BVPS

INSERVICE TESTING PROGRAM

FOR

PUMPS AND VALVES

TABLE OF CONTENTS

BVPS - IST

Pump Testing Requirements

PUMP TESTING REQUIREMENTS

The Inservice Test (IST) Program for pumps at the Beaver Valley Power Station (BVPS), Unit 1, is based on subsection IWP of the ASME Boiler and Pressure Vessel Code, Section XI, 1983 edition through the summer 1983 addenda (the code). The pumps included in this program are all ASME "class 1, 2 or 3 pumps that are required to perform a specific function in shutting down a reactor or in mitigating the consequences of an accident, and that are provided with an emergency power source" at BVPS, Unit 1.

The requirements of the code will be followed at all times unless specific relief has been granted by the NRC. An inservice test, run quarterly, to measure or observe the test quantities listed in Table 3100-1, below, is required for all pumps in the IST Program by the code.

TABLE IWP-3100-1
INSERVICE TEST QUANTITIES

Quantity	Measure	Observe
Speed N (if variable speed)	✓	
Inlet pressure P_i	✓(1)	
Differential pressure ΔP	✓	
Flow rate Q	✓	
Vibration amplitude V	✓	
Proper lubricant level or pressure		✓
Bearing temperature T_b	✓	

NOTE:
(1) Measure before pump startup and during test.

Table 3100-2 shows the allowable ranges for test results that will be used to determine if corrective action is required. The test data will be compared to the ranges applied to the reference values for each parameter.

TABLE IWP-3100-2
ALLOWABLE RANGES OF TEST QUANTITIES

Test Quantity	Acceptable Range	Alert Range [Note (1)]		Required Action Range [Note (1)]	
		Low Values	High Values	Low Values	High Values
P_i	[Note (2)]	[Note (2)]	[Note (2)]	[Note (2)]	[Note (2)]
ΔP	$0.93-1.02\Delta P_r$	$0.90-0.93\Delta P_r$	$1.02-1.03\Delta P_r$	$<0.90\Delta P_r$	$>1.03\Delta P_r$
Q	$0.94-1.02Q_r$	$0.90-0.94Q_r$	$1.02-1.03Q_r$	$<0.90Q_r$	$>1.03Q_r$
V when $0 \le V_r \le 0.5$ mils	0–1 mil	None	1–1.5 mils	None	>1.5 mils
V when $0.5 \text{ mils} < V_r \le 2.0$ mils	$0-2V_r$ mils	None	$2V_r-3V_r$ mils	None	$>3V_r$ mils
V when $2.0 \text{ mils} < V_r \le 5.0$ mils	$0-(2+V_r)$ mils	None	$(2+V_r)-(4+V_r)$ mils	None	$>(4+V_r)$ mils
V when $V_r > 5.0$ mils	$0-1.4V_r$ mils	None	$1.4V_r-1.8V_r$ mils	None	$>1.8V_r$ mils
T_b	[Note (3)]	[Note (3)]	[Note (3)]	[Note (3)]	[Note (3)]

NOTES:
(1) See IWP-3230.
(2) P_i shall be within the limits specified by the Owner in the record of tests (IWP-6000).
(3) T_b shall be within the limits specified by the Owner in the record of tests (IWP-6000).

If the test quantities fall within the Alert Range, the frequency of testing shall be doubled until the cause of the deviation is determined and the condition corrected.

If the test quantities fall within the Required Action Range, the pump shall be declared inoperative and not returned to service until the cause of the deviation is determined and the condition corrected.

The following two sections of this document are the "Pump Testing Outlines" and "Pump Relief Requests" sections. The "Pump Testing Outlines" section is a listing of all the pumps in the IST Program, their testing requirements, and their specific relief request reference numbers. The pumps are arranged according to system and pump mark number. The following abbreviations and designations are used throughout the IST Program for pumps:

P	Power Operations
CSD	Cold Shutdown
RR	Relief Request
X	Meets or Exceeds ASME Requirements
OST	Operating Surveillance Test
BVT	Beaver Valley Test
W	Weekly Frequency
M	Monthly Frequency
Q	Quarterly Frequency
A	Annual Frequency
R	Refueling Frequency
SP	Special Frequency
NA	Not Applicable

The "Pump Relief Requests" section contains the detailed technical description of conditions prohibiting the testing of some of the characteristics of safety-related pumps. An alternate test method and the frequency of revised testing is also included. The relief request(s) for a specific pump is referenced by the number(s) listed on the pump's testing outline sheet.

BVPS - IST

Pump Testing Outlines

Pump Name: 1A Charging Pump	Pump Number: CH-P-1A	Code Class: 2	System: 7 Chemical and Volume Control
Function: To provide normal RCS inventory and Hi Head Safety injection		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.7.4 (Q)	P	RR1	
Pi	1.7.4 (Q)	P	RR3	
ΔP	1.7.4 (Q)	P	X	ΔP is calculated using the pump discharge pressure and the calculated Pi.
Q	1.7.4 (Q)	P	X	Calculated by adding the flows for the seal water to the RCP(s) (FI-CH-130, FI-CH-127, FI-CH-124) & charging flow (FI-CH-122A) & Mini flow.
V	1.7.4 (Q)	P	X	
Tb	1.7.4 (A)	P	X	
L	1.7.4 (Q)	P	X	

Pump Name: 1B Charging Pump	Pump Number: CH-P-1B	Code Class: 2	System: 7 Chemical and Volume Control
Function: To provide normal RCS inventory and Hi Head Safety Injection		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.7.5 (Q)	P	RR1	
Pi	1.7.5 (Q)	P	RR3	
ΔP	1.7.5 (Q)	P	X	ΔP is calculated using the pump discharge pressure and the calculated Pi.
Q	1.7.5 (Q)	P	X	Calculated by adding the flows for the seal water to the RCP(s) (FI-CH-130, FI-CH-127, FI-CH-124) & charging flow (FI-CH-122A) & mini flow.
V	1.7.5 (Q)	P	X	
Tb	1.7.5 (A)	P	X	
L	1.7.5 (Q)	P	X	

Pump Name: 1C Charging Pump	Pump Number: CH-P-1C	Code Class: 2	System: 7 Chemical and Volume Control
Function: To provide normal RCS Inventory and Hi Head Safety Injection		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.7.6 (Q)	P	RR1	
Pi	1.7.6 (Q)	P	RR3	
ΔP	1.7.6 (Q)	P	X	ΔP is calculated using pump the discharge pressure and the calculated Pi.
Q	1.7.6 (Q)	P	X	Calculated by adding the flows for the seal water to the RCP(s) (FI-CH-130, FI-CH-127, FI-CH-124) & charging flow (FI-CH-122A) & mini flow.
V	1.7.6 (Q)	P	X	
Tb	1.7.6 (A)	P	X	
L	1.7.6 (Q)	P	X	

Pump Name: 2A Boric Acid Transfer Pump	Pump Number: CH-P-2A	Code Class: 3	System: 7 Chemical and Volume Control
Function: Chemical Shim and Emergency Boration Supply		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.7.1 (Q)	P	RR1	
Pi	1.7.1 (Q)	P	RR3	Calculate Pi from the level in the Boric Acid Storage Tank.
ΔP	1.7.1 (Q)	P	X	ΔP is calculated using the pump discharge pressure and the calculated Pi.
Q	1.7.1 (Q)	P	RR4	Recirculation path available for flow back to CH-TK-1A
V	1.7.1 (Q)	P	X	
Tb	1.7.1 (A)	P	X	
L	1.7.1 (Q)	P	X	

Pump Name: 2B Boric Acid Transfer Pump	Pump Number: CH-P-2B	Code Class: 3	System: 7 Chemical and Volume Control
Function: Chemical Shim and Emergency Boration Supply		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.7.2 (Q)	P	RR1	
Pi	1.7.2 (Q)	P	RR3	Calculate Pi from the level in the Boric Acid Storage Tank.
ΔP	1.7.2 (Q)	P	X	ΔP is calculated using the discharge pressure and the calculated Pi.
Q	1.7.2 (Q)	P	RR4	Recirculation path available for flow path back to [CH-TK-1B]
V	1.7.2 (Q)	P	X	
Tb	1.7.2 (A)	P	X	
L	1.7.2 (Q)	P	X	

Pump Name: 1A Residual Heat Removal Pump	Pump Number: RH-P-1A	Code Class: 2	System: 10 Residual Heat Removal
Function: Long Term Decay Heat Removal		Remarks: See RR8	

Parameter	OST	Applicable	Req'd	Comment
N	1.10.1 (SP)	CS R	RR1	
Pi	1.10.1 (SP)	CS R	X	No permanently installed suction pressure gauge, temporary test guage installed on 1RH-200 for test.
ΔP	1.10.1 (SP)	CS R	X	
Q	1.10.1 (SP)	CS R	RR4	Recirculation test line available
V	1.10.1 (SP)	CS R	X	
Tb	1.10.1 (SP)	CS R	X	
L	1.10.1 (SP)	CS R	RR9	

Pump Name: 1B Residual Heat Removal Pump	Pump Number: RH-P-1B	Code Class: 2	System: 10 Residual Heat Removal
Function: Long Term Decay Heat Removal		Remarks: See RR8	

Parameter	OST	Applicable	Req'd	Comment
N	1.10.1 (SP)	CS R	RR1	
Pi	1.10.1 (SP)	CS R	X	No permanently installed suction pressure gauge, temporary test guage installed on 1RH-200 for test.
ΔP	1.10.1 (SP)	CS R	X	
Q	1.10.1 (SP)	CS R	RR4	Recirculation test line available
V	1.10.1 (SP)	CS R	X	
Tb	1.10.1 (SP)	CS R	X	
L	1.10.1 (SP)	CS R	RR9	

Pump Name: 1A Low Head Safety Injection Pump	Pump Number: SI-P-1A	Code Class: 2	System: 11 Safety Injection
Function: Low Pressure - High Volume Safety Injection and Long Term Recirculation		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.11.1 (Q)	P	RR1	
Pi	1.11.1 (Q)	P	RR3	Calculate Pi using the level in QS-TK-1.
ΔP	1.11.1 (Q)	P	X	ΔP is calculated using the discharge pressure and and calculated Pi.
Q	1.11.1 (Q)	P	X	Flow indicator FI-SI-941. (Mini flow and test line flow indicator).
V	1.11.1 (Q)	P	X	
Tb	1.11.1 (A)	P	X	Top bearing is the only accessible pump bearing.
L	1.11.1 (Q)	P	RR9	

Pump Name: 1B Low Head Safey Injection Pump	Pump Number: SI-P-1B	Code Class: 2	System: 11 Safety Injection
Function: Low Pressure - High Volume Safety Injection and Long Term Recirculation.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.11.2 (Q)	P	RR1	
Pi	1.11.2 (Q)	P	RR3	Calculate Pi using the level in QS-TK-1.
ΔP	1.11.2 (Q)	P	X	ΔP is calculated using the discharge pressure gauge and the calculated Pi.
Q	1.11.2 (Q)	P	X	Flow indicator FI-SI-941. (Mini flow and test line flow indicator).
V	1.11.2 (Q)	P	X	
Tb	1.11.2 (A)	P	X	Top bearing is the only accessible pump bearing.
L	1.11.2 (Q)	P	RR9	

Pump Name: 1A Quench Spray Pump	Pump Number: QS-P-1A	Code Class: 2	System: 13 Containment Depressurization
Function: To provide a flow of borated water for containment depressurization following a DBA.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.1 (Q)	P	RR1	
Pi	1.13.1 (Q)	P	RR3	Calculate Pi using level in QS-TK-1.
ΔP	1.13.1 (Q)	P	RR4	Recirculation path available for flow back to RWST
Q	1.13.1 (Q)	P	X	Total flow calculated by summing spray line flow (FI-1QS-104) and recirculation line flow (FI-1QS-103).
V	1.13.1 (Q)	P	X	
Tb	1.13.1 (A)	P	X	
L	1.13.1 (Q)	P	X	

Pump Name: 1B Quench Spray Pump	Pump Number: QS-P-1B	Code Class: 2	System: 13 Containment Depressurization
Function: To provide a flow of borated water for containment depressurization following a DBA.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.2 (Q)	P	RR1	
Pi	1.13.2 (Q)	P	RR3	Calculate Pi using level in QS-TK-1.
ΔP	1.13.2 (Q)	P	RR4	Recirculation path available for flow back to RWST
Q	1.13.2 (Q)	P	X	Total flow calculated by summing spray line flow (FI-QS-104) and recirculation line flow (FI-QS-103).
V	1.13.2 (Q)	P	X	
Tb	1.13.2 (A)	P	X	
L	1.13.2 (Q)	P	X	

Pump Name: Chemical Injection Pumps	Pump Number: QS-P-4A	Code Class: 2	System: 13 Containment Depressurization
Function: Chemical Injection during Containment Depressurization		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.10A (Q)	P	RR1	
Pi	1.13.10A (Q)	P	RR5	Positive Displacement Pump
ΔP	1.13.10A (Q)	P	RR5	Positive Displacement Pump.
Q	1.13.10A (Q)	P	X	Will check using recirculation line flow instrument.
V	1.13.10A (Q)	P	X	
Tb	1.13.10A (Q)	P	X	
L	1.13.10A (Q)	P	RR9	Bearings are greased lubricated.

Pump Name: Chemical Injection Pumps	Pump Number: QS-P-4B	Code Class: 2	System: 13 Containment Depressurization
Function: Chemical Injection during containment Depressurization		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.10B (Q)	P	RR1	
Pi	1.13.10B (Q)	P	RR5	Positive Displacement Pump.
ΔP	1.13.10B (Q)	P	RR5	Positive Displacement Pump.
Q	1.13.10B (Q)	P	X	Will check using recirculation line flow instrument.
V	1.13.10B (Q)	P	X	
Tb	1.13.10B (A)	P	X	
L	1.13.10B (Q)	P	RR9	Bearings are grease lubricated.

Pump Name: Chemical Injection Pumps	Pump Number: QS-P-4C	Code Class: 2	System: 13 Containment Depressurization
Function: Chemical Injection during Containment Depressurization		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.10A (Q)	P	RR1	
Pi	1.13.10A (Q)	P	RR5	Positive Displacement Pump.
ΔP	1.13.10A (Q)	P	RR5	Positive Displacement Pump.
Q	1.13.10A (Q)	P	X	Will check using recirculation line flow instrument.
V	1.13.10A (Q)	P	X	
Tb	1.13.10A (A)	P	X	
L	1.13.10A (Q)	P	RR9	Bearings are greased lubricated.

Pump Name: Chemical Injection Pumps	Pump Number: QS-P-4D	Code Class: 2	System: 13 Containment Depressurization
Function: Chemical Injection during Containment Depressurization		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.10B (Q)	P	RR1	
Pi	1.13.10B (Q)	P	RR5	Positive Displacement Pump.
ΔP	1.13.10B (Q)	P	RR5	Positive Displacement Pump.
Q	1.13.10B (Q)	P	X	Will check using recirculation line flow instrument.
V	1.13.10B (Q)	P	X	
Tb	1.13.10B (A)	P	X	
L	1.13.10B (Q)	P	RR9	Bearings are grease lubricated.

Pump Name: 1A Inside Recirculation Spray Pump	Pump Number: RS-P-1A	Code Class: 2	System: 13 Containment Depressurization
Function: Circulate containment sump water for long term containment depressurization		Remarks: See RR6	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.3	P CS	RR6	
	BVT 1.4-1.13.5	R	RR1	
Pi	1.13.3	P CS	RR6	
	BVT 1.4-1.13.5	R	RR3	Calculate Pi using level in sump
ΔP	1.13.3	P CS	RR6	
	BVT 1.4-1.13.5	R	X	
Q	1.13.3	P CS	RR6	
	BVT 1.4-1.13.5	R	X	Recirculation test line available
V	1.13.3	P CS	RR6	
	BVT 1.4-1.13.5	R	X	
Tb	1.13.3	P CS	RR6	
	BVT 1.4-1.13.5	R	X	
L	1.13.3	P CS	RR6	
	BVT 1.4-1.13.5	R	RR9	

Pump Name: 1B Inside Recirculation Spray Pump	Pump Number: RS-P-1B	Code Class: 2	System: 13 Containment Depressurization
Function: Circulate containment sump water for long term containment depressurization.		Remarks: See RR6	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.4	P CS	RR6	
	BVT 1.4-1.13.5	R	RR1	
Pi	1.13.4	P CS	RR6	
	BVT 1.4-1.13.5	R	RR3	Calculate Pi using level in sump.
ΔP	1.13.4	P CS	RR6	
	BVT 1.4-1.13.5	R	X	
Q	1.13.4	P CS	RR6	
	BVT 1.4-1.13.5	R	X	Recirculation test line available.
V	1.13.4	P CS	RR6	
	BVT 1.4-1.13.5	R	X	
Tb	1.13.4	P CS	RR6	
	BVT 1.4-1.13.5	R	X	
L	1.13.4	P CS	RR6	
	BVT 1.4-1.13.5	R	RR9	

Pump Name: 2A Outside Recirculation Spray Pump	Pump Number: RS-P-2A	Code Class: 2	System: 13 Containment Depressurization
Function: Circulate containment sump water for long term containment depressurization		Remarks: See RR7 and RR13	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.5 (Q)	P CS	RR7	
	1.13.7 (R)	R	RR1	
Pi	1.13.5 (Q)	P CS	RR7	
	1.13.7 (R)	R	X	
ΔP	1.13.5 (Q)	P CS	RR7	
	1.13.7 (R)	R	X	
Q	1.13.5 (Q)	P CS	RR7	
	1.13.7 (R)	R	X	Flow recorded by local gauge (FI-RS157A).
V	1.13.5 (Q)	P	RR7	
	1.13.7 (R)	R	RR13	
Tb	1.13.5 (A)	P CS	RR7	
	1.13.7 (R)	R	RR13	
L	1.13.5 (Q)	P CS	RR9	
	1.13.7 (R)	R	RR9	

Pump Name: 2B Outside Recirculation Spray Pump	Pump Number: RS-P-2B	Code Class: 2	System: 13 Containment Depressurization
Function: Circulate containment sump water for long term containment depressurization.		Remarks: See RR7 and RR13	

