-2574-2.3	J12	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1RN0861	CN-1574-2.8	J1	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2RN0861	CN-2574-2.7	E3	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1RN0863	CN-1574-2.8	D9	C	Yes	C	Self Actuated	None	No				

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
								RV	Safety and Relief Valve	Closed to Open	None	
2RN0863	CN-2574-2.2	K9	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None

Valve	Flow Diagram	ASME Class	Active	Valve Category	Actuator Type	JOD	PI	Test Type	Test Type Description	Test Direction	Relief Request	
<i>WL - Liquid Waste Recycle System</i>												
1WL0462	CN-1565-2.0	H3	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2WL0462	CN-2565-2.0	H3	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1WL0826	CN-1565-2.4	H10	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2WL0826	CN-2565-2.4	H10	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
1WLA033	CN-1565-2.6	K8	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None
2WLA033	CN-2565-2.6	H7	C	Yes	C	Self Actuated	None	No	RV	Safety and Relief Valve	Closed to Open	None