ATTACHMENT 1

CHANGES TO SURRY UNIT 1

THIRD INTERVAL
INSERVICE TESTING PROGRAM

REVISION 0
CHANGE 1

ATTACHMENT

SUMMARY OF CHANGES TO THE
SURRY UNIT 1
IST PROGRAM

The following is a section by section summary of changes for Revision 0, Change 1 of the Surry Power Station Unit 1 Inservice Testing (IST) Program for the third IST interval. Revision 0 for the third IST interval was submitted on October 19, 1993 (Serial No. 93-658).

INSERVICE TESTING PROGRAM FOR PUMPS AND VALVES

3.0 PUMP INSERVICE TEST PROGRAM DESCRIPTION

3.5 PUMP INSERVICE TEST TABLES

Unit 1 Pump Number	Program Change
1-CC-P-2A 1-CC-P-2B	Relief Request P-22 was added for the suction pressure instrumentation.
1-VS-P-1A 1-VS-P-1B 1-VS-P-1C	Relief Request P-16 was extended per letter to the NRC dated June 2, 1994 (Serial No. 94-324). Flow and inlet pressure instrumentation have not been successfully installed.
1-VS-P-1D 1-VS-P-1E 1-VS-P-2D 1-VS-P-2E	These pumps were added to the control room air conditioning system as part of a system upgrade and will be tested every quarter.

3.6 PUMP TEST PROGRAM RELIEF REQUESTS

Unit 1 Relief Request	Program Change
P-16	This relief request was extended to the end of the next Unit 1 refueling outage because flow and inlet pressure instrumentation were not successfully installed. The next Unit 1 refueling outage is currently scheduled for the third quarter of 1995. Refer to the letter to the NRC dated June 2, 1994.
P-17	Pumps 1-VS-P-2D and E were added. Like the other pumps in this relief request, the total flow for

1-VS-P-2D and E must be determined by summing the recorded flows from instruments placed downstream of the air handling units. Therefore, throttling to a reference flow is not practical. A straight line approximation of a small portion of the pump curve will be used to establish the acceptance criteria. The basis for the original relief request was approved by the NRC SER dated June 26, 1992 (TAC Nos. M80297 and M80298).

P-22 This relief request is being added to the IST Program for the component cooling water pumps 1-CC-P-2A and B. Recently installed inlet pressure gauges have a full scale range of 0 to 3.5 psig. Readings from these inlet pressure gauges over the past year indicate that the dynamic pressures fall within the bottom third of full scale. However, the difference in the error between the 0 to 3.5 psig gauges and gauges that would meet the ASME Section XI three times full-scale rule are so small that the 0 to 3.5 psig gauges can be considered to be equivalent in terms of accuracy for determining differential pressure. Therefore, inlet pressure will be measured with gauges that have a full-scale of 0 to 3.5 psig.

3.7 ALTERNATIVE TESTING FOR NON-CODE PUMPS

Unit 1 Non-Code Alternative Test	Program Change
PNC-1	Reference to the frequency response range of the vibration transducers was added. The minimum pump shaft rotational speed for the diesel fuel oil pumps is 690 rpm. To meet the one-third shaft speed requirement, the low end of the frequency response range would have to be 3.8 hz. The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 hz. These transducers are capable of detecting vibrations at frequencies of at least one times the rotational speed of the pump, which is adequate for detecting degradation in positive

displacement pumps.

A note indicating that OM Part 6 does not require the measurement of suction pressure for positive displacement pumps was added.

4.0 VALVE INSERVICE TEST PROGRAM DESCRIPTION

4.4 VALVE INSERVICE TEST TABLES

Unit 1 Valve Number	Comment/Program Change
1-MS-NRV-101A 1-MS-NRV-101B 1-MS-NRV-101C 1-MS-TV-109 1-MS-TV-110	Program Change: The ASME Code Classification was changed from Class 2 to non-Code Class.
1-CH-LCV-1115B 1-CH-LCV-1115D 1-SI-25 1-SI-MOV-1885A 1-SI-MOV-1885B 1-SI-MOV-1885C 1-SI-MOV-1885D	These isolation valves prevent leakage of contaminated containment sump water to the refueling water storage tank from the discharge side of the low head safety injection pumps during the recirculation mode transfer phase of safety injection. Relief Request V-52 is being added to the IST program and states that in addition to replacement and repair as corrective actions, an evaluation can be performed. Relief Request V-52 was sent to the NRC by letter dated April 26, 1994 (Serial No. 94-223) and is being included in the IST Program through Change 1 to Revision 0. Program Change: Relief Request V-52 is being added for the leak test.
1-SI-25	The test method to verify valve closure was changed from disassembly and inspection to back seat testing every reactor refueling. Refer to Reactor Refueling Justification RRV-5. Program Change: Reactor Refueling

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SUMMARY OF CHANGES TO THE
SURRY UNIT 1
IST PROGRAM

Justification RRV-5 was revised.

1-SI-107 1-SI-109 1-SI-128 1-SI-130 1-SI-145 1-SI-147	These accumulator discharge check valves will be tested as pairs to the closed position. Refer to Relief Request V-26. Program Change: Relief Request V-26 was revised to indicate that valves 1-SI-107 and 109, and 1-SI-128 and 130, and 1-SI-145 and 147 will be tested as pairs of valves in series to the closed position. Also, Cold Shutdown Justification CSV-29 is no longer necessary for valves 1-SI-109, 130 and 147, and was deleted from the program.
1-SW-12	This manual valve is being added to the IST program to be tested closed. This valve is closed to ensure an adequate service water inventory is available for the component cooling heat exchangers. Program Change: Valve was added to the program to be tested to the closed position every cold shutdown. Refer to Cold Shutdown Justification CSV-34.
1-SW-130	The internal parts were removed from this check valve. Program Change: The valve was removed from the IST program.
1-SW-313 1-SW-323 1-SW-333	Program Change: Relief Request V-46 was extended for these valves per letter to the NRC dated June 2, 1994.
1-SW-773 1-SW-778	These control room condenser water system pump discharge check valves were added as part of a system upgrade. Program Change: Valves were added to be full stroke exercised every three months.
1-SW-839 1-SW-840	These control room condenser water system discharge check valves were added as part of a system upgrade.