Parameter	OST	Applicable	Req'd	Comment
N	1.13.6 (Q)	P CS	RR1	
	1.13.7 (R)	R	RR1	
Pi	1.13.6 (Q)	P CS	RR7	
	1.13.7 (R)	R	X	
ΔP	1.13.6 (Q)	P CS	RR7	
	1.13.7 (R)	R	X	
Q	1.13.6 (Q)	P CS	RR7	
	1.13.7 (R)	R	X	Flow recorded by local gauge (FI-RS157B).
V	1.13.6 (Q)	P CS	RR7	
	1.13.7 (R)	R	RR13	
Tb	1.13.6 (A)	P CS	RR7	
	1.13.7 (R)	R	RR13	
L	1.13.6 (Q)	P CS	RR9	
	1.13.7 (R)	R	RR9	

Pump Name: 1A Component Cooling Water Pump	Pump Number: CC-P-1A	Code Class: 3	System: 15 Reactor Plant Component Cooling Water
Function: To provide cooling water to Rx Plant Componenets.		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.15.1 (Q)	P	RR1	
Pi	1.15.1 (Q)	P	X	
ΔP	1.15.1 (Q)	P	X	
Q	1.15.1 (Q)	P	X	
V	1.15.1 (Q)	P	X	
Tb	1.15.1 (A)	P	X	
L	1.15.1 (Q)	P	X	

Pump Name: 1B Component Cooling Water Pump	Pump Number: CC-P-1B	Code Class: 3	System: 15 Reactor Plant Component Cooling Water
Function: To provide cooling water to Rx Plant Components.		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.15.2 (Q)	P	RR1	
Pi	1.15.2 (Q)	P	X	
ΔP	1.15.2 (Q)	P	X	
Q	1.15.2 (Q)	P	X	
V	1.15.2 (Q)	P	X	
Tb	1.15.2 (A)	P	X	
L	1.15.2 (Q)	P	X	

Pump Name: 1C Component Cooling Water Pump	Pump Number: CC-P-1C	Code Class: 3	System: 15 Reactor Plant Component Cooling Water.
Function: To provide water to Rx Plant Components.		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.15.3 (Q)	P	RR1	
Pi	1.15.3 (Q)	P	X	
ΔP	1.15.3 (Q)	P	X	
Q	1.15.3 (Q)	P	X	
V	1.15.3 (Q)	P	X	
Tb	1.15.3 (A)	P	X	
L	1.15.3 (Q)	P	X	

Pump Name: 1A Fuel Pool Cooling Pump	Pump Number: FC-P-1A	Code Class: 3	System: 20 Fuel Pool Cooling and Purification.
Function: Provide flow through heat exchangers to cool spent fuel pool water.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.20.2 (Q)	P	RR1	
Pi	1.20.2 (Q)	P	RR3	Calculate Pi using Fuel Pool level.
ΔP	1.20.2 (Q)	P	X	
Q	1.20.2 (Q)	P	RR4	Recirculation path available for flow back to the fuel Pool.
V	1.20.2 (Q)	P	X	
Tb	1.20.2 (A)	P	X	
L	1.20.2 (Q)	P	X	

Pump Name: 1L Fuel Pool Cooling Pump	Pump Number: FC-P-1B	Code Class: 3	System: 20 Fuel Pool Cooling and Purification.
Function: Provide flow through heat exchangers to cool spent fuel pool water.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.20.3 (Q)	P	RR1	
Pi	1.20.3 (Q)	P	RR3	Calculate Pi using Fuel Pool Level.
ΔP	1.20.3 (Q)	P	X	
Q	1.20.3 (Q)	P	RR4	Recirculation path available for flow back to the Fuel Pool.
V	1.20.3 (Q)	P	X	
Tb	1.20.3 (A)	P	X	
L	1.20.3 (Q)	P	X	

Pump Name: Steam Driven Auxiliary Feed Pump	Pump Number: FW-P-2	Code Class: 3	System: 24 Feedwater
Function: Provide emergency make-up during any loss of normal feedwater.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.24.4 (Q)	P	X	No installed rpm indication; use strobotac.
Pi	1.24.4 (Q)	P	X	
ΔP	1.24.4 (Q)	P	X	
Q	1.24.4 (Q)	P	RR4	Recirculation path available for flow back to WT-TK-10
V	1.24.4 (Q)	P	X	
Tb	1.24.4 (A)	P	X	
L	1.24.4 (Q)	P	X	

Pump Name: Motor Driven Auxiliary Feed Pump	Pump Number: FW-P-3A	Code Class: 3	System: 24 Feedwater
Function: Provide emergency make-up during any loss of normal feedwater.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.24.2 (Q)	P	RR1	
Pi	1.24.2 (Q)	P	X	
ΔP	1.24.2 (Q)	P	X	
Q	1.24.2 (Q)	P	RR4	Recirculation path available for flow back to WT-TK-10.
V	1.24.2 (Q)	P	X	
Tb	1.24.2 (A)	P	X	
L	1.24.2 (Q)	P	X	

Pump Name: Motor Driven Auxiliary Feed Pump	Pump Number: FW-P-3B	Code Class: 3	System: 24 Feedwater
Function: Provide emergency make-up during any loss of normal feedewater.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.24.3 (Q)	P	RR1	
Pi	1.24.3 (Q)	P	X	
ΔP	1.24.3 (Q)	P	X	
Q	1.24.3 (Q)	P	RR4	Recirculation path available for flow back to WT-TK-10.
V	1.24.3 (Q)	P	X	
Tb	1.24.3 (A)	P	X	
L	1.24.3 (Q)	P	X	

Pump Name: 1A River Water Pump	Pump Number: WR-P-1A	Code Class: 3	System: 30 River Water
Function: To provide a source of water during normal and emergency conditions to primary piant heat exchangers and equipment.		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.30.2 (Q)	P	RR1	
Pi	1.30.2 (Q)	P	RR3	Calculate Pi using the Ohio River level.
ΔP	1.30.2 (Q)	P	X	
Q	1.30.2 (Q)	P	X	
V	1.30.2 (Q)	P	X	
Tb	1.30.2 (A)	P	X	
L	1.30.2 (Q)	P	RR9	

Pump Name: 1B River Water Pump	Pump Number: WR-P-1B	Code Class: 3	System: 30 River Water
Function: To provide a source of water during normal and emergency conditions to primary plant heat exchangers and equipment.		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.30.3 (Q)	P	RR1	
Pi	1.30.3 (Q)	P	RR3	Calculate Pi using the Ohio River level.
ΔP	1.30.3 (Q)	P	X	
Q	1.30.3 (Q)	P	X	
V	1.30.3 (Q)	P	X	
Tb	1.30.3 (A)	P	X	
L	1.30.3 (Q)	P	RR9	

Pump Name: 1C River Water Pump	Pump Number: WR-P-1C	Code Class: 3	System: 30 River Water
Function: To provide a source of water during normal and emergency conditions to primary plant heat exchangers and equipment.		Remarks: See RR2	

Parameter	OST	Applicable	Req'd	Comment
N	1.30.6 (Q)	P	RR1	
Pi	1.30.6 (Q)	P	RR3	Calculate Pi using the Ohio River level.
ΔP	1.30.6 (Q)	P	X	
Q	1.30.6 (Q)	P	X	
V	1.30.6 (Q)	P	X	
Tb	1.30.6 (A)	P	X	
L	1.30.6 (Q)	P	RR9	

Pump Name: 3A Booster Pump	Pump Number: VS-P-3A	Code Class: 3	System: 44A Controlled Area Ventilation
Function: To provide cooling flow for the Control Room air conditioner condenser.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.44A.4 (Q)	P	RR1	
Pi	1.44A.4 (Q)	P	X	
ΔP	1.44A.4 (Q)	P	X	
Q	1.44A.4 (Q)	P	RR4	Recirculation path available for flow through the condenser of the chiller unit.
V	1.44A.4 (Q)	P	X	
Tb	1.44A.4 (A)	P	X	
L	1.44A.4 (Q)	P	RR9	

Pump Name: 3B Booster Pump	Pump Number: VS-P-3B	Code Class: 3	System: 44A Controlled Area Ventilation
Function: To provide cooling flow for the Control Room air conditioner condenser.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.44A.5 (Q)	P	RR1	
Pi	1.44A.5 (Q)	P	X	
ΔP	1.44A.5 (Q)	P	X	
Q	1.44A.5 (Q)	P	RR4	Recirculation path available for flow through the condenser of the chiller unit.
V	1.44A.5 (Q)	P	X	
Tb	1.44A.5 (A)	P	X	
L	1.44A.5 (Q)	P	RR9	

Pump Name: 1A DG #1 Fuel Transfer Pump	Pump Number: EE-P-1A	Code Class: 3	System: 36-emergency 4 KV
Function: Transfer fuel from the underground tank to the day tank.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.36.1 (Q)	P	RR1	
Pi	1.36.1 (Q)	P	RR11	No suction pressure at pump due to physical location of suction tank (underground). Pump is self priming and no suction pressure gauge installed.
ΔP	1.36.1 (Q)	P	RR11	
Q	1.36.1 (Q)	P	RR14	
V	1.36.1 (Q)	P	X	
Tb	1.36.1 (A)	P	RR10	Readings are taken at 3 minute intervals during pump run.
L	1.36.1 (Q)	P	RR9	

Pump Name: 1B DG #1 Fuel Transfer Pump	Pump Number: EE-P-1B	Code Class: 3	System: 36-emergency 4 KV
Function: Transfer fuel from the underground tank to the day tank.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.36.1 (Q)	P	RR1	
Pi	1.36.1 (Q)	P	RR11	No suction pressure at pump due to physical location of suction tank (underground). Pump is self priming and no suction pressure gauge installed.
ΔP	1.36.1 (Q)	P	RR11	
Q	1.36.1 (Q)	P	RR14	
V	1.36.1 (Q)	P	X	
Tb	1.36.1 (A)	P	RR10	Readings are taken at 3 minute intervals during pump run.
L	1.36.1 (Q)	P	RR9	

Pump Name: 1C DG #2 Fuel Transfer Pump	Pump Number: EE-P-1C	Code Class: 3	System: 36-emergency 4 KV
Function: Transfer fuel from the underground tank to the day tank.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.36.2 (Q)	P	RR1	
Pi	1.36.2 (Q)	P	RR11	No suction pressure at pump due to physical location of suction tank (underground). Pump is self priming and no suction pressure gauge installed.
ΔP	1.36.2 (Q)	P	RR	ΔP across a positive displacement pump is meaningless in determining pump degradation.
Q	1.36.2 (Q)	P	RR14	
V	1.36.2 (Q)	P	X	
Tb	1.36.2 (A)	P	RR10	Readings are taken at 3 minute intervals during pump run.
L	1.36.2 (Q)	P	RR9	

Pump Name: 1D DG #2 Fuel Transfer Pump	Pump Number: EE-P-1D	Code Class: 3	System: 36-emergency 4 KV
Function: Transfer fuel from the underground tank to the day tank.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.36.2 (Q)	P	RR1	
Pi	1.36.2 (Q)	P	RR11	No suction pressure at pump due to physical location of suction tank (underground). Pump is self priming and no suction pressure gage installed.
ΔP	1.36.2 (Q)	P	RR11	ΔP across a positive displacement pump is meaningless in determing pump degradation.
Q	1.36.2 (Q)	P	RR14	
V	1.36.2 (Q)	P	X	
Tb	1.36.2 (A)	P	RR10	Readings are taken at 3 minute intervals during pump run.
L	1.36.2 (Q)	P	RR9	

Pump Name: 2A Circulating Oil Pump	Pump Number: EE-P-2A	Code Class: 3	System: 36-emergency 4 KV
Function: Circulate lubricating oil during shutdown periods to maintain proper temperature.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.36.1 (Q)	P	RR1	
Pi	1.36.1 (Q)	P	RR12	No installed pressure gauge or tank level associated with the pump. Oil pump suction is from the oil pan or reservoir.
Δ P	1.36.1 (Q)	P	RR12	
Q	1.36.1 (Q)	P	RR12	
V	1.36.1 (Q)	P	X	
Tb	1.36.1 (A)	P	X	
L	1.36.1 (Q)	P	RR9	

Pump Name: 2B Circulating Oil Pump	Pump Number: EE-P-2B	Code Class: 3	System: 36-emergency 4 KV
Function: Circulation lubricating oil during shutdown periods to maintain proper temperature.		Remarks:	

Parameter	OST	Applicable	Req'd	Comment
N	1.36.2 (Q)	P	RR,	
Pi	1.36.2 (Q)	P	RR12	No installed pressure gauge or tank level associated with the pump. Oil pump suction is from the oil pan or reservior.
ΔP	1.36.2 (Q)	P	RR12	
Q	1.36.2 (Q)	P	RR12	
V	1.36.2 (Q)	P	X	
Tb	1.36.2 (A)	P	X	
L	1.36.2 (Q)	P	RR9	

BVPS - IST

Pump Testing Relief Requests

RELIEF REQUEST NO. 1

Pump Mark No(s).					
	CH-P-1A	SI-P-1A	RS-P-1A	FC-P-1A	EE-P-1A
	CH-P-1B	SI-P-1B	RS-P-1B	FC-P-1B	EE-P-1B
	CH-P-1C	QS-P-1A	RS-P-2A	FW-P-3A	EE-P-1C
	CH-P-2A	QS-P-1B	RS-P-2B	FW-P-3B	EE-P-1D
	CH-P-2B	QS-P-4A	CC-P-1A	WR-P-1A	EE-P-2A
	RH-P-1A	QS-P-4B	CC-P-1B	WR-P-1B	EE-P-2B
	RH-P-1B	QS-P-4C	CC-P-1C	WR-P-1C	
		QS-P-4D		VS-P-3A	
				VS-P-3B	

Code Test Requirements: Measurement of Pump Speed

Basis for Relief: IWP-4400 allows pumps directly coupled to constant speed motors relief from measurement of pump rotative speed.

Alternate Test: None.

RELIEF REQUEST 2

Pump Mark No(s).:			
	CH-P-1A	CC-P-1A	WR-P-1A
	CH-P-1B	CC-P-1B	WR-P-1B
	CH-P-1C	CC-P-1C	WR-P-1C

Code Test Requirement: "The resistance of the system shall be varied until either the measured differential pressure or the measured flowrate equals the corresponding reference value. The other test quantities shown in Table IWV-3100-1 shall then be measured or observed and recorded."

Basis for Relief: Plant conditions may preclude returning to the same point for each pump surveillance. Relief is, therefore, requested to use a pump curve, which is the fixed response of the pump to various conditions.

Alternate Test: A pump curve will be used to compare flowrate with developed head.

RELIEF REQUEST 3

Pump Mark No(s).:	CH-P-1A	CH-P-2B	QS-P-1B	FC-P-1B
	CH-P-1B	SI-P-1A	RS-P-1A	WR-P-1A
	CH-P-1C	SI-P-1B	RS-P-1B	WR-P-1B
	CH-P-2A	QS-P-1A	FC-P-1A	WR-P-1C

Code Test Requirements: Measurement of pump suction pressure before pump startup and during test.

Basis for Relief: No installed instrumentation exists to measure suction pressure, therefore, relief is requested from this requirement.

Alternate Test: The static head from tanks or the Ohio River will be used to calculate suction pressure, once per test.

RELIEF REQUEST 4

Pump Mark No(s).:	CH-P-2A	RH-P-1A	QS-P-1A	FC-P-1A
	CH-P-2B	RH-P-1B	QS-P-1B	FC-P-1B
	FW-P-2	FW-P-3B	VS-P-3B	
	FW-P-3A	VS-P-3A		

Code Test Requirement: Measurement of flow and ΔP.

Basis for Relief: These pumps are tested in fixed resistance recirculation lines. Therefore, either the measured flowrate or the measured differential pressure can be considered constant and at its reference value. The other test quantities may then be measured or observed and recorded.

Alternate Test: None.

RELIEF REQUEST 5

Pump Mark No(s).: QS-P-4A
QS-P-4B
QS-P-4C
QS-P-4D

Code Test Requirements: Measure suction pressure and ΔP.

Basis for Relief: The function of these positive displacement pumps is to provide 32 gpm of NaOH water to the suction of the quench spray pumps during an accident. Pump degradation would be visible through observation of the flow; the suction and differential pressure readings would not provide this information. Also, there is no installed instrumentation for pressure readings. Therefore relief is requested from this requirement.

Alternate Test: None.

RELIEF REQUEST 6

Pump Mark No(s).: RS-P-1A
RS-P-1B

Code Test Requirement: Quarterly pump tests.

Basis for Relief: The function of these pumps is to take suction on the containment sump and discharge to the spray rings on the containment ceiling during a DBA. Therefore, these pumps cannot be run quarterly. Relief is also requested from Cold Shutdown testing due to the extensive preparatory work needed to run these pumps in the recirculation mode.

Alternate Test: Dry run quarterly per OST 1.13.4 and 1.13.3 for not more than 60 seconds and stopped when they reach 100 rpm. Also, run on recirculation per BVT 1.4 - 1.13.5 during Refueling Outages.

RELIEF REQUEST 7

Pump Mark No(s).: RS-P-2A
RS-P-2B

Code Test Requirements: Quarterly pump test.

Basis for Relief: This pump takes suction on the containment sump and discharges to the spray rings inside containment. Therefore, these pumps cannot be run quarterly and relief is requested from this requirement.

Alternate Test: Run dry quarterly per OST 1.13.5, 6 for not more than 60 seconds and stopped when they reach 100 rpm. Also, run on recirculation per OST 1.13.7 during refueling outages.

RELIEF REQUEST 8

Pump Mark No(s).: RH-P-1A
RH-P-1B

Code Test Requirement: Quarterly pump testing.

Basis for Relief: During power operation the residual heat removal system is locked out and cannot be tested. Therefore, relief is requested from quarterly pump testing during plant modes above Mode 5.

Alternate Test: These pumps will be tested each cold shutdown per OST 1.10.1

RELIEF REQUEST 9

Pump Mark No(s).:					
	EE-P-1A	RH-P-1A	QS-P-4A	RS-P-1A	WR-P-1A
	EE-P-1B	RH-P-1B	QS-P-4B	RS-P-1B	WS-P-1B
	EE-P-1C	SI-P-1A	QS-P-4C	RS-P-2A	WR-P-1C
	EE-P-1D	SI-P-1B	QS-P-4D	RS-P-2B	VS-P-3A
	EE-P-2A				VS-P-3B
	EE-P-2B				

Code Test Requirements: Lubricant Level Observation.

Basis for Relief: The above listed pumps are lubricated by the fluid being pumped, or are grease lubricated. Therefore, there is no lubricant level to observe.

Alternate Test: None.

RELIEF REQUEST 10

Pump Mark No(s).:
EE-P-1A
EE-P-1B
EE-P-1C
EE-P-1D

Code Test Requirement: Bearing temperatures must stabilize as determined by three consecutive readings, taken 10 minutes apart that do not vary by more than 3%.

Basis for Relief: These pumps are used to transfer fuel from the underground fuel tank to the day tank for use by the diesel generators. The pumps are not run long enough to obtain stable bearing temperatures because the tank is filled in typically 20 minutes.

Alternate Test: Readings are taken at three minute intervals for the duration of the pump run.

RELIEF REQUEST 11

Pump Mark No(s).: EE-P-1A
EE-P-1B
EE-P-1C
EE-P-1D

Code Test Requirements: Measure suction pressure and ΔP.

Basis for Relief: Relief is requested from measuring suction pressure and differential pressure due to a lack of installed instrumentation. Also, these are positive displacement pumps and the flowrate is more indicative of pump degradation than the pressures are.

Alternate Test: Discharge pressure is recorded and trended as a further indication of pump performance.

RELIEF REQUEST 12

Pump Mark No(s).: EE-P-2A
EE-P-2B

Code Test Requirement: Measure inlet and differential pressure and flowrate during quarterly test.

Basis for Relief: The circulating oil pumps are integral parts of generators and have no separate installed instrumentation. Also, any pump degradation will be observed by a temperature increase in the lubricating oil. Therefore, relief is requested from measuring pi, ΔP or flowrate.

Alternate Test: The Diesel Generators' lube oil temperature is continuously monitored, any degradation of the hydraulic characteristics of the pump will be indicated by the temperature change.

RELIEF REQUEST 13

Pump Mark No(s).: RS-P-2A
RS-P-2B

Code Test Requirements: IWP-3500(b) states that when measurement of bearing temperature is required, each pump shall be run until the bearing temperatures stabilize, and then the quantities specified shall be measured or observed and recorded.

Basis for Relief: In order to test this pump, it must be run in a solid system through the small recirculation test line. Because of the limited volume of water and the small size of the recirculation line, the pump cannot be run long enough to acquire data.

Alternate Test: During Refueling Outages the pumps will be run until bearing temperatures stabilize or the pump reaches the manufacturer's limit for either bearing temperatures or vibrations per OST 1.13.7.

RELIEF REQUEST 14

Pump Mark No(s).: EE-P-1A
EE-P-1B
EE-P-1C
EE-P-1D

Code Test Requirement: Flowrate shall be measured using a rate or quantity meter installed in the pump test circuit.

Basis for Relief: There is no installed instrumentation.

Alternate Test: The level change over time in the floor mounted day tank will be measured and converted to the flowrate.

BVPS - IST

Valve Testing Requirements

VALVE TESTING REQUIREMENTS

The Inservice Test (IST) Program for valves at the Beaver Valley Power Station (BVPS), Unit 1, is based on subsection IWV of the ASME Boiler and Pressure Vessel Code, Section XI, 1983 edition through the summer 1983 addenda (the code). The valves included in this section are those which are required to perform a specific function in shutting down a reactor to cold shutdown or in mitigating the consequences of an accident".

The requirements of the code will be followed at all times unless specific relief has been granted by the NRC.

A. Category A and B valves will be exercised at least once every three months to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the valves will be part-stroke exercised at power and full-stroke exercised during cold shutdown. Valves that cannot be stroked at power will be full stroked every cold shutdown. The time to full-stroke exercise each valve will also be measured and compared to a maximum stroke time. In addition, Category A valves are leak rate tested at the same (or greater) frequency as scheduled refueling outages, not to exceed every two years.

   Exception is taken to part stroke testing motor-operated valves, unless specifically stated. This is necessary because the motor-operated valve circuitry prevents throttling of these valves. Under normal operation, the valves must travel to either the full open or shut position prior to reversing direction.

   If the stroke time of a power-operated valve exceeds its previous stroke time by 25% for valves with full-stroke times greater than 10 seconds of 50% for valves with full-stroke times less than or equal to 10 seconds, the test frequency will be increased to monthly. At BVPS the stroke times of the valves will be examined for trends semi-annually. During the trend review, it will be determined if corrective action is necessary for any valve based on its stroke time history. When either the corrective action is complete or the review determines it is unnecessary, the original test frequency will be resumed.

   The stroke time of solenoid-controlled, air-operated valves is both extremely rapid and subject to considerable variation. Exception is taken to complying with the stroke time variance defined by subarticle IWV-3410.c.3. These valves will be stroked and timed and compared to the "max" stroke time but not to the previous stroke time.

   If a valve fails to exhibit the required change of valve stem or disk position or exceeds its specified limiting value of full-

stroke time then corrective action will be initiated immediately. If the condition is not, or cannot be, corrected within 24 hours, the valve will be declared inoperative. Before returning the valve to service after corrective action, a retest showing acceptable operation will be run.

Valves with remote position indicators shall be observed at least once every two years to verify that valve operation is accurately indicated.

If the leak rate exceeds the allowable limit, the valve will be repaired or replaced.

B. Category C valves are divided into two groups; safety or relief valves and check valves.

1. Safety and relief valves are set point tested in accordance with ASME PTC 25.3-1976, at a frequency as defined in Table IWV-3510-1 of the code.

2. Check valves will be exercised to the position required to fulfill their function every three months, unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the check valve will be part-stroke exercised at power and full-stroke exercised every cold shutdown, not to exceed every three months.

If a safety or relief valve fails to function properly during a test, it will be repaired or replaced.

If a check valve fails to exhibit the required change of disk position by this testing, corrective action will be initiated immediately. If the condition is not, or cannot be, corrected within 24 hours, the check valve will be declared inoperative. Before returning the valve to service after corrective action, a retest showing acceptable operation will be run.

C. Category D valves are explosively actuated. There are no Category D valves at Beaver Valley, Unit 1.

All the inservice testing requirements for each different category of valve in the IST Program are summarized in Table IWV-3700-1. This table lists the subarticles of the code that apply to each different type of valve.

TABLE IWV-3700-1
INSERVICE TEST REQUIREMENTS[1]

Category	Valve Function (IWV-2100)	Leak Test Procedure	Exercise Test Procedure	Special Test Procedure
A	Active	IWV-3420	IWV-3410	None
A	Passive	IWV-3420	None	None
B	Active	None	IWV-3410	None
C-Safety & Relief	Active	None	IWV-3510	None
C-Check	Active	None	IWV-3520	None
D	Active	None	None	IWV-3600

NOTE:
(1) No tests required for Category B, C, and D passive valves.

As stated in the table, passive valves are not required to be exercised. Therefore, relief is not requested from exercising any passive valve and no testing requirement is listed in the outline section.

The following two sections of this document are the "Valve Testing Outlines" and "Valve Relief Requests" sections. The "Valve Testing Outlines" section is a listing of all the valves in the IST Program, their class, category, type, NSA, drawing number and coordinates, testing requirements, specific relief request reference numbers and test procedure numbers.

A. The valve class will be 1, 2 or 3, corresponding to the safety classifications.

B. The category of the valve will be A, B, C or D in accordance with the guidelines of subsection IWV-2200. In addition, combinations of categories may be utilized. If the valve is not required to change position during an accident, the Passive (P) category will also be indicated. For example, a containment isolation check valve that does not change position would be a category A/C/P valve.

C. The type of valve will be listed using the abbreviations below:

TV	Trip Valve
PCV	Pressure Control Valve
RV	Relief Valve
MOV	Motor Operated Valve
SOV	Solenoid Operated Valve
FCV	Flow Control Valve
LCV	Level Control Valve
HCV	Hand Control Valve
NRV	Non-return Valve
SV	Safety Valve

Manual and check valve types are also listed. The specific type of valve may be determined by using figure 1-2-13 from the UFSAR for BVPS Unit 1.

D. The normal system arrangement will be listed using the abbreviations below:

NSA	Normal System Arrangement
O	Open
S	Shut
A	Automatic
LO	Locked Open
LS	Locked Shut
ST	Sealed Throttled
SS	Sealed Shut
SO	Sealed Open
T	Throttled

E. The drawing number and coordinates will be the ones used in the Operating Manual.

F. The test requirements will be listed using the abbreviations below:

Q	Quarterly
LT	Leak Rate Test
ST	Set Point Test
LM	Leakage Monitoring

G. The specific relief request (RR) reference number will be listed.

H. The specific test procedure number and any comments will be listed using the abbreviations below:

BVT	Beaver Valley Test
OST	Operating Surveillance Test
CMP	Corrective Maintenance Procedure
DBA	Design Basis Accident

The "Valve Relief Requests" section contains the detailed technical description of conditions prohibiting the required testing of safety-related valves, an alternate test method and frequency of revised testing.

BVPS - IST

Valve Testing Outlines

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1RC68	2	X		X		X	C36		RM155B	B-2	LT		BVT 1.3-1.47.5 - Leak Test
1RC72	2	X		X		X	C42		RM155B	B-2	LT		BVT 1.3-1.47.5 - Leak Test
1RC101	2	X					TV	O	RM155B	B-1	Q		OST 1.47.3A - Quarterly Stroke and Time
											LT		BVT 1.3-1.47.5 - Leak Test
1RC277	2	X					T58	S	RM155B	C-10	LT		BVT 1.3-1.47.5 - Leak Test
1RC278	2	X					T58	S	RM155B	C-10	LT		BVT 1.3-1.47.5 - Leak Test
1RC455A	1		X				PCV	A	RM155B	B-5	Q		OST 1.1.10-Cold Shutdown stroke and time
1RC455B	1		X				PCV	A	RM155B	B-5	Q		OST 1.1.10-Cold Shutdown stroke and time
1RC456	1		X				PCV	A	RM155B	B-9	Q		OST 1.1.10-Cold Shutdown stroke and time
1RC519	2	X					TV	O	RM155B	B-1	Q		OST 1.47.3A - Quarterly Stroke and Time
											LT		BVT 1.3-1.47.5 - Leak Test
1RC551A	1			X			RV		RM155B	A-6	ST		BVT 1.5-1.60.5
1RC551B	1			X			RV		RM155B	A-7	ST		BVT 1.5-1.60.5
1RC551C	1			X			RV		RM155B	A-7	ST		BVT 1.5-1.60.5
1RC455C	1		X				PCV	A	RM155B	A-9	Q		OST 1.1.10
1RC535	1		X				MOV	O	RM155B	A-9	Q		OST 1.6.6, OST 1.1.10
1RC536	1		X				MOV	O	RM155B	B-9	Q		OST 1.6.6, OST 1.1.10
1RC537	1		X				MOV	O	RM155B	B-9	Q		OST 1.6.6, OST 1.1.10
1RC455D	1		X				PCV	A	RM155B	B-9	Q		OST 1.1.10
1RC102A	1		X				SOV	LS	RM155B	A-8	Q	RR1	OST 1.1.10
1RC102B	1		X				SOV	LS	RM155B	A-8	Q	RR1	OST 1.1.10

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1RC103A	1		X				SOV	LS	RM155B	A-5	Q	RR1	OST 1.1.10
1RC103B	1		X				SOV	LS	RM155B	A-5	Q	RR1	OST 1.1.10
1RC104	1		X				SOV	LS	RM155B	B-5	Q	RR1	OST 1.1.10
1RC105	1		X				SOV	LS	RM155B	B-5	Q	RR1	OST 1.1.10

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CH22	2			X			C58		RM159A	F-2	Q	RR2	OST 1.7.4, 1.7.5 and 1.7.6 - Partial stroke test
													OST 1.11.14 - full stroke test
1CH23	2			X			C58		RM159A	F-4	Q	RR2	OST 1.7.4, 1.7.5 and 1.7.6 Partial stroke test
													OST 1.11.14 - Full stroke test
1CH24	2			X			C58		RM159A	F-5	Q	RR2	OST 1.7.4, 1.7.5 and 1.7.6 - Partial stroke test
													OST 1.11.14 - Full stroke test
1CH25	2		X			X	G58	LO	RM159A	F-2			Locked or sealed valve log
1CH26	2		X			X	G58	LO	RM159A	E-4			Locked or sealed valve log
1CH27	2		X			X	G58	LO	RM159A	E-5			Locked or sealed valve log
1CH31	2	X		X			C58		RM159A	B-5	Q	RR3	OST 1.11.10 - Full stroke test
											LT		BVT 1.3-1.47.11
1CH32	1			X			C58		RM159A	A-2	Q		OST 1.11.10 - Full stroke test
1CH75	3			X			C58B		RM159B	G-4	Q		OST 1.7.1 - Full stroke test
1CH76	3			X			C58B		RM159B	G-5	Q		OST 1.7.2 - Full stroke test
1CH103	2			X			RV		RM159A	A-7	ST		BVT 1.5-1.60.5
1CH115B	2		X				MOV	S	RM159A	F-6	Q		OST 1.47.3A - Quarterly stroke and time
1CH115C	2		X				MOV	O	RM159A	D-7	Q	RR4	OST 1.1.10 - cold shutdown stroke and time
1CH115D	2		X				MOV	S	RM159A	F-6	Q		OST 1.47.3A - Quarterly stroke and time
1CH115E	2		X				MOV	O	RM159A	D-7	Q	RR4	OST 1.1.10 - cold shutdown stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CH122	2		X				FCV	A	RM159A	C-5	Q		OST 1.11.10 - stroke test
1CH137	2		X				MOV	S	RM159A	C-2	Q	RR5	OST 1.1.10 - cold shutdown stroke
1CH141	2			X			C58		RM159A	G-7	Q	RR6	OST 1.1.10 - Full stroke test
1CH142	2	X				X	MOV	S	RM159A	B-4	Q		OST 1.1.10 - cold shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak test
1CH152	2			X			C58		RM159A	F-4	Q		OST 1.7.5 and 1.7.6
1CH153	2			X			C58		RM159A	E-2	Q		OST 1.7.4, 1.7.5 and 1.7.6
1CH154	2			X			C58		RM159A	E-4	Q		OST 1.7.4, 1.7.5 and 1.7.6
1CH158	2		X			X	G58	LO	RM159A	F-2			Locked or sealed valve log OST 1.1.10
1CH159	2		X			X	G58	LO	RM159A	E-4			Locked and sealed valve log OST 1.1.10
1CH160	2	X				X	FCV	S	RM159A	B-5	Q		OST 1.1.10 - Full stroke test at cold shutdown
											LT		BVT 1.3-1.47.11
1CH161	2		X			X	G58	LO	RM159A	E-5			OST 1.1.10
1CH170	1	X		X		X	C58		RM159A	B-5	LT		BVT 1.3-1.47.11 - Leakage corrected for functional Δp
1CH181	2	X		X			C58		RM159A	D-2	Q	RR7	See Relief Request
											LT		BVT 1.3-1.47.11
1CH182	2	X		X			C58		RM159A	D-3	Q	RR7	See Relief Request
											LT		BVT 1.3-1.47.11
1CH183	2	X		X			C58		RM159A	D-4	Q	RR7	See Relief Request
											LT		BVT 1.3-1.47.11

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CH200A	2	X					TV	S	RM159A	A-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CH200B	2	X					TV	O	RM159A	A-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CH200C	2	X					TV	S	RM159A	A-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CH201			X				MOV	S	RM159A	C-2	Q		OST 1.47.3A - Quarterly stroke and time
1CH203	2	X		X			RV		RM159A	A-4	ST		BVT 1.5-1.60.5
											LT		BVT 1.3-1.47.5
1CH204	2	X					TV	O	RM159A	B-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CH209	2			X			RV		RM159A	B-8	ST		BVT 1.5-1.60.5
1CH222	1			X			C58		RM159A	A-2	Q		OST 1.11.10 - Full Stroke Test
1CH257	2			X			RV		RM159A	B-7	ST		BVT 1.5-1.60.5
1CH275A	2		X				MOV	O	RM159A	F-3	Q		OST 1.47.3A - Quarterly stroke and time
1CH275B	2		X				MOV	O	RM159A	F-4	Q		OST 1.47.3A - Quarterly stroke and time
1CH275C	2		X				MOV	O	RM159A	F-5	Q		OST 1.47.3A - Quarterly stroke and time
1CH289	2	X					MOV	O	RM159A	B-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.11

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CH308A	2	X					MOV	O	RM159A	D-2	Q	RR8	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1CH308B	2	X					MOV	O	RM159A	D-3	Q	RR8	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1CH308C	2	X					MOV	O	RM159A	D-4	Q	RR8	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1CH310	1		X				MOV	O	RM159A	A-2	Q		OST 1.47.3A - Quarterly stroke and time
1CH311	1		X			X	MOV	S	RM159A	A-2	Q		OST 1.1.10 - cold shutdown stroke and time
1CH350	3		X				MOV	S	RM159A	G-7	Q	RR9	OST 1.1.10 - cold shutdown stroke and time
1CH369	2	X		X		X	C58		RM159A	D-5	LT		BVT 1.3 - 1.47.5 - Leak Test
1CH370	2		X				MOV	O	RM159A	E-2	Q		OST 1.1.10 cold shutdown stroke and time
1CH378	2	X					MOV	O	RM159A	D-5	Q	RR10	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CH381	2	X					MOV	O	RM159A	D-5	Q	RR10	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CH382A	2			X			RV		RM159A	C-4	ST		BVT 1.5-1.60.5
1CH382B	2			X			RV		RM159A	C-7	ST		BVT 1.5-1.60.5

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CH460A	1		X				LCV	0	RM159A	A-2	Q		OST 1.47.3A - Quarterly full stroke and time
1CH460B	1		X				LCV	0	RM159A	A-3	Q		OST 1.47.3A - Quarterly full stroke and time
1CH383	2			X			RV		RM159A	B-3	ST		BVT 1.5-1.60.5