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SUMMARY OF CHANGES TO THE
SURRY UNIT 1
IST PROGRAM

	Program Change: Valves were added to be partial stroke exercised every three months and disassembled and inspected on a reactor refueling frequency. Refer to Relief Request V-53.
1-SW-PCV-100D,E 1-SW-PCV-101D,E	These control room condenser water system pressure control valves were added as part of a system upgrade.
	Program Change: Valves were added to be full stroke exercised every three months. Also, these valves were added to Relief Request V-47 because of limitations on obtaining repeatable stroke times.
1-VS-286	The normal position for this valve was changed from closed to open. It now provides alignment of the control room chilled water system B pump to the C chilled water loop without having to be manipulated. Therefore, the valve is passive.
	Program Change: The valve was removed from the IST program.
1-VS-571	This control room chilled water system manual isolation valve was added as part of a system upgrade.
	Program Change: Valve was added to be exercised every three months.
1-VS-641 1-VS-645 1-VS-672	These control room chilled water system pump discharge check valves were added as part of a system upgrade.
	Program Change: Valves were added to be full stroke exercised every three months. Valves 1-VS-641 and 645 will be exercised to the open and closed positions and valve 1-VS-672 will be exercised to the open position.

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SUMMARY OF CHANGES TO THE
SURRY UNIT 1
IST PROGRAM

4.5 VALVE TEST PROGRAM RELIEF REQUESTS

Unit 1 Relief Request	Program Change
V-26	This relief request was revised to indicate that the accumulator discharge check valves will be tested as pairs of valves to the closed position. Valves 1-SI-107 and 109, 1-SI-128 and 130, and 1-SI-145 and 147 perform as pairs of valves in series to isolate the accumulators from the reactor coolant system. The downstream valves, 1-SI-109, 130 and 147 were previously chosen as the isolation valves and were subject to back seat tests while the other valves were considered as backup valves and were not subject to back seat tests. The other set of valves cannot be individually back seated with the current piping configuration. Testing experience has shown that a severe water hammer can be produced by attempting to individually test the downstream isolation valve. Treating the check valves as a pair of isolation valves would eliminate the possibility of creating a water hammer event through testing. The accumulators have level indicators and high/low tank level alarms in the control room. Therefore, during normal operation the accumulator level is constantly monitored to ensure that one out of two check valves is seated properly to prevent in leakage from the reactor coolant system.
V-46	This relief request was extended to the end of the next Unit 1 refueling outage because flow and inlet pressure instrumentation were not successfully installed. The next Unit 1 refueling outage is currently scheduled for the third quarter of 1995. Refer to the letter to the NRC dated June 2, 1994.
V-47	Valves 1-SW-PCV-100D and E, and 1-SW-PCV-101D and E are being added. These valves have no remote indication or manual remote control. The valve position is manipulated by venting the actuator

diaphragm and the stroke time is measured by observing the movement of the local position indicator. Differences in the speed at which the petcock is opened to vent the diaphragm and in interpreting when the position indicator starts and stops affect the repeatability of the stroke time measurements. Interim approval to use the original relief request was granted by NRC letter dated February 17, 1994.

V-50 Valve 1-SW-130 was removed from the relief request.

V-52 This relief request is being added to the IST program for the RWST isolation valves. The RWST isolation valves prevent leakage of contaminated containment sump water to the refueling water storage tank from the discharge side of the low head safety injection pumps during the recirculation mode transfer phase of safety injection. Relief Request V-52 states that in addition to replacement and repair as corrective actions, an evaluation can be performed. Relief Request V-52 was sent to the NRC by letter dated April 26, 1994 (Serial No. 94-223) and is being included in the IST Program through Change 1 to Revision 0.

V-53 This relief request is being added for control room condenser system discharge check valves 1-SW-839 and 840. The check valves are downstream from the recirculation loops for two of the five trains in the control room condenser water system. These two trains were added to the control room air conditioning system in 1994 and were designed to operate with a service water temperature of at least 95 ^{0}F. These two trains have such a large cooling capacity that one of the two trains can absorb the heating load of the entire control room air conditioning system. To maintain this high temperature, these trains must be operated with most of the service water flow diverted to the recirculation lines.

If the flow was diverted to the discharge check

valves for the purpose of achieving full design flow through the check valves, the service water temperature would drop and the condenser system would trip off line on low condenser suction pressure. Also, the system heat load balance would be upset. Therefore, full flowing these check valves while the unit is operating is not practical. The Surry control room is common to both units. Performing the full flow test is not practical when either unit is operating. As an alternate test, these valves will be disassembled and inspected.

These check valves can be disassembled while the plant is operating. To allow for flexibility in planning for refueling outages and still meet the intent of OM Part 10, the valves will be disassembled on a reactor refueling frequency but not necessarily during refueling outages. The test frequency is in accordance with Generic Letter 89-04, Position 2.