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1DA100A	2	X					TV	A	RM169A	G-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1DA100B	2	X					TV	O	RM169A	G-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1DG108A	2	X					TV	A	RM169A	G-8	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1DG108B	2	X					TV	A	RM169A	G-8	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1DG109A1	2	X					TV	A	RM169A	A-9	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1DG109A2	2	X					TV	A	TM169A	A-8	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1RH14	2	X				X	YGW30M	SS	RM156A	D-7	Q		OST 1.10.4 - Refueling Valve Exercise
											LT		BVT 1.3-1.47.5 - Leak Test
1RH15	2	X				X	YGW15X	SS	RM156A	C-8	Q		OST 1.10.4 - Refueling Valve Exercise
											LT		BVT 1.3-1.47.5 - Leak Test
1RH16	2	X				X	YBW15Y	SS	RM156A	C-9	Q		OST 1.10.4 - Refueling Valve Exercise
											LT		BVT 1.3-1.47.5 - Leak Test
1RH605	2		X				MOV	A	RM156A	D-2			Operating Manual Ch. 10, Section 3
1RH700	1		X			X	MOV	S	RM156A	F-6	Q	RR11	OST 1.10.4 - Refueling Valve Exercise
											LM		Later
1RH701	1		X			X	MOV	S	RM156A	F-6	Q	RR11	OST 1.10.4 - Refueling Valve Exercise
											LM		Later
1RH720A	1	X				X	MOV	S	RM156A	D-9	Q	RR11	OST 1.10.4 - Refueling Valve Exercise
											LM		Continuous Monitoring of RHR Pump Discharge Pressure
1RH720B	1	X				X	MOV	S	RM156A	E-9	Q	RR11	OST 1.10.4 - Refueling Valve Exercise
											LM		Continuous Monitoring of RHR Pump Discharge Pressure
1RH721	2			X			RV		RM156A	D-7	ST		BVT 1.5-1.60.5
1RH758	2		X				MOV	T	RM156A	D-5			OST 1.10.4

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SI1	2			X			C42		RM167A	G-3	Q	RR12	Visual Inspection at Refueling per CMP 1-75-86
1SI2	2			X			C42		RM167A	G-5	Q	RR12	Visual Inspection at Refueling per CMP 1-75-86
1SI5	2			X			C42		RM167A	F-6	Q	RR13	OST 1.11.14-Full Flow Test at Refueling OST 1.11.1 and 1.11.2 0 - Part stroke
1SI6	2			X			C42		RM167A	F-3	Q	RR14	OST 1.11.14-Full Flow Test at Refueling OST 1.11.1 and 1.11.2 - Part stroke
1SI7	2			X			C42		RM167A	F-6	Q	RR14	OST 1.11.14-Full Flow Test at Refueling OST 1.11.1 and 1.11.2 - Part stroke
1SI10	1	X		X			C58		RM167B	C-2	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
											LT		OST 1.11.16
1SI11	1	X		X			C58		RM167B	B-2	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
											LT		OST 1.11.16
1SI12	1	X		X			C58		RM167B	B-2	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
											LT		OST 1.11.16
1SI13	2	X		X			C58		RM167B	C-9	Q	RR16	OST 1.11.14-Full Flow Test at Refueling
											LT		BVT 1.3-1.47.11
1SI14	2	X		X			C58		RM167B	B-9	Q	RR16	OST 1.11.14-Full Flow Test at Refueling
											LT		BVT 1.3-1.47.11

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SI15	1	X		X			C58		RM167B	B-2	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
											LT		Later
1SI16	1	X		X			C58		RM167B	B-2	Q	RM15	OST 1.11.14-Full Flow Test at Refueling
											LT		Later
1SI17	1	X		X			C58		RM167B	B-2	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
											LT		Later
1SI20	1			X			C58		RM167B	A-1	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
1SI21	1			X			C58		RM167B	A-1	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
1SI22	1			X			C58		RM167B	A-1	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
1SI23	1	X		X			C58		RM167B	B-1	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
											LT		OST 1.11.16
1SI24	1	X		X			C58		RM167B	B-1	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
											LT		OST 1.11.16
1SI25	1	X		X			C58		RM167B	B-1	Q	RR15	OST 1.11.14-Full Flow Test at Refueling
											LT		OST 1.11.16
1SI27	2			X			G42		RM167B	E-7	Q	RR17	OST 1.11.14-Full Flow Test at Refueling
													OST 1.7.4 and 1.7.5 and 1.7.6-Part Stroke

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SI28	2			X			C58		RM167B	E-3	Q		OST 1.11.1 Reverse flow test
													OST 1.11.2 Full flow test
1SI29	2			X			C58		RM167B	E-2	Q		OST 1.11.2 Reverse flow test
													OST 1.11.1 Full flow test
1SI41	2	X				X	T58	LS	RM167B	D-2	Q		Locked or sealed valve log OST 1.1.9
											LT		BVT 1.3-1.47.5 - Leak Test
1SI42	2	X		X		X	C58		RM167B	D-9	LT		BVT 1.3-1.47.5 - Leak Test
1SI48	1	X		X			C48Z		RM167B	G-3	Q	RR18	OST 1.11.15-Part stroke exercise
											LT		OST 1.11.4 - Leak Test
1SI49	1	X		X			C48Z		RM167B	F-6	Q	RR18	OST 1 11.15 - Part stroke exercise
											LT		OST 1.11.4 - Leak Test
1SI50	1	X		X			C48Z		RM167B	D-3	Q	RR18	OST 1.11.15 - Part stroke exercise
											LT		OST 1.11.4 - Leak Test
1SI51	1	X		X			C48Z		RM167B	G-2	Q	RR18	OST 1.11.15 - Part stroke exercise
											LT		OST 1.11.4 - Leak Test
1SI52	1	X		X			C48Z		RM167B	F-2	Q	RR18	OST 1.11.15 Part stroke exercise
											LT		OST 1.11.4 - Leak Test
1SI53	1	X		X			C48Z		RM167B	E-2	Q	RR18	OST 1.11.15 Part stroke exercise
											LT		OST 1 11.4 - Leak Test
1SI83	1	X		X			C58		RM167B	A-7	Q	RR16	OST 1.11.14 - Full stroke at refueling
											LT		BVT 1.3-1.47.11

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SI84	1	X		X			C58		RM167B	A-7	Q	RR16	OST 1.11.14 - Full stroke at refueling
											LT		BVT 1.3-1.47.11
1SI91	2	X				X	T58		RM167A	A-6	Q		OST 1.1.10-cold shutdown full exercise
											LT		BVT 1.3-1.47.11
1SI94	2	X		X			C58		RM167B	B-7	Q	RR19	OST 1.11.14-Full stroke at refueling
											LT		BVT 1.3-1.47.11
1SI95	2	X		X			C58		RM167B	B-7	Q	RR19	OST 1.11.14-Full stroke at refueling
											LT		BVT 1.3-1.47.11
1SI100	1			X			C58		RM167B	B-2	Q	RR15	OST 1.11.14-Full stroke at refueling
1SI101	1			X			C58		RM167B	B-2	Q	RR15	OST 1.11.14-Full stroke at refueling
1SI102	1			X			C58		RM167B	B-2	Q	RR15	OST 1.11.14-Full stroke at refueling
1SI101-1	2	X					TV	S	RM167B	C-9	Q		OST 1.47.3A-Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SI101-2	2	X					TV	S	RM167B	C-9	Q		OST 1.47.3A-Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SI836	2	X				X	MOV	S	RM167A	A-2	Q	RR20	OST 1.1.10-cold shutdown stroke and time
											LT		BVT 1.3-1.47.11

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SI842	2	X					MOV	S	RM167B	D-9	Q		OST 1.47.3A
											LT		BVT 1.3-1.47.5 - Leak Test
1SI845A	2			X			RV		RM167A	E-3	ST		BVT 1.5-1.60.5
1SI845B	2			X			RV		RM167A	E-3	ST		BVT 1.5-1.60.5
1SI845C	2			X			RV		RM167A	E-5	ST		BVT 1.5-1.60.5
1SI857	2			X			RV		RM167A	A-4	ST		BVT 1.5-1.60.5
1SI858A	2			X			RV		RM167B	F-3	ST		BVT 1.5-1.60.5
1SI858B	2			X			RV		RM167B	E-6	ST		BVT 1.5-1.60.5
1SI858C	2			X			RV		RM167B	C-3	ST		BVT 1.5-1.60.5
1SI860A	2	X					MOV	S	RM167A	G-2	Q	RR21	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI860B	2	X					MOV	S	RM167A	G-5	Q	RR21	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI862A	2		X				MOV	O	RM167A	G-4	Q		OST 1.11.6 Stroke and time.
1SI862B	2		X				MOV	O	RM167A	G-5	Q		OST 1.11.7 Stroke and time
1SI863A	2		X				MOV	S	RM167A	E-4	Q		OST 1.47.3A - Quarterly stroke and time
1SI863B	2		X				MOV	S	RM167A	E-6	Q		OST 1.47.3A - Quarterly stroke and time
1SI864A	2		X				MOV	O	RM167A	E-3	Q		OST 1.47.3A - Quarterly stroke and time
1SI864B	2		X				MOV	O	RM167A	E-3	Q		OST 1.47.3A - Quarterly stroke and time
1SI867A	2		X				MOV	S	RM167A	C-7	Q		OST 1.47.3A - Quarterly stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SI867B	2		X				MOV	S	RM167A	C-7	Q		OST 1.47.3A - Quarterly stroke and time
1SI867C	2	X					MOV	S	RM167A	B-2	Q	RR22	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI867D	2	X					MOV	S	RM167A	B-2	Q	RR22	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI869A	2	X				X	MOV	S	RM167A	A-2	Q	RR20	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI869B	2	X					MOV	S	RM167A	C-4	Q	RR23	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI884A	2		X				TV	O	RM167A	A-5	Q		OST 1.47.3A - Quarterly stroke and time
1SI884B	2		X				TV	O	RM167A	A-5	Q		OST 1.47.3A - Quarterly stroke and time
1SI884C	2		X				TV	O	RM167A	B-6	Q		OST 1.47.3A - Quarterly stroke and time
1SI885A	2		X				MOV	O	RM167A	E-2	Q		OST 1.47.3A - Quarterly stroke and time
1SI885B	2		X				MOV	O	RM167A	E-3	Q		OST 1.47.3A - Quarterly stroke and time
1SI885C	2		X				MOV	O	RM167A	E-3	Q		OST 1.47.3A - Quarterly stroke and time
1SI885D	2		X				MOV	O	RM167A	E-3	Q		OST 1.47.3A - Quarterly stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SI889	2	X					TV	S	RM167A	D-1	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SI89[illegible]	2	X					MOV	S	RM167A	E-2	Q	RR24	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI890B	2	X					MOV	S	RM167A	E-2	Q	RR24	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI890C	2	X				X	MOV	S	RM167A	E-2	Q	RR25	OST 1.1.10 - cold shutdown stroke and time
											LT		BVT 1.3-1.47.11
1SI-451	2		X				T58	O	RM167A	E-2	Q		OST 1.1.9 Stroke
1SI-452	2		X				T58	O	RM167A	E-2	Q		OST 1.1.9 Stroke

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CV35	2	X				X	VSS200A	SS	RM168A	C-7	Q		Sealed valve log, OST 1.1.9
											LT		BVT 1.3-1.47.5 - Leak Test
1CV36	2	X				X	VSS200A	SS	RM168A	D-7	Q		Sealed valve log, OST 1.1.9
											LT		BVT 1.3-1.47.5 - Leak Test
1LM100A1	2	X					TV	O	RM168A	C-3	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1LM100A2	2	X					TV	O	RM168A	C-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1LM101A	2	X					TV	S	RM168A	C-8	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1LM101B	2	X					TV	S	RM168A	D-8	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CV101A	2	X					TV	O	RM168A	D-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CV101B	2	X					TV	O	RM168A	D-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CV102	2	X					TV	O	RM168A	E-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CV102-1	2	X					TV	O	RM168A	E-8	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CV150A	2	X					TV	O	RM168A	F-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CV150B	2	X					TV	S	RM168A	F-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CV150C	2	X					TV	O	RM168A	F-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CV150D	2	X					TV	S	RM168A	F-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CV151	2	X				X	HCV	LS	RM168A	F-8	LT		BVT 1.3-1.47.5 - Leak Test
1CV151-1	2	X				X	HCV	LS	RM168A	F-7	LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1QS3	2	X		X			WLC1		RM165A	B-5	Q	RR26	OST 1.1.10 - cold shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1QS4	2	X		X			WLC2		RM164A	B-5	Q	RR26	OST 1.1.10 - cold shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1QS100A	2		X				MOV	O	RM165A	C-7	Q		OST 1.47.3A - Quarterly stroke and time
1QS100B	2		X				MOV	O	RM165A	C-7	Q		OST 1.47.3A - Quarterly stroke and time
1QS101A	2	X					MOV	S	RM165A	B-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1QS101B	2	X					MOV	S	RM165A	B-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1QS103A	2		X				MOV	O	RM165A	C-5	Q		OST 1.47.3A - Quarterly stroke and time
1QS103B	2		X				MOV	O	RM165A	C-6	Q		OST 1.47.3A - Quarterly stroke and time
1QS104A	2		X				MOV	S	RM165A	E-8	Q		OST 1.13.10A - Stroke and time
1QS104B	2		X				MOV	S	RM165A	E-7	Q		OST 1.13.10B - Stroke and time
1QS100A	2			X			RV		RM165A	E-8			BVT 1.5-1.60.5
1QS100B	2			X			RV		RM165A	E-8			BVT 1.5-1.60.5
1RS100	2	X		X			WLC-3		RM165A	E-5	Q	RR26	OST 1.1.10 - Cold shutdown exercise
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1RS101	2	X		X			WLC-3		RM165A	E-5	Q	RR26	OST 1.1.10 - Cold shutdown exercise
											LT		BVT 1.3-1.47.5 - Leak Test
1RS145	3			X		X			RM165A	G-1	Q		OST 1.13.5 - Test
1RS146	3			X		X			RM165A	G-1	Q		OST 1.13.6 - Test
1RS155A	2		X				MOV	O	RM165A	G-6	Q		OST 1.47.3A - Quarterly stroke and time
1RS155B	2		X				MOV	O	RM165A	G-7	Q		OST 1.47.3A - Quarterly stroke and time
1RS156A	2		X				MOV	O	RM165A	E-5	Q		OST 1.47.3A - Quarterly stroke and time
1RS156B	2		X				MOV	O	RM165A	E-5	Q		OST 1.47.3A - Quarterly stroke and time
1RS157	2		X			X		LS	RM165A	E-6			OST 1.1.9 Refueling Test
1RS158	2			X		X		LS	RM165A	E-6			OST 1.1.9 Refueling Test
1RS159	2		X			X		LS	RM165A	E-7			OST 1.1.9 Refueling Test
1RS160	2			X		X		LS	RM165A	E-7			OST 1.1.9 Refueling Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SS100A1	2	X					TV	0	RM179A	B-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS100A2	2	X					TV	0	RM179A	B-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS102A1	2	X					TV	0	RM179A	A-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS102A2	2	X					TV	0	RM179A	A-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS103A1	2	X					TV	0	RM179A	C-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS103A2	2	X					TV	0	RM179A	C-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS104A1	2	X					TV	0	RM179A	C-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS104A2	2	X					TV	0	RM179A	C-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS105A1	2	X					TV	0	RM179A	B-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SS105A2	2	X					TV	0	RM179A	B-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS109A1	2	X					TV	0	RM179A	C-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS109A2	2	X					TV	0	RM179A	C-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS111A1	2	X					TV	0	RM179A	B-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS111A2	2	X					TV	0	RM179A	B-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS112A1	2	X					TV	0	RM179A	C-4	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS112A2	2	X					TV	0	RM179A	C-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1SS117A	2		X				TV	0	RM179A	D-1	Q		OST 1.47.3A - Quarterly stroke and time
1SS117B	2		X				TV	0	RM179A	D-1	Q		OST 1.47.3A - Quarterly stroke and time
1SS117C	2		X				TV	0	RM179A	D-1	Q		OST 1.47.3A - Quarterly stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC4	3			X			VC115C		RM157A	E-6	Q		OST 1.15.1 - Test
													OST 1.15.2,3 - Reverse Flow Test
1CC5	3			X			VC115C		RM157A	E-6	Q		OST 1.15.2 Test
													OST 1.15.1,3 - Reverse Flow Test
1CC6	3			X			VC115C		RM157A	E-7	Q		OST 1.15.3 - Test
													OST 1.15.1,2 - Reverse Flow Test
1CC103A	2	X					TV	O	RM157D	A-4	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC103A1	2	X					TV	O	RM157D	A-4	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC103B	2	X					TV	O	RM157D	A-3	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC103B1	2	X					TV	O	RM157D	A-3	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC103C	2	X					TV	O	RM157D	A-3	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC103C1	2	X					TV	O	RM157D	A-3	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC105A	3		X				TV	O	RM157D	B-3	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
1CC105B	3		X				TV	O	RM157D	D-3	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC105C	3		X				TV	O	RM157D	F-3	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
1CC105D1	2	X					TV	O	RM157D	G-6	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC105D2	2	X					TV	O	RM157D	G-6	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC105E1	2	X					TV	O	RM157D	G-5	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC105E2	2	X					TV	O	RM157D	G-5	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC107D1	2	X					TV	O	RM157D	G-5	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC107D2	2	X					TV	O	RM157D	G-5	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC107E1	2	X					TV	O	RM157D	G-4	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC107E2	2	X					TV	O	RM157D	G-4	Q	RR27	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC107A	3		X				TV	O	RM157D	C-5	Q	RR27	OST 1.1.10 - Cold shutdown exercise

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC107B	3		X				TV	O	RM157D	D-5	Q	RR27	OST 1.1.10 - Cold shutdown exercise
1CC107C	3		X				TV	O	RM157D	F-5	Q	RR27	OST 1.1.10 - Cold shutdown exercise
1CC109	3			X			RV		RM157B	D-6	ST		BVT 1.5-1.60.5
1CC110	3			X			RV		RM157B	D-6			BVT 1.5-1.60.5
1CC110A	3		X				TV	O	RM129B	B-1	Q		OST 1.47.3A - Quarterly stroke and time
1CC110B	3		X				TV	O	RM129B	B-3	Q		OST 1.47.3A - Quarterly stroke and time
1CC110C	3		X				TV	O	RM129B	B-5	Q		OST 1.47.3A - Quarterly stroke and time
1CC110D	2	X					TV	O	RM129B	G-3	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC110E2	2	X					TV	O	RM129B	A-2	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC110E3	2	X					TV	O	RM129B	A-3	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC110F1	2	X					TV	S	RB129B	G-2	Q	RR28	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC110F2	2	X					TV	O	RB129B	G-2	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC111A	3		X				MOV	O	RM157C	B-7	Q		OST 1.47.3A - Quarterly stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC111A	3			X			RV		RM157B	B-5	ST		BVT 1.5-1.60.5
1CC111A1	2	X					TV	O	RM157C	A-9	Q	RR29	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC111A2	2	X					TV	O	RM157C	A-9	Q	RR29	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC111B	3		X				MOV	O	RM157C	B-8	Q		OST 1.47.3A - Quarterly stroke and time
1CC111B	3			X			RV		RM157B	B-5	ST		BVT 1.5-1.60.5
1CC111C	3		X				MOV	S	MR157C	B-9	Q		OST 1.47.3A - Quarterly stroke and time
1CC111D1	2	X					TV	O	RM157C	G-8	Q	RR29	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC111D2	2	X					TV	O	RM157C	G-8	Q	RR29	OST 1.1.10 - Cold shutdown stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC112A	3			X			RV		RM129B	B-1	ST		BVT 1.5-1.60.5
1CC112A1	3			X			RV		RM129B	C-1	ST		BVT 1.5-1.60.5
1CC112A2	2	X					MOV	S	RM157D	A-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC112A2	3			X			RV		RM129B	E-1	ST		BVT 1.5-1.60.5
1CC112A3	2	X					MOV		RM151D	G-6	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC112B	3			X			RV		RM129B	B-3	ST		BVT 1.5-1.60.5

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC112B1	3			X			RV		RM129B	C-3	ST		BVT 1.5-1.60.5
1CC112B2	2	X					MOV	S	RM157D	A-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC112B2	3			X			RV		RM129B	E-3	ST		BVT 1.5-1.60.5
1CC112B3	2	X					MOV	S	RM157D	G-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1CC112C	3			X			RV		RM129B	B-5	ST		BVT 1.5-1.60.5
1CC112C1	3			X			RV		RM129B	C-5	ST		BVT 1.5-1.60.5
1CC112C2	3			X			RV		RM129B	E-5	ST		BVT 1.5-1.60.5
1CC113A	3			X			RV		RM157C	B-7	ST		BVT 1.5-1.60.5
1CC113B	3			X			RV		RM157C	B-8	ST		BVT 1.5-1.60.5
1CC113C	3			X			RV		RM157C	B-9	ST		BVT 1.5-1.60.5
1CC115A	3			X			RV		RM157D	B-3	ST		BVT 1.5-1.60.5
1CC115B	3			X			RV		RM157D	D-3	ST		BVT 1.5-1.60.5
1CC115C	3			X			RV		RM157D	E-3	ST		BVT 1.5-1.60.5
1CC116A	3			X			RV		RM157D	C-4	ST		BVT 1.5-1.60.5
1CC116B	3			X			RV		RM157D	D-5	ST		BVT 1.5-1.60.5
1CC116C	3			X			RV		RM157D	F-4	ST		BVT 1.5-1.60.5
1CC117	3			X			RV		RM157D	B-7	ST		BVT 1.5-1.60.5
1CC118	3			X			RV		RM157D	B-7	ST		BVT 1.5-1.60.5
1CC119A	3			X			RV		RM157D	C-5	ST		BVT 1.5-1.60.5
1CC119B	3			X			RV		RM158D	E-7	ST		BVT 1.5-1.60.5

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC121-1	3		X				TV	O	RM157D	A-1	Q		OST 1.47.3A - Quarterly stroke and time
1CC121-2	3		X				TV	O	RM157D	G-2	Q		OST 1.47.3A - Quarterly stroke and time
1CC125	3		X				TV	O	RM157B	A-2	Q		OST 1.47.3A - Quarterly stroke and time
1CC125-1	3		X				TV	O	RM157A	F-5	Q		OST 1.47.3A - Quarterly stroke and time
1CC125-2	3		X				TV	O	RM157A	F-5	Q		OST 1.47.3A - Quarterly stroke and time
1CC126	3		X				TV	O	RM157B	A-3	Q		OST 1.47.3A - Quarterly stroke and time
1CC126-1	3		X				TV	O	RM157A	G-8	Q		OST 1.47.3A - Quarterly stroke and time
1CC126-2	3		X				TV	O	RM157A	G-8	Q		OST 1.47.3A - Quarterly stroke and time
1CC127	3		X				TV	O	RM157B	B-4	Q		OST 1.47.3A - Quarterly stroke and time
1CC127-1	3		X				TV	O	RM157A	F-8	Q		OST 1.47.3A - Quarterly stroke and time
1CC127-2	3		X				TV	O	RM157A	F-8	Q		OST 1.47.3A - Quarterly stroke and time
1CC128	3		X				TV	O	RM157B	B-5	Q		OST 1.47.3A - Quarterly stroke and time
1CC129	3		X				TV	O	RM157B	A-9	Q		OST 1.47.3A - Quarterly stroke and time
1CC129-1	3		X				TV	O	RM157A	A-9	Q		OST 1.47.3A - Quarterly stroke and time
1CC129-2	3		X				TV	O	RM157A	D-9	Q		OST 1.47.3A - Quarterly stroke and time
1CC130	3		X				TV	O	RM157B	D-6	Q		OST 1.47.3A - Quarterly stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC132	3		X				TV	O	RM157B	D-6	Q		OST 1.47.3A - Quarterly stroke and time
1CC133-2	3		X				TV	O	RM157B	G-7	Q		OST 1.47.3A - Quarterly stroke and time
1CC133-3	3		X				TV	O	RM157B	G-6	Q		OST 1.47.3A - Quarterly stroke and time
1CC134-1	3		X				TV	O	RM157B	A-7	Q		OST 1.47.3A - Quarterly stroke and time
1CC134-2	3		X				TV	O	RM157B	B-7	Q		OST 1.47.3A - Quarterly stroke and time
1CC134-3	3		X				TV	O	RM157B	G-6	Q		OST 1.47.3A - Quarterly stroke and time
1CC136	3		X				TV	O	RM157B	A-4	Q		OST 1.47.3A - Quarterly stroke and time
1CC136A	3			X			RV		RM157D	B-6	ST		BVT 1.5-1.60.5
1CC136B	3			X			RV		RM157D	D-6	ST		BVT 1.5-1.60.5
1CC137	3		X				TV	O	RM157D	A-1	ST		OST 1.47.3A - Quarterly stroke and and time
1CC137A	3		X				TV	O	RM157D	D-1	Q		OST 1.47.3A - Quarterly stroke and and time
1CC137B	3		X				TV	S	RM157D	E-1	Q		OST 1.47.3A - Quarterly stroke and and time
1CC139A	3			X			RV		RM157D	D-8	ST		BVT 1.5-1.60.5
1CC139B	3			X			RV		RM157D	D-8	ST		BVT 1.5-1.60.5
1CC139C	3			X			RV		RM157D	D-8	ST		BVT 1.5-1.60.5
1CC139D	3			X			RV		RM157D	E-8	ST		BVT 1.5-1.60.5
1CC139E	3			X			RV		RM157D	E-8	ST		BVT 1.5-1.60.5
1CC139F	3			X			RV		RM157D	F-8	ST		BVT 1.5-1.60.5
1CC139G	3			X			RV		RM157D	F-8	ST		BVT 1.5-1.60.5

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC139H	3			X			RV		RM157D	F-8	ST		BVT 1.5-1.60.5
1CC139I	3			X			RV		RM157D	F-8	ST		BVT 1.5-1.60.5
1CC139J	3			X			RV		RM157D	F-8	ST		BVT 1.5-1.60.5
1CC139K	3			X			RV		RM157D	G-8	ST		BVT 1.5-1.60.5
1CC139L	3			X			RV		RM157D	G-8	ST		BVT 1.5-1.60.5
1CC139M	3			X			RV		RM157D	E-8	ST		BVT 1.5-1.60.5
1CC139N	3			X			RV		RM157D	E-8	ST		BVT 1.5-1.60.5
1CC139P	3			X			RV		RM157D	E-8	ST		BVT 1.5-1.60.5
1CC139R	3			X			RV		RM157D	D-8	ST		BVT 1.5-1.60.5
1CC140A	3			X			RV		RM157D	B-10	ST		BVT 1.5-1.60.5
1CC140B	3			X			RV		RM157D	B-10	ST		BVT 1.5-1.60.5
1CC140C	3			X			RV		RM157D	B-10	ST		BVT 1.5-1.60.5
1CC140D	3			X			RV		RM157D	C-10	ST		BVT 1.5-1.60.5
1CC140E	3			X			RV		RM157D	C-10	ST		BVT 1.5-1.60.5
1CC140F	3			X			RV		RM157D	C-10	ST		BVT 1.5-1.60.5
1CC140G	3			X			RV		RM157D	D-10	ST		BVT 1.5-1.60.5
1CC140H	3			X			RV		RM157D	D-10	ST		BVT 1.5-1.60.5
1CC140I	3			X			RV		RM157D	D-10	ST		BVT 1.5-1.60.5
1CC140J	3			X			RV		RM157D	D-10	ST		BVT 1.5-1.60.5
1CC140K	3			X			RV		RM157D	E-10	ST		BVT 1.5-1.60.5
1CC140L	3			X			RV		RM157D	E-10	ST		BVT 1.5-1.60.5
1CC140M	3			X			RV		RM157D	C-10	ST		BVT 1.5-1.60.5
1CC140N	3			X			RV		RM157D	C-10	ST		BVT 1.5-1.60.5
1CC140P	3			X			RV		RM157D	B-10	ST		BVT 1.5-1.60.5

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1CC140R	3			X			RV		RM157D	B-10	ST		BVT 1.5-1.60.5
1CC247	2	X				X	VVF15A	LS	RM157D	A-5	LT		BVT 1.3-1.47.5 - Leak Test
1CC248	2	X				X	VVF15A	LS	RM157D	A-7	LT		BVT 1.3-1.47.5 - Leak Test
1CC251	2	X				X	VVF15A	LS	RM157D	G-6	LT		BVT 1.3-1.47.5 - Leak Test
1CC252	2	X				X	VVF15A	LS	RM157D	G-6	LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1PC9	2	X				X	VBW15Y	LS	RM162A	D-7			Locked Valve Log - OST 1.1.9
											LT		BVT 1.3-1.47.5 - Leak Test
1PC10	2	X				X	VBW15Y	LS	RM162A	D-7			Locked Valve Log - OST 1.1.9
											LT		BVT 1.3-1.47.5 - Leak Test
1PC37	2	X				X	VBW15Y	LS	RM162A	D-7			Locked Valve Log - OST 1.1.9
											LT		BVT 1.3-1.47.5 - Leak Test
1PC38	2	X				X	VBW15Y	LS	RM162A	D-7			Locked Valve Log - OST 1.1.9
											LT		BVT 1.3-1.47.5 - Leak Test
1PC108	3			X			VCW15X		RM162A	D-2	Q		OST 1.20.2 - Test
													OST 1.20.3 - Reverse Flow Test
1PC109	3			X			VCW15X		RM162A	D-2	Q		OST 1.20.3 - Test
													OST 1.20.2 - Reverse Flow Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1MS15	2		X			X	VGW60A	LO	RM120A	C-2			Locked or sealed valve log
1MS16	2		X			X	VGW60A	LO	RM120A	D-2			Locked or sealed valve log
1MS17	2		X			X	VGW60A	LS	RM120A	F-2			Locked or sealed valve log
1MS18	3			X			VCW60A		RM120A	F-5	Q		OST 1.24.4
1MS19	3			X			VCW60A		RM120A	G-5	Q		OST 1.24.4
1MS20	3			X			VCW60A		RM120A	G-5	Q		OST 1.24.4
1MS80	2			X			VCW60A		RM120A	C-3	Q	RR30	Maintenance Visual Check at Refueling per CMP 1-75-77
1MS81	2			X			VCW60A		RM120A	D-3	Q	RR30	Maintenance Visual Check at Refueling per CMP 1-75-77
1MS82	2			X			VCW60A		RM120A	E-3	Q	RR30	Maintenance Visual Check at Refueling per CMP 1-75-77
1MS101A	2		X				MOV	S	RM120A	C-3	Q		OST 1.47.3A - Quarterly stroke and time
1MS101A	2		X	X			NRV	O	RM120A	C-3	Q	RR31	OST 1.1.10 - Cold shutdown stroke and time
1MS101A	2		X				PCV	A	RM120A	C-3	Q	RR32	OST 1.1.10 - Cold shutdown stroke and time
1MS101A	2			X			SV		RM120A	C-3	ST		BVT 1.1-1.21.1
1MS101A	2		X				TV	O	RM120A	C-3	Q	RR33	OST 1.21.1 - Partial, OST 1.21.4 Full
1MS101B	2		X				MOV	S	RM120A	D-3	Q		OST 1.47.3A - Quarterly stroke and time
1MS101B	2		X	X			NRV	O	RM120A	D-3	Q	RR31	OST 1.1.10 - Cold shutdown stroke and time
1MS101B	2		X				PCV	A	RM120A	D-3	Q	RR32	OST 1.1.10 - Cold shutdown stroke and time
1MS101B	2			X			SV		RM120A	D-3	ST		BVT 1.1 - 1.21.1

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1MS101B	2		X				TV	O	RM120A	D-3	Q	RR33	OST 1.21.2 - Partial - OST 1.21.5 - Full
1MS101C	2		X				MOV	S	RM120A	F-3	O		OST 1.47.3A - Quarterly stroke and time
1MS101C	2		X	X			NRV	O	RM120A	F-3	O	RR31	OST 1.1.10 - Cold Shutdown stroke and time
1MS101C	2		X				PCV	A	RM120A	E-3	O	RR32	OST 1.1.10 - Cold shutdown stroke and time
1MS101C	2			X			SV		RM120A	F-3	ST		BVT 1.1 - 1.21.1
1MS101C	2		X				TV	O	RM120A	F-3	Q	RR33	OST 1.21.3 - Partial, OSI 1.21.6 - Full
1MS102A	2			X			SV		RM120A	C-3	ST		BVT 1.1 - 1.21.1
1MS102B	2			X			SV		RM120A	D-3	ST		BVT 1.1 - 1.21.1
1MS102C	2			X			SV		RM120A	E-3	ST		BVT 1.1 - 1.21.1
1MS103A	2			X			SV		RM120A	C-2	ST		BVT 1.1 - 1.21.1
1MS103B	2			X			SV		RM120A	D-2	ST		BVT 1.1 - 1.21.1
1MS103C	2			X			SV		RM120A	E-2	ST		BVT 1.1 - 1.21.1
1MS104A	2			X			SV		RM120A	C-2	ST		BVT 1.1 - 1.21.1
1MS104B	2			X			SV		RM120A	D-2	ST		BVT 1.1 - 1.21.1
1MS104C	2			X			SV		RM120A	E-2	ST		BVT 1.1 - 1.21.1
1MS105A	2			X			SV		RM120A	C-2	ST		BVT 1.1 - 1.21.1
1MS105B	2			X			SV		RM120A	D-2	ST		BVT 1.1 - 1.21.1
1MS105C	2			X			SV		RM120A	E-2	ST		BVT 1.1 - 1.21.1
1MS105A	3		X				TV	S	RM120A	G-5	Q		OST 1.24.4 Alternate Months
1MS105B	3		X				TV	S	RM120A	G-5	Q		OST 1.24.4 Alternate Months
1MS105	3		X				MOV	O	RM120A	G-5	Q		OST 1.47.3A - Quarterly stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1MS111A	2		X				TV	O	RM137A	A-1	Q		OST 1.47.3A - Quarterly stroke and time
1MS111B	2		X				TV	O	RM137A	B-1	Q		OST 1.47.3A - Quarterly stroke and time
1MS111C	2		X				TV	O	RM137A	C-1	Q		OST 1.47.3A - Quarterly stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1FW33	3			X			VCF60A		RM124A	E-5	Q	RR34	OST 1.24.4 - Startup from cold shutdown
													OST 1.24.3 - Reverse Flow Test
1FW34	3			X			VCF60A		RM124A	F-3	Q	RR34	OST 1.24.2 - Startup from cold shutdown
													OST 1.24.3 - Reverse Flow Test
1FW35	3			X			VCF60A		RM124A	F-4	Q	RR34	OST 1.24.3 - Startup from cold shutdown
													OST 1.24.2 - Reverse Flow Test
1FW36	3					X	VGW60A	LO	RM124A	F-2			OST 1.24.4 - Test
1FW37	3		X			X	VGW60A	LO	RM124A	F-3			OST 1.24.2 - Test
1FW38	3		X			X	VGW60A	S	RM124A	F-4			OST 1.1.9
1FW39	3		X			X	VGW60A	S	RM124A	F-5			OST 1.1.9
1FW40	3		X			X	VGW60A	S	RM124A	F-3			OST 1.1.9
1FW41	3		X			X	VGW60A	LO	RM124A	F-4			OST 1.24.3
1FW42	2			X			VCW60A		RM124A	B-3	Q	RR34	OST 1.24.2, 3, 4 - Startup from cold SD
1FW43	2			X			VCW60A		RM124A	C-3	Q	RR34	OST 1.24.2, 3, 4 - Startup from cold SD
1FW44	2			X			VCW60A		RM124A	F-3	Q	RR34	OST 1.24.2, 3, 4 - Startup from cold SD
1FW151A	2		X				MOV	O	RM124A	E-3	Q		OST 1.24.1 Stroke and Time
1FW151B	2		X				MOV	O	RM124A	D-3	Q		OST 1.24.1 Stroke and Time
1FW151C	2		X				MOV	O	RM124A	D-3	Q		OST 1.24.1 Stroke and Time
1FW151D	2		X				MOV	O	RM124A	D-3	Q		OST 1.24.1 Stroke and Time
1FW151E	2		X				MOV	O	RM124A	B-3	Q		OST 1.24.1 Stroke and Time
1FW151F	2		X				MOV	O	RM124A	B-3	Q		OST 1.24.1 Stroke and Time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1FW156A	2		X				MOV	O	RM124A	B-3	Q	RR35	OST 1.1.10 - Cold shutdown stroke and time
1FW156B	2		X				MOV	O	RM124A	C-3	Q	RR35	OST 1.1.10 - Cold shutdown stroke and time
1FW156C	2		X				MOV	O	RM124A	D-3	Q	RR35	OST 1.1.10 - Cold shutdown stroke and time
1WT225	3		X			X		LO	RM124A	G-5			Locked or sealed valve log
1WT226	3		X			X		LO	RM124A	G-3			Locked or sealed valve log
1WT227	3		X			X		LO	RM124A	G-4			Locked or sealed valve log
1FW622	2			X			VCW150Q		RM124A	E-3	Q	RR34	OST 1.24.2, 4 - Startup from C/S
1FW623	2			X			VCW150Q		RM124A	E-3	Q	RR34	OST 1.24.3 - Startup from C/S
1FW624	2			X			VCW150Q		RM124A	D-3	Q	RR34	OST 1.24.2, 4 - Startup from C/S
1FW625	2			X			VCW150Q		RM124A	D-3	Q	RR34	OST 1.24.3 - Startup from C/S
1FW626	2			X			VCW150Q		RM124A	B-3	Q	RR34	OST 1.24.2, 4 - Startup from C/S
1FW627	2			X			VCW150Q		RM124A	B-3	Q	RR34	OST 1.24.3 - Startup from C/S

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1BD100A	2		X				TV	O	RM180A	B-4	Q		OST 1.47.3A - Quarterly stroke and time
1BD100B	2		X				TV	O	RM180A	D-5	Q		OST 1.47.3A - Quarterly stroke and time
1BD100C	2		X				TV	O	RM180A	F-4	Q		OST 1.47.3A - Quarterly stroke and time
1BD101A1	2		X				TV	O	RM180A	B-4	Q		OST 1.47.3A - Quarterly stroke and time
1BD101A2	2		X				TV	O	RM180A	B-4	Q		OST 1.47.3A - Quarterly stroke and time
1BD101B1	2		X				TV	O	RM180A	D-4	Q		OST 1.47.3A - Quarterly stroke and time
1BD101B2	2		X				TV	O	RM180A	D-4	Q		OST 1.47.3A - Quarterly stroke and time
1BD101C1	2		X				TV	O	RM180A	F-4	Q		OST 1.47.3A - Quarterly stroke and time
1BD101C2	2		X				TV	O	RM180A	F-4	Q		OST 1.47.3A - Quarterly stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SV100A	2	X					TV	S	RM122A	B-7	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1AS278	2	X		X			VCW15A	S	RM122A	B-7	Q		OST 1.47.3A - Quarterly stroke
											LT		BVT 1.3-1.47.5 - Leak Test
													NOTE: 1AS-278 full stroke verified
													by stroking TV-SV100A.