4.6 VALVE TEST PROGRAM COLD SHUTDOWN JUSTIFICATIONS

Unit 1 Cold Shutdown Just	Program Change
CSV-29	This cold shutdown justification is being deleted from the IST program. The accumulator discharge check valves will be tested as pairs to the closed position per Relief Request V-26.
CSV-34	This cold shutdown justification is being added to the IST program. The 10 inch manual isolation valve 1-SW-12 isolates service water to the plant chilled water system condensers. A full stroke test of 1-SW-12 may require that the condensers be secured. The chilled water system supplies cooling water to the containment coolers for each unit. The chilled water system is needed during much of the year while the plant is operating to ensure that the containment coolers have enough added capacity to maintain the containment air

partial pressure within the acceptable operation range as described in Technical Specification Section 3.8, Figure 3.8-1. Therefore, service water flow should not be interrupted to the chilled water system while the plant is operating.

4.7 VALVE TEST PROGRAM REACTOR REFUELING JUSTIFICATIONS

Unit 1 Reactor Refuel Just	Program Change
RRV-3	Justification was added for not performing a partial stroke test on the accumulator discharge check valves during cold shutdowns.
RRV-5	Reactor Refueling Justification RRV-5 was revised to indicate that 1-SI-25 will be back seat/leak tested to verify closure every reactor refueling instead of disassembled and inspected.

SURRY POWER STATION
UNIT 1
REPLACEMENT PAGES

1-SW-P-1A
1-SW-P-1B
1-SW-P-1C

Emergency Service Water Pumps supply the required service water to the canal to provide for minimum safeguards operation in the unlikely event of a loss of site power coincident with a DBA. See drawing 11448-CBM-71A, Sheet 1.

1-EE-P-1A
1-EE-P-1C
1-EE-P-1D
1-EE-P-1F

Fuel Oil Pumps supply fuel oil to emergency diesel generators wall mounted tank. See drawing 11448-CBB-38A, Sheet 2.

1-VS-P-1A
1-VS-P-1B
1-VS-P-1C
1-VS-P-1D
1-VS-P-1E

CN-1

Main Control Room Air Conditioning System condenser side pumps provide service water to the main control room air conditioning system chillers. See drawing 11448-CBM-71D, Sheets 1 and 2.

1-VS-P-2A
1-VS-P-2B
1-VS-P-2C
1-VS-P-2D
1-VS-P-2E

CN-1

Main Control Room Air Conditioning System chiller side pumps circulated chilled water to the main control room and switch gear room air handling units. See drawing 11448-CBB-41A, Sheets 2 and 3.

PUMP INSERVICE TEST TABLE

Pump Ident.	ASME Class	System Resist	Inlet Press	Disch Press	Diff Press	Flow Rate	Vibration	Pump Speed	Lubrication Level/Pressure	Relief Request
1-CC-P-1A	3	VAR	Q	Q	Q	Q	Q	NA	Q	1,19
1-CC-P-1B	3	VAR	Q	Q	Q	Q	Q	NA	Q	1,19
1-CH-P-2A	2	VAR	Q	Q	Q	Q	Q	NA	NA	1,21
1-CH-P-2B	2	VAR	Q	Q	Q	Q	Q	NA	NA	1,21
1-CC-P-2A	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,22
1-CC-P-2B	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,22
1-SW-P-10A	3	VAR	Q	Q	Q	Q	Q	NA	NA	1
1-SW-P-10B	3	VAR	Q	Q	Q	Q	Q	NA	NA	1
1-SW-P-1A	3	FIX	Q	NA	Q	Q	Q	Q	Q	1,11
1-SW-P-1B	3	FIX	Q	NA	Q	Q	Q	Q	Q	1,11
1-SW-P-1C	3	FIX	Q	NA	Q	Q	Q	Q	Q	1,11
1-EE-P-1A	NC	FIX	NA	Q	NA	Q	Q	NA	NA	1,PNC-1
1-EE-P-1C	NC	FIX	NA	Q	NA	Q	Q	NA	NA	1,PNC-1
1-EE-P-1D	NC	FIX	NA	Q	NA	Q	Q	NA	NA	1,PNC-1
1-EE-P-1F	NC	FIX	NA	Q	NA	Q	Q	NA	NA	1,PNC-1

CN-1

Note: PNC-1 is not a request for relief but a description of alternative testing for non-Code pumps. Refer to Section 3.7.

PUMP INSERVICE TEST TABLE

Pump Ident.	ASME Class	System Resist	Inlet Press	Disch Press	Diff Press	Flow Rate	Vibration	Pump Speed	Lubrication Level/Pressure	Relief Request	
1-VS-P-1A	3	VAR	NA	Q	NA	NA	Q	NA	NA	1,16	
1-VS-P-1B	3	VAR	NA	Q	NA	NA	Q	NA	NA	1,16	
1-VS-P-1C	3	VAR	NA	Q	NA	NA	Q	NA	NA	1,16	
1-VS-P-1D	3	VAR	Q	Q	Q	Q	Q	NA	NA	1	CN-1
1-VS-P-1E	3	VAR	Q	Q	Q	Q	Q	NA	NA	1	CN-1
1-VS-P-2A	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,17	
1-VS-P-2B	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,17	
1-VS-P-2C	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,17	
1-VS-P-2D	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,17	CN-1
1-VS-P-2E	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,17	CN-1

RELIEF REQUEST P-17

System : Main Control Room Air Conditioning

Pump(s): 1-VS-P-2A 1-VS-P-2D
1-VS-P-2B 1-VS-P-2E
1-VS-P-2C

CN-1

Class : 3

OM Part 6 Code Requirements
For Which Relief Is Requested

OM Part 6, Paragraph 4.3 requires reference values to be points of operation readily duplicated during subsequent tests. All subsequent test results shall be compared to these initial reference values.

Basis For Request

The chilled water circulating pumps for the main control room air conditioning system service two trains each with of four air handling units connected in a parallel configuration. Total flow for each pump is determined by summing the recorded flows from flow instruments placed downstream of the four air handling units in one of the trains. Test flow is controlled by throttling a gate valve near each air handling unit, which has proven to be a crude flow control method. Having to throttle to a specific reference flow using the sum of flows from four instruments with a gate valve that is not suited for fine flow control is not very practical.

Alternate Testing Proposed

Two reference points of total flow versus differential pressure will be established from the reference test for each pump. A straight line approximation will be used to determine differential pressure reference points as a function of flow between the two test points. By keeping the difference between two test points small (a difference of 30 gpm compared to a nominal reference value of 270 gpm), the straight line is a good approximation of the pump curve within the two test points.

During the subsequent tests, flow will be throttled in each parallel path as close as practical to a reference flow value for that path. The total flow must fall between the two reference points used to establish the straight line approximation. The total flow and the corresponding differential pressure will be

RELIEF REQUEST P-22

System : Component Cooling Water

Pump(s): 1-CC-P-2A
1-CC-P-2B

Class : 3

OM Part 6 Code Requirements
For Which Relief Is Requested

The full-scale range of each instrument shall be three times the reference value or less (OM Part 6, Paragraph 4.6.1.2).

Basis For Request

Recently installed inlet pressure gauges have a full scale range of 0 to 3.5 psig. Readings from these inlet pressure gauges over the past year indicate that the dynamic pressures fall within the bottom third of full scale. However, the difference in the error between the 0 to 3.5 psig gauges and gauges that would meet the three times full-scale rule are so small that the 0 to 3.5 psig gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

CN-1

For example, the lowest recorded inlet pressure for pump 1-CC-P-2B is 0.8 psig. A gauge that meets the three times full-scale rule would have a full scale of 2.4 psig or less. A 2% accuracy for the 2.4 psig gauge translates to an error of 0.05 psig. A 2% accuracy for the 3.5 psig gauge translates to an error of 0.07 psig. The difference in error of 0.02 psig is insignificant when determining the differential pressures for these pumps which range between 50 and 60 psig. Therefore, the two gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

Alternate Testing Proposed

Inlet pressure will be measured with gauges that have a full-scale of 0 to 3.5 psig.

NON-CODE ALTERNATIVE TESTING PNC-1

System : Fuel Oil

Pump(s): 1-EE-P-1A
1-EE-P-1C
1-EE-P-1D
1-EE-P-1F

Class : NC

OM Part 6 Code Requirements
Which Cannot Be Met

Measure test quantities after the pump has been running for at least two minutes (OM Part 6, Paragraph 5.6).

The frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 HZ (OM Part 6, Paragraph 4.6.1.6).

Basis For Alternate Testing

The pump operating time is limited due to operational restraints. While the diesels are running, these pumps start automatically when the fuel oil level in the day tank reaches the low level switch, and stop when the level reaches the high level switch. The pump run time can vary depending upon the diesel load and the resulting fuel consumption rate. If the pumps are allowed to run for two minutes prior to measuring the test quantities and the fuel consumption rate is low, not enough time is available to gather all of the required Section XI test data.

The minimum pump shaft rotational speed for these pumps is 690 rpm. To meet the one-third shaft speed requirement, the low end of the frequency response range would have to be 3.8 hz. The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 hz. These transducers are capable of detecting vibrations at frequencies of at least one times the rotational speed of the pump, which is adequate for detecting degradation in positive displacement pumps. CN-1

Alternate Testing

The measurement of Section XI quantities will begin when the pump automatically starts on a low tank level signal.

The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 hz versus the 3.8 hz required by the Code for a pump running at 690 rpm. CN-1

Note: The diesel oil transfer pumps are positive displacement pumps. According to OM Part 6, Table 2, only discharge pressure need be measured for positive displacement pumps.

CN-1

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	"C" CHARGING PUMP DISCHARGE RECIRC LINE CHECK VALVE													
1-CH-276	11448-CBM-088B	2 OF 3	D-4	CHECK VALVE	3.000	2	C		CV	C O			1	
	"C" CHARGING PUMP DISCHARGE CHECK VALVE													
1-CH-309	11448-CBM-088C	1 OF 2	D-4	CHECK VALVE	3.000	2	AC	CIV	CV LT	C C			6	
	MAIN CHARGING SUPPLY HEADER, INSIDE CONTAINMENT ISOLATION CHECK VALVE													
1-CH-FCV-1113A	11448-CBM-088B	1 OF 3	C-3	AO GLOBE	1.000	2	B		EV FS ST VP	O O O OC				
	MANUAL EMERGENCY BORATION PATH FLOW CONTROL VALVE													
1-CH-FCV-1114A	11448-CBM-088B	1 OF 3	C-4	AO GLOBE	2.000	2	B		EV FS ST VP	C C C OC				
	PRIMARY GRADE WATER SUPPLY TO BORIC ACID BLENDER ISOLATION VALVE													
1-CH-FCV-1160	11448-CBM-088C	1 OF 2	B-4	AO GLOBE	2.000	1	AE	CIV	LT VP	C OC				
	CHARGING FLOW CONTROL TO LOOP FILL HEADER, OUTSIDE CONTAINMENT ISOLATION VALVE													
1-CH-LCV-1115B	11448-CBM-088B	2 OF 3	B-8	MO GATE	8.000	2	A		EV LT ST VP	C O C C O OC	52			
	CHARGING PUMP SUPPLY ISOLATION VALVE FROM REFUELING WATER STORAGE TANK													
1-CH-LCV-1115C	11448-CBM-088B	1 OF 3	C-6	MO GATE	4.000	2	B		EV ST VP	C C OC		11 11		
	CHARGING PUMP SUPPLY ISOLATION FROM VOLUME CONTROL TANK													
1-CH-LCV-1115D	11448-CBM-088B	2 OF 3	C-8	MO GATE	8.000	2	A		EV LT ST VP	C O C C O OC	52			