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1RW57	3			X			VC115C		RM127B	F-2	Q		OST 1.30.2 - Test OST 1.30.3,6 Reverse flow test
1RW58	3			X			VC115C		RM127B	F-3	Q		OST 1.30.3 - Test GST 1.30.2,6 Reverse flow test
1RW59	3			X			VC115C		RM127B	F-4	Q		OST 1.30.6 - Test OST 1.30.2,3 Reverse flow test
1RW101A	2			X			RV		RM127B	D-1	ST		BVT 1.5-1.60.5
1RW101B	2			X			RV		RM127B	E-1	ST		BVT 1.5-1.60.5
1RW101C	2			X			RV		RM127B	F-1	ST		BVT 1.5-1.60.5
1RW101D	2			X			RV		RM127B	F-1	ST		BVT 1.5-1.60.5
1RW102A	3			X			RV		RM127B	B-3	ST		BVT 1.5-1.60.5
1RW102A1	3		X				MOV	S	RM127B	F-2	Q		OST 1.47.3A - Quarterly stroke and time
1RW102A2	3		X				MOV	O	RM127B	F-2	Q		OST 1.47.3A - Quarterly stroke and time
1RW102B	3			X			RV		RM127B	B-3	ST		BVT 1.5-1.60.5
1RW102B1	3		X				MOV	S	RM127B	F-3	Q		OST 1.47.3A - Quarterly stroke and time
1RW102B2	3		X				MOV	S	RM127B	F-3	Q		OST 1.47.3A - Quarterly stroke and time
1RW102C	3			X			RV		RM127B	C-3	ST		BVT 1.5-1.60.5
1RW102C1	3		X				MOV	S	RM127B	F-4	Q		OST 1.47.3A - Quarterly stroke and time
1RW102C2	3		X				MOV	S	RM127B	F-4	Q		OST 1.47.3A - Quarterly stroke and time
1RW103A	3		X				MOV	S	RM127A	D-4	Q		OST 1.30.4 - Stroke and time
1RW103B	3		X				MOV	S	RM127A	D-4	Q		OST 1.30.4 - Stroke and time
1RW103C	3		X				MOV	S	RM127A	F-4	Q		OST 1.30.5 - Stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1RW103D	3		X				MOV	S	RM127A	F-4	Q		OST 1.30.5 - Stroke and
1RW1C4	3		X				MOV	S	RM127A	E-4	Q		OST 1.30.4 - Stroke and time
1RW104A	2		X				MOV	O	RM127A	D-3	Q		OST 1.30.4 - Stroke and time
1RW104B	2		X				MOV	O	RM127A	E-3	Q		OST 1.30.5 - Stroke and time
1RW104C	2		X				MOV	O	RM127A	E-3	Q		OST 1.30.4 - Stroke and time
1RW104D	2		X				MOV	O	RM127A	F-3	Q		OST 1.30.5 - Stroke and time
1RW105A	2		X				MOV	S	RM127A	D-1	Q		OST 1.30.4 - Stroke and time
1RW105B	2		X				MOV	S	RM127A	F-1	Q		OST 1.30.5 - Stroke and time
1RW105C	2		X				MOV	S	RM127A	E-1	Q		OST 1.30.4 - Stroke and time
1RW105D	2		X				MOV	S	RM127A	F-1	Q		OST 1.30.5 - Stroke and time
1RW106A	3		X				MOV	O	RM127A	D-5	Q		OST 1.30.4 - Stroke and time
1RW106A	3			X			RV		RM127A	F-4	ST		BVT 1.5-1.60.5
1RW106B	3		X				MOV	O	RM127A	E-5	Q		OST 1.30.5 - Stroke and time
1RW106B	3			X			RV		RM127A	G-4	ST		BVT 1.5-1.60.5
1RW108				X			VCI-I	SS	RM127A	D-4	Q		OST 1.30.2; OST 1.30.6
1RW109				X			VCI-I	SS	RM127A	F-4	Q		OST 1.30.3; OST 1.30.6
1RW113A	3		X				MOV	S	RM127A	G-5	Q		OST 1.30.5 - Stroke and time
1RW113B	3		X				MOV	S	RM127A	G-5	Q		OST 1.30.4 - Stroke and time
1RW113C	3		X				MOV	S	RM127A	G-5	Q		OST 1.30.5 - Stroke and time
1RW113D1	3		X				MOV	S	RM127A	G-5	Q		OST 1.30.4 - Stroke and time
1RW114A	3		X				MOV	O	RM127A	D-5	Q		OST 1.30.4 - Stroke and time
1RW114B	3		X				MOV	O	RM127A	E-5	Q		OST 1.30.5 - Stroke and time
1RW116	3		X				MOV	S	RM127A	D-4	Q		OST 1.30.4 - Stroke and time

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1RW116A	3		X				MOV	A	RM127A	F-8	Q		OST 1.30.1A - Stroke and time
1RW116B	3		X				MOV	A	RM127A	F-8	Q		OST 1.30.1B - Stroke and time
1RW117	3		X				MOV	S	RM127A	D-5	Q		OST 1.30.5 - Stroke and time
1RW193	2			X			VCI15C		RM127A	D-3	Q		OST 1.30.2,6 - Stroke
1RW194	2			X			VCI15C		RM127A	E-3	Q		OST 1.30.2,6 - Stroke
1RW195	2			X			VCI15C		RM127A	E-3	Q		OST 1.30.3,6 - Stroke
1RW196	2			X			VCI15C		RM127A	F-3	Q		OST 1.30.3,6 - Stroke
1RW197	3			X			VCI15C		RM127A	D-1	Q		OST 1.30.2,3,6 BVT 1.4-1.30.5
1RW198	3			X			VCI15C		RM127A	D-1	Q		OST 1.30.2,3,6 BVT 1.4-1.30.5
1RW206	3		X			X	VVI15A	LS	RM124A	G-6			OST 1.24.4 - Position check
1RW207	3		X			X	VVI15A	S	RM124A	G-6			OST 1.24.4 - Position check
1RW208	3		X			X	VVI15A	S	RM124A	F-5			OST 1.24.4 - Position check
1RW209	3		X			X	VVI15A	S	RM124A	F-3			OST 1.30.4 - Position check
1RW210	3		X			X	VVI15A	S	RM124A	F-4			OST 1.30.5 - Position check
1RW486	3			X			VCW60A		RM127B	F-2	Q		OST 1.30.2 - Stroke and reverse flow test
1RW487	3			X			VCW60A		RM127B	F-3	Q		OST 1.30.3 - Stroke and reverse flow test
1RW488	3			X			VCW60A		RM127B	F-4	Q		OST 1.30.6 - Stroke and Reverse flow test
1RW110	3			X			VCI15C		RM127	F-5	Q		OST 1.36.1 and Internal Inspection Per CMP 1.75.308
1RW111	3			X			VCI15C		RM127	F-5	Q		OST 1.36.1 and Internal Inspection Per CMP 1.75.308

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1RW112	3			X			VC115C		RM127	G-5	Q		OST 1.36.2 and Internal Inspection Per CMP 1.75.308
1RW113	3			X			VC115C		RM127	G-5	Q		OST 1.36.2 and Internal Inspection Per CMP 1.75.308
1RW106	3			X					RM127	F-8	M		Forward Flow OST 1.30.2
													Reverse Flow in Conjunction with RW Hydro
1RW107	3			X					RM127	F-8	M		Forward Flow OST 1.30.3
													Reverse Flow in Conjunction with RW Hydro

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1FP105	3	X					TV	S	RB116C	C-4	Q		OST 1.47.3A
											LT		BVT 1.3-1.47.5 - Leak Test
1FP106	3	X					TV	S	RB116C	C-4	Q		OST 1.47.3A
											LT		BVT 1.3-1.47.5 - Leak Test
1FP107	3	X					TV	S	RB116C	C-5	Q		OST 1.47.3A
											LT		BVT 1.3-1.47.5 - Leak Test
1FP800	3	X		X		X			RB116C	D-4			OST 1.1.10
											LT		BVT 1.3-1.47.5 - Leak Test
1FP804	3	X		X		X			RB116C	D-4			OST 1.1.10
											LT		BVT 1.3-1.47.5 - Leak Test
1FP827	3	X		X		X			RB116C	D-5			OST 1.1.10
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1SA14	2	X				X	VGS60B	LS	RM140A	D-8			OST 1.1.10 - Cold shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1SA15	2	X		X		X	VCS60A		RM140A	D-8			OST 1.1.10 - Cold shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1IA90	2	X				X		LS	RK1D				OST 1.1.10 - Cold shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1IA91	2	X		X		X			RK1D				OST 1.1.10 - Cold shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1DA100	3			X			Lunken Heimer		RM151A	A-1	Q		Station logs monitor air pressure
1DA101	3			X			Crane		RM151A	A-5	Q		Station logs monitor air pressure
1DA104	3		X			X	Ball Valve	LS	RM151A	A-3			Locked or sealed valve log
1DA128	3			X					RM151A				Station logs monitor air pressure
1DA129	3			X					RM151A				Station logs monitor air pressure
1DA130	3			X			Crane		RM151A	A-5	Q		Station logs monitor air pressure
1DA131	3			X			Crane		RM151A	A-10	Q		Station logs monitor air pressure
1DA134	3		X			X	Ball Valve	LS	RM151A	A-8			Locked or sealed valve log
1DA141	3			X					RM151A				Station logs monitor air pressure
1DA142	3			X					RM151A				Station logs monitor air pressure
1F07	3			X			VCS60B		RM151A	G-4	Q		OST 1.36.1 - Stroke
1F08	3			X			VCS60B		RM151A	G-4	Q		OST 1.36.1 - Stroke
1F09	3			X			VCS60B		RM151A	E-4	Q		OST 1.36.2 - Stroke
1F010	3			X			VCS60B		RM151A	E-4	Q		OST 1.36.2 - Stroke
1F015	3		X			X	VGS60B	SS	RM151A	F-4			OPERATING MANUAL VALVE LIST - Chapter 36, Section 3
1F016	3		X			X	VGS60B	SS	RM151A	F-4			OPERATING MANUAL VALVE LIST - Chapter 36, Section 3
1F035	3			X			VCS60B		RM151A	G-2	Q		OST 1.36.1 - Stroke
1F036	3			X			VCS60B		RM151A	F-2	Q		OST 1.36.2 - Stroke
1EE101A	3			X			RV		RM151A	F-4	ST		BVT 1.5-1.60.5
1EE101B	3			X			RV		RM151A	F-4	ST		BVT 1.5-1.60.5
1EE101C	3			X			RV		RM151A	E-4	ST		BVT 1.5-1.60.5

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1EE101D	3			X			RV		RM151A	E-4	ST		BVT 1.5-1.60.5
1EE201A	3			X			RV		RM151A	B-1	ST		BVT 1.5-1.60.5
1EE201B	3			X			RV		RM151A	B-1	ST		BVT 1.5-1.60.5
1EE201C	3			X			RV		RM151A	B-1	ST		BVT 1.5-1.60.5
1EE202A	3			X			RV		RM151A	B-5	ST		BVT 1.5-1.60.5
1EE202B	3			X			RV		RM151A	B-5	ST		BVT 1.5-1.60.5
1EE202C	3			X			RV		RM151A	B-5	ST		BVT 1.5-1.60.5
1EE203A	3			X			RV		RM151A	B-6	ST		BVT 1.5-1.60.5
1EE203B	3			X			RV		RM151A	B-6	ST		BVT 1.5-1.60.5
1EE203C	3			X			RV		RM151A	C-6	ST		BVT 1.5-1.60.5
1EE204A	3			X			RV		RM151A	B-10	ST		BVT 1.5-1.60.5
1EE204B	3			X			RV		RM151A	B-10	ST		BVT 1.5-1.60.5
1EE204C	3			X			RV		RM151A	C-10	ST		BVT 1.5-1.60.5

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1VS101A	3			X			RV		RM140B	E-3	ST		BVT 1.5-1.60.5
1VS101A	3		X				TV		RM140B	E-3	Q	RR36	OST 1.1.10 - Cold Shutdown stroke and time
1VS101B	3			X			RV		RM140B	D-3	ST		BVT 1.5-1.60.5
1VS101B	3		X				TV		RM140B	D-3	Q	RR36	OST 1.1.10 - Cold Shutdown stroke and time
1VS101C	3			X			RV		RM140B	D-3	ST		BVT 1.5-1.60.5
1VS101C	3		X				TV		RM140B	D-3	Q	RR36	OST 1.1.10 - Cold Shutdown stroke and time
1VS101D	3			X			RV		RM140B	C-3	ST		BVT 1.5-1.60.5
1VS101D	3		X				TV		RM140B	C-3	Q	RR36	OST 1.1.10 - Cold Shutdown stroke and time
1VS101E	3			X			RV		RM140B	C-3	ST		BVT 1.5-1.60.5
1VS101E	3		X				TV		RM140B	C-3	Q	RR36	OST 1.1.10 - Cold Shutdown stroke and time
1VS-D-5-3A	2	X				X	MOV	S	RB2B				OST 1.1.10 - Cold Shutdown stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test
1VS-D-5-3B	2	X				X	MOV	S	RB2B				OST 1.1.10 - Cold Shutdown stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test
1VS-D-5-5A	2	X				X	MOV	S	RB2B				OST 1.1.10 - Cold Shutdown stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test
1VS-D-5-5B	2	X				X	MOV	S	RB2B				OST 1.1.10 - Cold Shutdown stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1VS-D-5-6	2	X				X		S	R32B				OST 1.1.10 - Cold Shutdown stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1HY101	2	X				X	VBS15Y	LS	RM150B	C-2			OST 1.1.10 - Cold Shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1HY101A	2		X				MOV	S	RM150B	C-4	Q		OST 1.47.3A - Quarterly stroke and time
1HY101B	2		X				MOV	S	RM150B	E-4	Q		OST 1.47.3A - Quarterly stroke and time
1HY102	2	X				X	VBS15Y	LS	RM150B	C-2			OST 1.1.10 - Cold Shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1HY102A	2		X				MOV	S	RM150B	C-5	Q		OST 1.47.3A - Quarterly stroke and time
1HY102B	2		X				MOV	S	RM150B	E-5	Q		OST 1.47.3A - Quarterly stroke and time
1HY103	2	X				X	VBS15Y	LS	RM150B	C-2			OST 1.1.10 - Cold Shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1HY103A	2		X				MOV	S	RM150B	C-9	Q		OST 1.47.3A - Quarterly stroke and time
1HY103B	2		X				MOV	S	RM150B	E-9	Q		OST 1.47.3A - Quarterly stroke and time
1HY104	2	X				X	VBS15Y	LS	RM150B	E-2			OST 1.1.10 - Cold Shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1HY110	2	X				X	VBS15Y	LS	RM150B	D-1			OST 1.1.10 - Cold Shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1HY111	2	X				X	VBS15Y	LS	RM150B	F-1			OST 1.1.10 - Cold Shutdown stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1HY119	2	X		X		X	VCS15C		RM150B	D-1	LT		OST 1.1.9 - Refueling stroke BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1HY120	2	X		X		X	VCS15C		RM150B	D-1			OST 1.1.9 - Refueling stroke
											LT		BVT 1.3-1.47.5 - Leak Test
1HY201A	2		X				MOV	A		C-5	Q		OST 1.46.3
1HY201B	2		X				MOV	A		E-5	Q		OST 1.46.4
1HY102A1	2	X					SOV	S	RM150C	A-3	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1HY102A2	2	X					SOV	S	RM150C	A-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1HY102B1	2	X					SOV	S	RM150C	D-2	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1HY102B2	2	X					SOV	S	RM150C	E-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1HY103A1	2	X					SOV	S	RM150C	B-2	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1HY103A2	2	X					SOV	S	RM150C	B-5	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1HY103B1	2	X					SOV	S	RM150C	E-2	Q		OST 1.47.3A - Quarterly stroke and time
											LT		BVT 1.3-1.47.5 - Leak Test
1HY103B2	2	X					SOV	S	RM150C	E-5	Q		OST 1.47.3A - Quarterly stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
1HY104A1	2	X					SOV	S	RM150C	C-2	Q		OST 1.47.3A - Quarterly stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test
1HY104A2	2	X					SOV	S	RM150C	C-5	Q		OST 1.47.3A - Quarterly stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test
1HY104B1	2	X					SOV	S	RM150C	F-2	Q		OST 1.47.3A - Quarterly stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test
1HY104B2	2	X					SOV	S	RM150C	F-5	Q		OST 1.47.3A - Quarterly stroke and time.
											LT		BVT 1.3-1.47.5 - Leak Test