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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-	
1-MS-087	11448-CBM-064A	1 OF 6	C-6	MANUAL GATE	4.000	2	B		EV	C					
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILARY FEEDWATER PUMP ISOLATION VALVE														
1-MS-120	11448-CBM-064A	2 OF 6	C-6	MANUAL GATE	4.000	2	B		EV	C					
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE														
1-MS-158	11448-CBM-064A	3 OF 6	C-6	MANUAL GATE	4.000	2	B		EV	C					
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE														
1-MS-176	11448-CBM-064A	4 OF 6	C-7	CHECK VALVE	3.000	2	C		CV	C O	42				
	"A" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
1-MS-178	11448-CBM-064A	4 OF 6	D-7	CHECK VALVE	3.000	2	C		CV	C O	42				
	"B" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
1-MS-182	11448-CBM-064A	4 OF 6	D-7	CHECK VALVE	3.000	2	C		CV	C O	42				
	"C" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														
1-MS-NRV-101A	11448-CBM-064A	1 OF 6	E-4	NO STOP CHECK	30.000	NC	C		CV VP	C OC		32			CN-1
	"A" MAIN STEAM HEADER NON-RETURN VALVE														
1-MS-NRV-101B	11448-CBM-064A	2 OF 6	D-3	NO STOP CHECK	30.000	NC	C		CV VP	C OC		32			CN-1
	"B" MAIN STEAM HEADER NON-RETURN VALVE														
1-MS-NRV-101C	11448-CBM-064A	3 OF 6	D-3	NO STOP CHECK	30.000	NC	C		CV VP	C OC		32			CN-1
	"C" MAIN STEAM HEADER NON-RETURN VALVE														
1-MS-PCV-102A	11448-CBM-064A	4 OF 6	C-4	AO GATE	3.000	2	B		EV FS ST VP	C O C C O OC					
	MAIN STEAM SUPPLY TRIP VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP														

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
1-MS-TV-101B	11448-CBM-064A	2 OF 6	C-4	AO CHECK VALVE	30.000	2	B		EV	C		1		
									ST	C		1		
									VP	OC				
	"B" MAIN STEAM HEADER TRIP VALVE													
1-MS-TV-101C	11448-CBM-064A	3 OF 6	C-4	AO CHECK VALVE	30.000	2	B		EV	C		1		
									ST	C		1		
									VP	OC				
	"C" MAIN STEAM HEADER TRIP VALVE													
1-MS-TV-109	11448-CBM-064A	4 OF 6	F-5	AO GATE	3.000	NC	B		EV	C				
									FS	C				
									ST	C				
									VP	OC				
	MAIN STEAM HIGH PRESSURE DRAIN ISOLATION TO CONDENSER													
1-MS-TV-110	11448-CBM-064A	4 OF 6	F-7	AO GATE	2.000	NC	B		EV	C				
									FS	C				
									ST	C				
									VP	OC				
	MAIN STEAM HIGH PRESSURE DRAIN ISOLATION TO STEAM GENERATOR BLOWDOWN SYSTEM													

CN-1

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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
1-SI-025	11448-CBM-089A	1 OF 3	F-5	CHECK VALVE	8.000	2	AC		CV	C			5	
										O			5	
									LT	C	52			
	RWST SUPPLY CHECK VALVE TO CHARGING PUMP SUCTION HEADER													
1-SI-032	11448-CBM-089A	1 OF 3	E-7	MAN GLOBE	1.000	2	AE	CIV	LT	C				
	ACCUMULATOR MAKEUP LINE, OUTSIDE CONTAINMENT ISOLATION VALVE													
1-SI-046A	11448-CBM-089A	1 OF 3	A-3	CHECK VALVE	12.000	2	C		CV	O			2	
	RWST SUPPLY CHECK VALVE TO "A" LOW HEAD SI PUMP SUCTION													
1-SI-046B	11448-CBM-089A	1 OF 3	B-3	CHECK VALVE	12.000	2	C		CV	O			2	
	RWST SUPPLY CHECK VALVE TO "B" LOW HEAD SI PUMP SUCTION													
1-SI-047	11448-CBM-089A	1 OF 3	B-5	CHECK VALVE	12.000	2	C		CV	O	20			
	"B" LOW HEAD SI PUMP SUCTION CHECK VALVE FROM CONTAINMENT SUMP													
1-SI-050	11448-CBM-089A	1 OF 3	C-4	CHECK VALVE	10.000	2	C		CV	C			2	
										O			2	
	"B" LOW HEAD SI PUMP DISCHARGE CHECK VALVE													
1-SI-053	11448-CBM-089A	2 OF 3	B-4	CHECK VALVE	2.000	2	C		CV	O				
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE DISCHARGE CHECK VALVE													
1-SI-056	11448-CBM-089A	1 OF 3	B-7	CHECK VALVE	12.000	2	C		CV	O	20			
	"A" LOW HEAD SI PUMP SUCTION CHECK VALVE FROM CONTAINMENT SUMP													
1-SI-058	11448-CBM-089A	1 OF 3	C-6	CHECK VALVE	10.000	2	C		CV	C			2	
										O			2	
	"A" LOW HEAD SI PUMP DISCHARGE CHECK VALVE													
1-SI-061	11448-CBM-089A	2 OF 3	B-6	CHECK VALVE	2.000	2	C		CV	O				
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE DISCHARGE CHECK VALVE													
1-SI-073	11448-CBM-089A	2 OF 3	F-7	MAN GLOBE	.750	2	AE	CIV	LT	C				
	ACCUMULATOR TEST LINE, OUTSIDE CONTAINMENT ISOLATION VALVE													
1-SI-079	11448-CBM-089B	4 OF 4	F-7	CHECK VALVE	6.000	1	AC	PIV	CV	C			4	
										O			4	