Valve Mark Number	Class	Valve Category					Type	NSA	Drawing Number	Drawing Coordinates	Test Requirement	Relief Request	Testing and Tracking
		A	B	C	D	P							
VS-167	2	X					Ball	S	OM Fig 47-5		Q		Exercise Quarterly OST 1.47.3A
											LT		Type-C BVT 1.3-1.47.5 - Leak Test
VS-168		X					Ball	S	OM Fig 47-5		Q		Exercise Quarterly OST 1.47.3A
											LT		Type-C BVT 1.3-1.47.5 - Leak Test
VS-169		X					Ball	S	OM Fig 47-5		Q		Exercise Quarterly OST 1.1.10
											LT		Type-C BVT 1.3-1.47.5 - Leak Test
VS-170		X					Ball	S	OM Fig 47-5		Q		Exercise Quarterly OST 1.47.3A
											LT		Type-C BVT 1.3-1.47.5 - Leak Test
VS-176			X					S	OM Fig 47-5		Q		Exercise Quarterly OST 1.47.3A
VS-177			X					S	OM Fig 47-5		Q		Exercise Quarterly OST 1.47.3A
VS-178			X					S	OM Fig 47-5		Q		Cold Shutdown Exercise OST 1.1.10
VS-179			X					S	OM Fig 47-5		Q		Exercise Quarterly OST 1.47.3A
VS-183			X					S	OM Fig 47-5		Q		Cold Shutdown Exercise OST 1.1.10
											LT		Type-B BVT 1.3-1.47.8 - Leak Test
VS-184			X					S	OM Fig 47-5		Q		Cold Shutdown Exercise OST 1.1.10
											LT		Type-B BVT 1.3-1.47.8 - Leak Test

BVPS - IST

Valve Testing Relief Requests

RELIEF REQUEST 1

Valve No.: SOV-RC-102A SOV-RC-103B
SOV-RC-102B SOV-RC-104
SOV-RC-103A SOV-RC-105

Category B Class 1

Function: RCVS reactor vessel vent.

Test Requirements: Quarterly full stroke and time.

Basis for Relief: These valves are closed during normal operation and are designed to vent the RCS in an emergency. Relief from quarterly testing is requested as a valve failure coupled with a second failure or leakage while stroking one of these valves would vent the RCS to either the containment atmosphere or to the PRT.

Alternate Test: Cold shutdown stroke and time per OST 1.1.10.

RELIEF REQUEST 2

Valve No.: CH-22
CH-23
CH-24

Category C Class 2

Function: Normal pump discharge check valves for the charging pumps.

Test Requirements: Quarterly full stroke.

Basis for Relief: The design function of these check valves is to prevent reverse flow during pump shutdown and to stroke full open for safety injection flow. The only available method for testing is to use the design path and flow. Relief from quarterly full stroke exercising is requested because the design flow is only 550 gpm which is not enough to full stroke the valves. Relief is also requested from cold shutdown exercising due to the generation of additional radioactive waste from the boration to verify full flow conditions.

Alternate Test: Part-stroke quarterly per OST 1.7.4, 5 and 6. Full-stroke during refueling outages per OST 1.11.14, the full-flow test.

RELIEF REQUEST 3

Valve No.: CH-31

Category A/C Class 2

Function: Charging header inside containment isolation check valve.

Test Requirements: Quarterly full stroke.

Basis for Relief: This normally open check valve must close to fulfill its safety function. Valve closure can only be checked by a leak test and there is no instrumentation to monitor upstream pressure. Therefore, relief is requested from quarterly and cold shutdown stroke tests.

Alternate Test: Leak rate test during refueling outages per BVT 1.3-1.47.11.

RELIEF REQUEST 4

Valve No.: MOV-CH-115C
MOV-CH-115E

Category B Class 2

Function: Volume Control Tank outlet isolation valves.

Test Requirements: Quarterly full stroke and time.

Basis for Relief: These valves are normally open and cannot be exercised during power operation without isolating the Volume Control Tank from the charging pumps. This would result in a loss of normal Reactor Cooling System makeup and reactor coolant pump seal injection water causing possible pump and system degradation.

Alternate Test: Cold shutdown valve exercise per OST 1.1.10.

RELIEF REQUEST 5

Valve No.: MOV-CH-137

Category B Class 2

Function: Excess letdown control valve.

Test Requirements: Quarterly stroke and time.

Basis for Relief: This valve is located inside containment with no position indication in the control room. Also, the position is controlled by a potentiometer and timing the valve would not provide any useful information. Relief is, therefore, requested from timing this valve and quarterly stroking.

Alternate Test: Full stroked at each cold shutdown per OST 1.1.10.

RELIEF REQUEST 6

Valve No.: CH-141

Category C Class 2

Function: Emergency boration line non-return check valve.

Test Requirements: Quarterly stroke.

Basis for Relief: This valve is closed during normal operation and can only be exercised by initiating flow through the emergency boration path. Testing in this manner would cause an undesired reactivity transient. Therefore, relief from quarterly testing is requested.

Alternate Test: Valve to be full stroke tested at each cold shutdown per OST 1.1.10.

RELIEF REQUEST 7

Valve No.: CH-181
CH-182
CH-183

Category A/C Class 2

Function: Reactor coolant seal injection inside containment isolation check valves.

Test Requirements: Quarterly stroke.

Basis for Relief: These valves are open during power operation but are required to close to fulfill their safety function. Closing the valves during power operation would secure seal injection water to the reactor coolant pump seals, resulting in seal damage. In addition, seal injection flow is required anytime the system is pressurized to greater than 100 psig. Therefore, relief is requested from quarterly and cold shutdown exercising.

Alternate Test: The check valves will be full stroke verified during the leak test at refueling.

RELIEF REQUEST 8

Valve No.: MOV-CH-308A
MOV-CH-308B
MOV-CH-308C

Category A Class 2

Function: Reactor Coolant Seal Injection outside containment isolation motor-operated valves.

Test Requirements: Quarterly full stroke and time.

Basis for Relief: These valves are open during power operation but are required to close to fulfill their safety function. Closing the valves during power operation would secure seal injection water to the reactor coolant pump seals, resulting in seal damage. In addition, seal injection flow is required anytime the system is pressurized to greater than 100 psig. Therefore, relief from quarterly and cold shutdown full-stroke exercising is requested when the reactor coolant pumps are in use.

Alternate Test: The MOVs will be full-stroke exercised and timed at each cold shutdown and refueling when the Reactor Coolant Pumps are secured per OST 1.1.10.

RELIEF REQUEST 9

Valve No.: MOV-CH-350

Category B Class 3

Function: Emergency Boration Isolation Valve.

Test Requirements: Quarterly stroke and time.

Basis for Relief: Stroking this valve during plant operation would require taking the boric acid system from service and could cause an inadvertent primary system boration. Therefore, relief from quarterly testing is requested.

Alternate Test: Full-stroke exercised and timed each cold shutdown per OST 1.1.10.

RELIEF REQUEST 10

Valve No.: MOV-CH-378
MOV-CH-381

Category A Class 2

Function: RCP seal water return line inside and outside containment isolation valves.

Test Requirements: Quarterly stroke and time.

Basis for Relief: These valves are open during normal plant operation, but are required to close to fulfill their safety function. Exercising at power would secure RCP seal water return causing seal damage. Therefore, relief is requested from quarterly full-stroke exercising and timing. (Part-stroke exercising is not possible due to electrical arrangement of valve control switch).

Alternate Test: Full-stroke exercised and timed at each cold shutdown and refueling per OST 1.1.10.

RELIEF REQUEST 11

Valve No.: MOV-RH-700 MOV-RH-701 MOV-RH-720A MOV-RH-720B

Category B Class 1

Function: Residual Heat Removal System Inlet and Outlet isolation valves.

Test Requirements: Quarterly full stroke and time.

Basis for Relief: Cycling these valves could subject the RHR system to pressure greater than design. These valves are normally closed and de-energized during power operation and are required to be closed during an accident. Therefore, relief is requested from quarterly and cold shutdown testing.

Alternate Test: These valves are exercised but not timed each plant cooldown or heatup from cold shutdown per applicable plant startup and shutdown procedures. They are stroked and timed per OST 1.10.4 each refueling.

RELIEF REQUEST 12

Valve No.: SI-1 SI-2

Category C Class 2

Function: To prevent RWST flow from entering the containment sump.

Test Requirements: Quarterly stroke.

Basis for Relief: These valves are normally closed during power operation but must open to fulfill their safety function for long-term core cooling. Any type of stroke testing at power would violate containment integrity. Due to the lack of installed or test instrumentation and the impracticality of simulating actual safety injection long-term cooling, relief from quarterly and cold shutdown exercising is requested.

Alternate Test: Maintenance to visually inspect the valves at refueling per CMP 1-75-86.

RELIEF REQUEST 13

Valve No.: SI-5

Category C Class 2

Function: To prevent reverse flow from the containment safeguards sump to the RWST.

Test Requirements: Quarterly full stroke.

Basis for Relief: The function of this normally closed valve is to open to permit flow from the RWST to the LHSI pump suctions. Full stroke capability can only be verified by rated safety injection flow, therefore, relief is requested from quarterly full-stroke exercising. Relief from cold shutdown full-stroke exercising is also requested due to the generation of the additional radioactive waste required to verify full-flow condition through the LHSI flow path.

Alternate Test: Part-stroke quarterly per OST 1.11.1 and 2 full-stroke exercise at refueling outages per OST 1.11.14, full-flow test.

RELIEF REQUEST 14

Valve No.: SI-6
SI-7

Category C Class 2

Function: To prevent reverse flow from opposite low head safety injection pump.

Test Requirements: Quarterly full stroke.

Basis for Relief: These valves close when the opposite LHSI pump is operating but must be fully open during an accident. These valves are part-stroke exercised quarterly during pump surveillance checks, however, rated safety injection flow is needed to verify full stroke capability. Therefore, relief from stroking at power is requested due to the inability of the LHSI pumps to overcome RCS pressure and relief from cold shutdown stroking is also requested due to the generation of additional rad waste to verify full flow.

RELIEF REQUEST 15

Valve No.:					
	SI-10	SI-15	SI-20	SI-23	SI-100
	SI-11	SI-16	SI-21	SI-24	SI-101
	SI-12	SI-17	SI-22	SI-25	SI-102

Category A/C, C Class 1

Function: To prevent reverse flow from higher pressure systems to the LHSI and other low pressure systems.

Test Requirements: Quarterly stroke.

Basis for Relief: These check valves are normally shut during power operation but are required to open to fulfill their safety function. Due to the lack of installed instrumentation, and the relative system pressures, relief from quarterly full- and part-stroke exercising is requested. In addition, relief is requested from full- or part-stroke exercising at cold shutdown due to the generation of additional rad waste.

Alternate Test: Full-flow stroke exercise per OST 1.11.14 at refueling outages.

RELIEF REQUEST 16

Valve No.:		
	SI-13	SI-83
	SI-14	SI-84

Category A/C Class 2

Function: Inside Containment isolation check valves - HHSI and LHSI to the hot legs.

Test Requirements: Quarterly stroke.

Basis for Relief: These valves are normally shut during power operation but are required to open to fulfill their safety function. Due to the lack of installed instrumentation, and the relative system pressures, relief from quarterly full- or part-stroke exercising is requested. In addition, relief from cold shutdown full- or part-stroke exercising is requested due to the generation of additional rad waste.

Alternate Test: Full-flow stroke exercise will be performed at refueling per OST 1.11.14.

RELIEF REQUEST 17

Valve No.: SI-27

Category C Class 2

Function: To prevent reverse flow to the low-head safety-injection pumps from the VCT.

Test Requirements: Quarterly full stroke.

Basis for Relief: This valve is normally closed during power operation but is required to open at the onset of an accident to fulfill its safety function. Relief from quarterly full-stroke exercising is requesting because the only flow path is the design path. Relief is also requested from cold shutdown exercising due to the generation of additional rad waste from the boration to verify full flow conditions.

Alternate Test: Part-stroke quarterly per the charging pump OST's. Full-stroke exercise per OST 1.11.14 at refueling.

RELIEF REQUEST 18

Valve No.: SI-48 SI-51
SI-49 SI-52
SI-50 SI-53

Category A/C Class 1

Function: Safety injection accumulator series discharge check valves.

Test Requirements: Quarterly exercise.

Basis for Relief: These valves are shut during normal power operation but are required to open to fulfill their safety function of allowing the accumulators to discharge for core flooding. Relief from full- or part-stroke exercising at power is requested due to the high pressure differential between the reactor coolant system and the accumulators. Relief from exercising during cold shutdown is also requested due to a lack of installed instrumentation and an uncontrolled test volume change needed to achieve the flow required by the safety analysis.

Alternate Test: Full-stroke exercised during refueling outages per OST 1.11.15 leak tested per OST 1.11.4 during refuelings.

RELIEF REQUEST 19

Valve No.: SI-94
SI-95

Category A/C Class 2

Function: Inside containment isolation and non-reverse check valves in the BIT injection and fill header lines.

Test Requirements: Quarterly stroke.

Basis for Relief: These valves are normally shut during power operation but are required to open to fulfill their safety function. Due to the lack of installed instrumentation, and the relative system pressures, relief from quarterly full- or part-stroke exercising is requested. In addition, relief from cold shutdown full- or part-stroke exercising is requested due to the generation of the additional rad waste required to perform a full-flow test.

Alternate Test: Full-stroke exercised at refueling outages per OST 1.11.14, full flow test.

RELIEF REQUEST 20

Valve No.: MOV-SI-836
MOV-SI-869A

Category A Class 2

Function: Outside containment isolation valves from the fill and charging headers to the RCS hot and cold legs.

Test Requirements: Quarterly stroke and time.

Basis for Relief: These valves are shut at power and are required to remain shut at the onset of an accident. Cycling them at power would thermal shock the RCS cold leg nozzles and compromise system integrity. Therefore, relief from full- or part-stroke exercising at power is requested.

Alternate Test: Full-stroke exercise at cold shutdown per OST 1.1.10.

RELIEF REQUEST 21

Valve No.: MOV-SI-860A
MOV-SI-860B

Category A Class 2

Function: Low-head safety-injection pump containment sump suction valves.

Test Requirements: Quarterly stroke and time.

Basis for Relief: These valves are containment isolation valves exposed to containment atmosphere. Failure of these valves in the open position during power operation would compromise containment integrity. Therefore, relief is requested from testing during power operation.

Alternate Test: Full-stroke and time during cold shutdown.

RELIEF REQUEST 22

Valve No.: MOV-SI-867C
MOV-SI-868D

Category A Class 2

Function: Boron Injection Tank BIT outlet isolation and outside containment isolation valves.

Test Requirements: Quarterly stroke and time.

Basis for Relief: These valves are shut at power but are required to open to fulfill their safety function. In order to stroke these valves, the BIT recirculation system must be isolated to prevent overpressurization. A possible failure to reopen the isolation valves could render the BIT inoperable. Therefore, relief from full- or part-stroke exercising at power is requested.

Alternate Test: Full-stroke exercise at cold shutdown.

RELIEF REQUEST 23

Valve No.: MOV-SI-869B

Category A Class 2

Function: Charging header BIT bypass to RCS hot legs outside containment isolation.

Test Requirements: Quarterly stroke and time.

Basis for Relief: This valve is shut at power operation and is not required to change position to fulfill its initial safety function. The valve is only opened during the simultaneous cold and hot leg recirculation phase. In addition, stroking this valve would thermal stress the hot leg injection nozzle. Therefore, relief from full- or part-stroke exercising of this valve at power is requested.

Alternate Test: Full stroke at cold shutdown per OST 1.1.10.

RELIEF REQUEST 24

Valve No.: MOV-SI-890A
MOV-SI-890B

Category A Class 2

Function: Low-head safety injection outside containment isolation valves to the RCS hot legs.

Test Requirements: Quarterly stroke and time.

Basis for Relief: These valves are shut at power and are required to remain shut to fulfill their safety function. Relief from full- or part-stroke exercising at power is requested due to the possibility of overpressurizing the LHSI system caused by failure of the upstream check valve and lack of positive pressure indication.

Alternate Test: Full-stroke exercising at cold shutdown per OST 1.1.10.

RELIEF REQUEST 25

Valve No.: MOV-SI-890C

Category A Class 2

Function: Low-head safety injection outside containment isolation to RCS cold legs.

Test Requirements: Quarterly stroke and time.

Basis for Relief: This valve is open during normal operation and is required to remain open to fulfill its safety function at the onset of an accident. Relief from full- or part-stroke exercising at power is requested because failure of this valve to reopen would render LHSI cold leg injection from both trains inoperable.

Alternate Test: Full stroke at cold shutdown per OST 1.1.10.

RELIEF REQUEST 26

Valve No.: QS-3 RS-100
QS-4 RS-101

Category A/C Class 2

Function: Inside containment isolation discharge check valves for the quench spray and recirculation spray pumps.

Test Requirements: Quarterly stroke.

Basis for Relief: These valves are shut at power but are required to open with the initiation of containment spray flow at the onset of an accident. Relief from full- or part-stroke exercising at power is requested due to the inaccessibility of the valves.