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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-	
1-SI-079	11448-CBM-089B	4 OF 4	F-7	CHECK VALVE	6.000	1	AC	PIV	LT	C					
	RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-082	11448-CBM-089B	4 OF 4	E-7	CHECK VALVE	6.000	1	AC	PIV	CV	C			4		
										O			4		
									LT	C					
	RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-085	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	6.000	1	AC	PIV	CV	C			4		
										O			4		
									LT	C					
	RCS COLD LEG SI ADMISSION CHECK VALVE														
1-SI-088	11448-CBM-089B	4 OF 4	D-7	CHECK VALVE	6.000	1	C		CV	C	27		4		
										O			4		
	RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-091	11448-CBM-089B	4 OF 4	C-7	CHECK VALVE	6.000	1	C		CV	C	27		4		
										O			4		
	RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-094	11448-CBM-089B	4 OF 4	B-7	CHECK VALVE	6.000	1	C		CV	C	27		4		
										O			4		
	RCS HOT LEG SI ADMISSION CHECK VALVE														
1-SI-107	11448-CBM-089B	1 OF 4	B-7	CHECK VALVE	12.000	1	C		CV	C	26				CN-1
										O	26		3		
	"A" ACCUMULATOR DISCHARGE CHECK VALVE														
1-SI-109	11448-CBM-089B	1 OF 4	B-8	CHECK VALVE	12.000	1	C		CV	C	26				CN-1
										O	26		3		
	"A" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
1-SI-128	11448-CBM-089B	2 OF 4	B-6	CHECK VALVE	12.000	1	C		CV	C	26				CN-1
										O	26		3		
	"B" ACCUMULATOR DISCHARGE CHECK VALVE														
1-SI-130	11448-CBM-089B	2 OF 4	B-7	CHECK VALVE	12.000	1	C		CV	C	26				CN-1
										O	26		3		
	"B" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-	
1-SI-145	11448-CBM-089B	3 OF 4	B-5	CHECK VALVE	12.000	1	C		CV	C O	26 26		 3		CN-1
	"C" ACCUMULATOR DISCHARGE CHECK VALVE														
1-SI-147	11448-CBM-089B	3 OF 4	B-7	CHECK VALVE	12.000	1	C		CV	C O	26 26		 3		CN-1
	"C" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
1-SI-150	11448-CBM-089A	3 OF 3	F-6	MAN GLOBE	.750	2	AE	CIV	LT	C					
	BORON INJECTION TANK BYPASS LINE ISOLATION VALVE - TO RCS COLD LEG														
1-SI-174	11448-CBM-089A	3 OF 3	D-6	MAN GLOBE	.750	2	AE	CIV	LT	C					
	HIGH HEAD SAFETY INJECTION TO RCS														
1-SI-224	11448-CBM-089B	4 OF 4	F-3	CHECK VALVE	3.000	2	C		CV	O			4		
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE														
1-SI-225	11448-CBM-089B	4 OF 4	E-3	CHECK VALVE	3.000	2	C		CV	O			4		
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE														
1-SI-226	11448-CBM-089B	4 OF 4	C-3	CHECK VALVE	3.000	2	C		CV	O			4		
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
1-SI-227	11448-CBM-089B	4 OF 4	C-3	CHECK VALVE	3.000	2	C		CV	O			4		
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
1-SI-228	11448-CBM-089B	4 OF 4	B-3	CHECK VALVE	6.000	2	C		CV	O			4		
	LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
1-SI-229	11448-CBM-089B	4 OF 4	B-3	CHECK VALVE	6.000	2	C		CV	O			4		
	LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE														
1-SI-234	11448-CBM-089B	1 OF 4	F-3	CHECK VALVE	1.000	2	AC	CIV	CV LT	C C			6		
	NITROGEN SUPPLY TO ACCUMULATORS, INSIDE CONTAINMENT ISOLATION CHECK VALVE														
1-SI-235	11448-CBM-089B	4 OF 4	F-7	CHECK VALVE	2.000	1	C		CV	C O			4 4		

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-	
1-SI-MOV-1867D	11448-CBM-089A	3 OF 3	F-6	MO GATE	3.000	2	A	CIV	EV	C		18			
										O		18			
									LT	C					
									ST	C		18			
										O		18			
									VP	OC					
	HIGH HEAD SAFETY INJECTION TO RCS COLD LEG, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SI-MOV-1869A	11448-CBM-089A	3 OF 3	D-7	MO GATE	3.000	2	A	CIV	EV	C		25			
										O		25			
									LT	C					
									ST	C		25			
										O		25			
									VP	OC					
	HIGH HEAD SI FROM CHARGING HEADER TO RCS HOT LEGS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SI-MOV-1869B	11448-CBM-089A	3 OF 3	E-4	MO GATE	3.000	2	A	CIV	EV	C		25			
										O		25			
									LT	C					
									ST	C		25			
										O		25			
									VP	OC					
	HIGH HEAD SI FROM CHARGING HEADER TO RCS HOT LEGS, OUTSIDE CONTAINMENT ISOLATION VALVE														
1-SI-MOV-1885A	11448-CBM-089A	2 OF 3	B-6	MO GATE	2.000	2	A		EV	C					CN-1
									LT	C	52				
									ST	C					
									VP	OC					
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
1-SI-MOV-1885B	11448-CBM-089A	2 OF 3	B-4	MO GATE	2.000	2	A		EV	C					CN-1
									LT	C	52				
									ST	C					
									VP	OC					
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
1-SI-MOV-1885C	11448-CBM-089A	2 OF 3	B-4	MO GATE	2.000	2	A		EV	C					CN-1
									LT	C	52				
									ST	C					
									VP	OC					
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
1-SI-MOV-1885D	11448-CBM-089A	2 OF 3	B-6	MO GATE	2.000	2	A		EV	C					CN-1
									LT	C	52				
									ST	C					
									VP	OC					