Alternate Test: Full-stroke exercise at cold shutdown per OST 1.1.10

RELIEF REQUEST 27

Valve No.:				
	TV-CC-103	TV-103C1	TV-CC-105D2	TV-CC-107C
	TV-CC-103A1	TV-CC-105A	TV-CC-105E1	TV-CC-107D1
	TV-CC-103B	TV-CC-105B	TV-CC-105E2	TV-CC-107D2
	TV-CC-103B1	TV-CC-105C	TV-CC-107A	TV-CC-107E1
	TV-CC-103C	TV-CC-105D1	TV-CC-107B	TV-CC-107E2

Category A Class 2

Function: Component cooling outside containment isolation valves to reactor coolant pumps, stator, bearings and thermal barriers.

Test Requirements: Quarterly stroke and time.

Basis for Relief: Stroking these valves with the reactor coolant pumps running could cause damage to pump bearings, stator and thermal barrier if the valves would fail to reopen. Relief is requested from full- or part-stroke exercising during power operation and cold shutdown when the pump is running.

Alternate Test: OST 1.1.10 cold shutdown valve exercise.

RELIEF REQUEST 28

Valve No.: TV-CC-110F1

Category A Class 2

Function: Cooling water discharge from containment air recirculation cooling coils to River Water System.

Test Requirements: Quarterly stroke and time.

Basis for Relief: Relief is requested from stroking this valve at power because of a failure to close this valve would incapacitate the containment cooling system.

Alternate Test: Full-stroke exercise at cold shutdown per OST 1.1.10.

RELIEF REQUEST 29

Valve No.: TV-CC-111A1 TV-CC-111D1
TV-CC-111A2 TV-CC-111D2

Category A Class 2

Function: Containment isolation valve for CRDM shroud cooler cooling water supply.

Test Requirements: Quarterly stroke and time.

Basis for Relief: This valve is normally open during power operation and is required to close to fulfill its safety function upon a CIB signal. Relief from at power full- or part-stroke testing is requested because shutting this valve and isolating cooling water, while the control or shutdown rods are energized, or the plant is above 250 degrees Fahrenheit, would result in component damage.

Alternate Test: Full-stroke exercise and time at cold shutdown per OST 1.1.10.

RELIEF REQUEST 30

Valve No.: MS-80
MS-81
MS-82

Category C Class 2

Function: The A, B and C loop residual heat release reverse flow check valves.

Test Requirements: Quarterly stroke.

Basis for Relief: Relief is requested from at power and cold shutdown full-stroke testing because there is no installed instrumentation to check for reverse flow and the headers are normally cross connected and pressurized. No way exists to isolate and systematically check operation of these valves.

Alternate Test: Maintenance to disassemble and inspect at refueling outages per CMP 1-75-77.

RELIEF REQUEST 31

Valve No.: NRV-MS-101A
NRV-MS-101B
NRV-MS-101C

Category B/C Class 2

Function: Main steam non-return check valves.

Test Requirements: Quarterly stroke and time.

Basis for Relief: Relief is requested from stroke testing these valves at power because these valves must be open in order to remain at power. Relief from timing the stroke is also requested because the valve operator only holds the valve in position for maintenance. It does not physically operate the valve.

Alternate Test: Closure test per OST 1.1.10 cold shutdown valve exercise.

RELIEF REQUEST 32

Valve No.: PCV-MS-101A
PCV-MS-101B
PCV-MS-101C

Category B Class 2

Function: Atmospheric steam dump pressure control valves.

Test Requirements: Quarterly stroke and time.

Basis for Relief: In order to test these valves, manual isolation valves must first be closed. The manual valves are located in a potentially hazardous area and could be damaged when they are reopened against a 1000 psi Δp. Also, stroking the PCV valves could cause Reactor power transients. Therefore, relief from full- or part-stroke testing during power operation is requested.

Alternate Test: Full stroke at cold shutdown per OST 1.1.10.

RELIEF REQUEST 33

Valve No.: TV-MS-101A
TV-MS-101B
TV-MS-101C

Category B Class 2

Function: Main steam line isolation valve (pneumatically opened).

Test Requirements: Quarterly stroke and time.

Basis for Relief: Stroking these valves during power operation would cause a reactor trip and a possible safety injection. Therefore, relief is requested from quarterly full-stroke testing.

Alternate Test: Full stroke and time in hot standby per OST 1.21.4, 5 and 6. Part stroke quarterly per OST 1.21.1, 2 and 3.

RELIEF REQUEST 34

Valve No.:				
	FW-33	FW-42	FW-622	FW-625
	FW-34	FW-43	FW-623	FW-626
	FW-35	FW-44	FW-624	FW-627

Category C Class 3

Function: Auxiliary feedwater pumps discharge and loop check valves.

Test Requirements: Quarterly stroke.

Basis for Relief: Relief is requested from stroking at power due to the thermal shock of the auxiliary and main feedwater interface. Also, feeding the steam generators with cold water would result in large level transients.

Alternate Test: Full stroke at cold shutdown per OST 1.24.2, 3 and 4.

RELIEF REQUEST 35

Valve No.: MOV-FW-156A
MOV-FW-156B
MOV-FW-156C

Category B Class 2

Function: A, B and C loop feedwater containment isolation check valves.

Test Requirements: Quarterly stroke and time.

Basis for Relief: Relief is requested from full- and part-stroke testing at power because shutting these valves during power operation could cause a loss of feedwater resulting in a reactor trip. Also, the motor operator associated with these valves is for closure with a very small or no differential pressure across the valve; it is not for use at power.

Alternate Test: Full stroke and time at cold shutdown per OST 1.1.10.

RELIEF REQUEST 36

Valve No.: TV-VS-101A TV-VS-101D
TV-VS-101B TV-VS-101E
TV-VS-101C

Category B Class 3

Function: Control room emergency air bottle outlet trip isolation valves.

Test Requirements: Quarterly stroke and time.

Basis for Relief: These valve are shut at power operation and are required to open to fulfill their safety function. Relief from quarterly full or partial stroke exercising is requested due to the fact that present testing capabilities would possibly violate technical specification bottle pressure requirements.

Alternate Test: Full stroke exercise and time per OST 1.1.10 - cold shutdown.

INDEX OF DRAWINGS

Title	Operating Manual Figure Number
Reactor Coolant System, Sheet 1	6-1, Rev. 9
Reactor Coolant System, Sheet 2	6-2, Rev. 10
Chemical and Volume Control System, Sheet 1	7-1, Rev. 10
Chemical and Volume Control System, Sheet 2	7-2, Rev. 10
Boron Recovery System, Sheet 1	8-1, Rev. 7
Boron Recovery System, Sheet 2	8-2, Rev. 5
Boron Recovery System, Sheet 3	8-3, Rev. 7
Boron Recovery System, Sheet 4	8-4, Rev, 7
Vent and Drain Systems, Sheet 1	9-1, Rev. 8
Vent and Drain Systems, Sheet 2	9-2, Rev. 6
Vent and Drain Systems, Sheet 3	9-3, Rev. 7
Residual Heat Removal System	10-1, Rev. 7
Safety Injection System, Sheet 1	11-1, Rev. 8
Safety Injection System, Sheet 2	11-2, Rev. 9
Containment Vacuum and Leakage Monitoring	12-1, Rev. 7
Containment Depressurization System	13-1, Rev. 9
Sample System, Sheet 1	14-1, Rev. 9
Sample System, Sheet 2	14-2, Rev. 7
Sample System, Sheet 3	14B-1, Rev. 8
Post Accident Sampling System	14-4, Rev. 2
Component Cooling Water, Sheet 1	15-1, Rev. 8
Component Cooling Water, Sheet 2	15-2, Rev. 5
Component Cooling Water, Sheet 3	15-3, Rev. 6
Component Cooling Water, Sheet 4	15-4, Rev. 7
Liquid Waste Disposal System, Sheet 1	17-1, Fld Rev. 2
Liquid Waste Disposal System, Sheet 2	17-2, Rev. 6
Liquid Waste Disposal System, Sheet 3	17-30, Rev. 2
Gaseous Waste Disposal System, Sheet 1	19-1, Rev. 8
Gaseous Waste Disposal System, Sheet 2	19-2, Rev. 5
Fuel Pool Cooling and Purification Systems	20-1, Rev. 5
Main Steam System	21-1, Rev. 9
Feed Water System	24-1, Rev. 11
Steam Generator Blowdown	25-1, Rev. 8
Auxiliary Steam and Air Removal, Sheet 1	27-1, Rev. 10
Auxiliary Steam and Air Removal, Sheet 2	27-2, Rev. 6
Auxiliary Boiler Water and Fuel Oil	27-4, Rev. 5
Air Conditioning Chilled Water Piping, Sheet 1	29-1, Rev. 3
Air Conditioning Chilled Water Piping, Sheet 2	29-2, Rev. 2
River Water System, Sheet 1	30-1, Rev. 12
River Water System, Sheet 2	30-2, Rev. 8
Auxiliary River Water	30-3, Rev. 1
Fire Protection Water System, Sheet 1	33-1A, Rev. 3
Fire Protection Water System, Sheet 2	33-1B, Rev. 2
Fire Protection - CO_2	33-2A, Fld Rev. 2
Fire Protection - Halon and CO_2	33-2B, Rev. 0
New Warehouse Fire Protection System, Sheet 1	33-2C, Rev. 2
New Warehouse Fire Protection System, Sheet 2	33-2D, Rev. 2
4KV Station Service System	36-1, Rev. 0
Emergency Diesel Gen. Fuel and Air System	36-10, 36-11, Rev. 5
Control Room Air Pressurizing System	44-1, Rev. 5
Control Room Air Conditioning System	44-2, Rev. 4
Post DBA Hydrogen Control System	46-1, Rev. 6
Post DBA Hydrogen Analyzer System	46-2, Rev. 2

DUQUESNE LIGHT COMPANY
NUCLEAR GROUP
NUCLEAR OPERATIONS UNIT
TESTING AND PLANT PERFORMANCE

March 26, 1986

ATTACHMENT - IST PROGRAM
Color Coded Drawings

Attached, for use with Issue 2 of the IST Program, is a set of Valve Operating Number (VON) Drawings, color coded to indicate the code class of the system components. The drawings are arranged by system number according to the operating manual. Only the drawings of systems with class 1, 2 or 3 components were included in the set.

Two systems, river water (Fig. 30-1) and the diesel generator air start (Fig. 36-11), have design changes to be implemented during the upcoming refueling outage scheduled to begin May 17, 1986. Issue 2 of the IST Program includes these changes, however the drawings do not.

Below is the Legend used to color code the drawings:

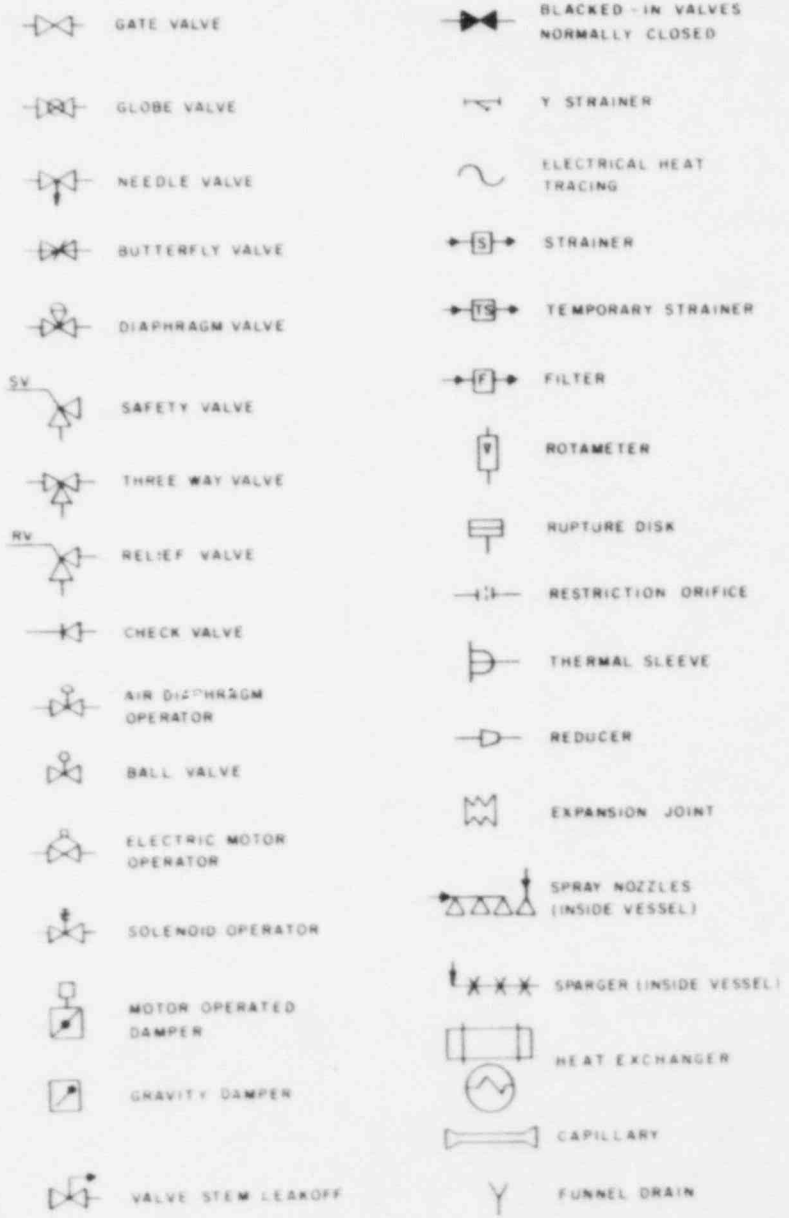
LEGEND

CLASS 1 -------- BLUE ----------

CLASS 2 -------- PINK ----------

CLASS 3 -------- GREEN ----------

NNS -------- YELLOW ----------



ABBREVIATIONS

LO – LOCKED OPEN	FH – FILL HEADER
LC – LOCKED CLOSED	AC – ADMINISTRATIVE CONTROL
FO – FAIL OPEN	PT – PRESSURE TAP
FC – FAIL CLOSED	RD – RUPTURE DISC
FAI – FAIL AS IS	PG – PRIMARY GRADE
V – LOCAL VENT	TCV – TEMPERATURE CONTROL VALVE
D – LOCAL DRAIN	PCV – PRESSURE CONTROL VALVE
SS – SAMPLE SYSTEM	HCV – HAND CONTROL VALVE
SIS – ACTUATED BY SAFETY INJECTION SIGNAL	TV – TRIP VALVE
IMB – INSIDE MISSILE BARRIER	FCV – FLOW CONTROL VALVE
OMB – OUTSIDE MISSILE BARRIER	SLC – SPRING OR WEIGHT LOADED CHECK VALVE
VH – VENT HEADER	LCV – LEVEL CONTROL VALVE
DH – DRAIN HEADER	MOV – MOTOR OPERATED VALVE
RR – REACH ROD	SOV – SOLENOID OPERATED VALVE
CIA – ACTUATED BY CONTAINMENT ISOLATION PHASE A SIGNAL	RO – RESTRICTION ORIFICE
CIB – ACTUATED BY CONTAINMENT ISOLATION PHASE B SIGNAL	
SLI – ACTUATED BY STEAM LINE ISOLATION SIGNAL	

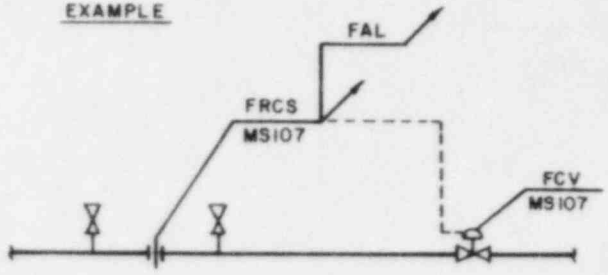
FIGURE 1.2-3
SYMBOLS AND ABBREVIATIONS FOR FLOW DIAGRAMS
BEAVER VALLEY POWER STATION UNIT NO. 1
UPDATED FINAL SAFETY ANALYSIS REPORT

REV. 3 (1-85)

INSTRUMENTATION DESIGNATIONS

LETTER	FIRST LETTER VARIABLE	SECOND LETTER FUNCTION	THIRD LETTER FUNCTION	FOURTH LETTER FUNCTION
A		ALARM	ALARM	
C	CONDUCTIVITY	CONTROL	CONTROL	CONTROL
D	DENSITY	DIFFERENTIAL		
E	ELECTRIC	ELEMENT		
F	FLOW			
G		GLASS		
H	HAND		HIGH	HIGH
I		INDICATING	INDICATING	
L	LEVEL		LOW	LOW
M	MOISTURE	MANUAL		
P	PRESSURE	PNEUMATIC		
R	RADIATION	RECORDING	RECORDING	
S	SPEED-SAFETY	SWITCH	SWITCH	SWITCH
T	TEMPERATURE	TRANSMITTER	TRANSMITTER	
V	VISCOSITY	VALVE	VALVE	VALVE
W	WEIGHT	WELL		
Y	VIBRATION			

EXAMPLE



CONTROL BOARD MOUNTED FLOW RECORDER CONTROLLER, RACK MOUNTED SWITCH, AN ANNUNCIATOR POINT ON LOW FLOW, AND A FLOW CONTROL VALVE.
(TRANSMITTER IS NOT SHOWN)

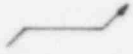
SYMBOLS


PNEUMATIC SIGNAL LINE

ELECTRIC SIGNAL LINE


CAPILLARY SIGNAL LINE


FIELD MOUNTED INSTRUMENT


CONTROL BOARD MOUNTED INSTRUMENT

TRB TEMPERATURE RESISTANCE BULB

INPUT TO PLANT COMPUTER (P-250)

INPUT TO PLANT VARIABLE COMPUTER SYSTEM (1066)

INPUT TO SAFETY PARAMETER DISPLAY COMPUTER SYSTEM

NOTE: TRANSMITTER IS NOT SHOWN IN ALL CASES.

FIGURE 1.2-4
INSTRUMENTATION DESIGNATIONS AND SYMBOLS FOR FLOW DIAGRAMS
BEAVER VALLEY POWER STATION
UPDATED FINAL SAFETY ANALYSIS REPORT

OVERSIZE DOCUMENT PAGE PULLED

SEE APERTURE CARDS

NUMBER OF PAGES: 53

ACCESSION NUMBER(S):
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thru 53

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