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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
1-SW-012	11448-CBM-071A	2 OF 4	C-4	MANUAL BFLY	10.000	3	B		EV	C		34		
	SERVICE WATER SUPPLY HEADER TO CHILLED WATER SYSTEM MANUAL ISOLATION VALVE													
1-SW-108	11448-CBM-071B	1 OF 2	B-4	CHECK VALVE	2.000	3	C		CV	C O	 50			
	CHARGING PUMP SERVICE WATER PUMP CHECK VALVE													
1-SW-113	11448-CBM-071B	1 OF 2	B-7	CHECK VALVE	2.000	3	C		CV	C O	 50			
	CHARGING PUMP SERVICE WATER PUMP CHECK VALVE													
1-SW-206	11448-CBM-071A	3 OF 4	E-8	MAN GATE	2.000	2	AE	CIV	LT	C				
	CONTAINMENT ISOLATION VALVE FOR SERVICE WATER DRAINS TO HEAT EXCHANGER													
1-SW-208	11448-CBM-071A	3 OF 4	E-8	MAN GATE	2.000	2	AE	CIV	LT	C				
	CONTAINMENT ISOLATION VALVE FOR SERVICE WATER DRAINS TO HEAT EXCHANGER													
1-SW-246	11448-CBM-071A	3 OF 4	C-8	CHECK VALVE	3.000	NC	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE													
1-SW-247	11448-CBM-071A	3 OF 4	D-7	CHECK VALVE	3.000	3	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE													
1-SW-248	11448-CBM-071A	3 OF 4	C-7	CHECK VALVE	3.000	NC	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE													
1-SW-249	11448-CBM-071A	3 OF 4	D-6	CHECK VALVE	3.000	3	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE													
1-SW-250	11448-CBM-071A	3 OF 4	C-6	CHECK VALVE	3.000	NC	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE													
1-SW-251	11448-CBM-071A	3 OF 4	D-5	CHECK VALVE	3.000	3	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE													
1-SW-252	11448-CBM-071A	3 OF 4	C-5	CHECK VALVE	3.000	NC	C		CV	O				

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE													
1-SW-253	11448-CBM-071A	3 OF 4	D-4	CHECK VALVE	3.000	3	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE													
1-SW-262	11448-CBM-071B	1 OF 2	B-4	CHECK VALVE	2.000	3	C		CV	O	50			
	CHARGING PUMP SERVICE WATER PUMP DISCHARGE CHECK VALVE													
1-SW-263	11448-CBM-071D	1 OF 1	C-7	AO GATE	6.000	3	E		VP	OC				
	CONTROL ROOM CONDENSER WATER SELF CLEANING STRAINER ISOLATION VALVE													
1-SW-264	11448-CBM-071D	1 OF 1	C-5	MANUAL BFLY	6.000	3	B		EV	O				
	CONTROL ROOM CONDENSER WATER TO BACKUP STRAINER BYPASS LINE ISOLATION VALVE													
1-SW-265	11448-CBM-071D	1 OF 1	C-7	MANUAL BFLY	6.000	3	B		EV	O				
	CONTROL ROOM CONDENSER WATER TO BACKUP STRAINER BYPASS LINE ISOLATION VALVE													
1-SW-268	11448-CBM-071B	1 OF 2	B-6	CHECK VALVE	2.000	3	C		CV	O	50			
	CHARGING PUMP SERVICE WATER PUMP DISCHARGE CHECK VALVE													
1-SW-313	11448-CBM-071D	1 OF 1	F-7	CHECK VALVE	3.000	3	C		CV	O	46			
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE													
1-SW-323	11448-CBM-071D	1 OF 1	F-5	CHECK VALVE	3.000	3	C		CV	O	46			
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE													
1-SW-773	11448-FM -071D	2 OF 2	C-5	CHECK VALVE	4.000	3	C		CV	O				
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE													
1-SW-778	11448-FM -071D	2 OF 2	C-4	CHECK VALVE	4.000	3	C		CV	O				
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE													
1-SW-839	11448-FM -071D	2 OF 2	F-5	CHECK VALVE	3.000	3	C		CV	O	53			
	CONTROL ROOM CONDENSER WATER SYSTEM DISCHARGE CHECK VALVE													
1-SW-840	11448-FM -071D	2 OF 2	F-4	CHECK VALVE	3.000	3	C		CV	O	53			

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CV-1

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	CONTROL ROOM CONDENSER WATER SYSTEM DISCHARGE CHECK VALVE													
1-SW-MOV-101A	11448-CBM-071A	3 OF 4	B-4	MO BFLY	36.000	3	B		EV ST VP	C C OC				
	BEARING COOLING WATER HEAT EXCHANGER ISOLATION VALVE													
1-SW-MOV-101B	11448-CBM-071A	3 OF 4	B-4	MO BFLY	36.000	3	B		EV ST VP	C C OC				
	BEARING COOLING WATER HEAT EXCHANGER ISOLATION VALVE													
1-SW-MOV-102A	11448-CBM-071A	2 OF 4	D-6	MO BFLY	42.000	3	B		EV ST VP	C O C O OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO COMPONENT COOLING HEAT EXCHANGERS													
1-SW-MOV-102B	11448-CBM-071A	2 OF 4	D-5	MO BFLY	42.000	3	B		EV ST VP	C O C O OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO COMPONENT COOLING HEAT EXCHANGERS													
1-SW-MOV-103A	11448-CBM-071A	3 OF 4	B-8	MO BFLY	30.000	3	B		EV ST VP	O O OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS													
1-SW-MOV-103B	11448-CBM-071A	3 OF 4	B-8	MO BFLY	30.000	3	B		EV ST VP	O O OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS													
1-SW-MOV-103C	11448-CBM-071A	3 OF 4	B-3	MO BFLY	30.000	3	B		EV ST VP	O O OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS													
1-SW-MOV-103D	11448-CBM-071A	3 OF 4	B-2	MO BFLY	30.000	3	B		EV ST VP	O O OC				

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS													
1-SW-MOV-104A	11448-CBM-071A	3 OF 4	D-7	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER SUPPLY TO "A" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
1-SW-MOV-104B	11448-CBM-071A	3 OF 4	D-6	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER SUPPLY TO "B" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
1-SW-MOV-104C	11448-CBM-071A	3 OF 4	D-5	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER SUPPLY TO "C" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
1-SW-MOV-104D	11448-CBM-071A	3 OF 4	D-4	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER SUPPLY TO "D" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
1-SW-MOV-105A	11448-CBM-071A	3 OF 4	D-8	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER RETURN FROM "A" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
1-SW-MOV-105B	11448-CBM-071A	3 OF 4	D-7	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER RETURN FROM "B" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
1-SW-MOV-105C	11448-CBM-071A	3 OF 4	D-6	MO BFLY	24.000	3	B		EV	C O				
									ST	C				

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
1-SW-MOV-105C	11448-CBM-071A	3 OF 4	D-6	MO BFLY	24.000	3	B		ST	O				
									VP	OC				
	SERVICE WATER RETURN FROM "C" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
1-SW-MOV-105D	11448-CBM-071A	3 OF 4	D-5	MO BFLY	24.000	3	B		EV	C				
										O				
									ST	C				
										O				
									VP	OC				
	SERVICE WATER RETURN FROM "D" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
1-SW-PCV-100A	11448-CBM-071D	1 OF 1	F-7	AO GATE	3.000	3	B		EV	O				
									FS	O				
									ST	O	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-100B	11448-CBM-071D	1 OF 1	F-5	AO GATE	3.000	3	B		EV	O				
									FS	O				
									ST	O	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-100C	11448-CBM-071D	1 OF 1	F-3	AO GATE	3.000	3	B		EV	O				
									FS	O				
									ST	O	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-100D	11448-FM -071D	2 OF 2	F-5	AO GATE	3.000	3	B		EV	O				
									FS	O				
									ST	O	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-100E	11448-FM -071D	2 OF 2	F-4	AO GATE	3.000	3	B		EV	O				
									FS	O				
									ST	O	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-101A	11448-CBM-071D	1 OF 1	E-8	AO GATE	3.000	3	B		EV	C				
									FS	C				
									ST	C	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-101B	11448-CBM-071D	1 OF 1	E-6	AO GATE	3.000	3	B		EV	C				
									FS	C				
									ST	C	47			

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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-101C	11448-CBM-071D	1 OF 1	E-4	AO GATE	3.000	3	B		EV	C				
									FS	C				
									ST	C	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-101D	11448-FM -071D	2 OF 2	D-5	AO GATE	3.000	3	B		EV	C				
									FS	C				
									ST	C	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-PCV-101E	11448-FM -071D	2 OF 2	D-3	AO GATE	3.000	3	B		EV	C				
									FS	C				
									ST	C	47			
	CONTROL ROOM CONDENSER WATER SYSTEM PRESSURE CONTROL VALVE													
1-SW-TCV-108A	11448-CBM-071B	1 OF 2	E-7	AO GATE	1.500	3	B		EV	O				
									FS	O				
									ST	O	47			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE													
1-SW-TCV-108B	11448-CBM-071B	1 OF 2	E-5	AO GATE	1.500	3	B		EV	O				
									FS	O				
									ST	O	47			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE													
1-SW-TCV-108C	11448-CBM-071B	1 OF 2	E-4	AO GATE	1.500	3	B		EV	O				
									FS	O				
									ST	O	47			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE													
2-SW-333	11448-CBM-071D	1 OF 1	F-3	CHECK VALVE	3.000	3	C		CV	O	46			
	CONTROL ROOM CONDENSER WATER SYSTEM PUMP DISCHARGE CHECK VALVE													

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VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
1-VS-285	11448-FB -041A	2 OF 2	C-6	MANUAL GATE	3.000	3	B		EV	C O				
	CONTROL ROOM CHILLED WATER CROSS TIE ISOLATION VALVE													
1-VS-288	11448-FB -041A	2 OF 2	B-7	CHECK VALVE	2.000	3	C		CV	C O				
	CONTROL ROOM CHILLED WATER PUMP DISCHARGE CHECK VALVE													
1-VS-292	11448-FB -041A	2 OF 2	B-5	CHECK VALVE	2.000	3	C		CV	C O				
	CONTROL ROOM CHILLED WATER PUMP DISCHARGE CHECK VALVE													
1-VS-296	11448-FB -041A	2 OF 2	B-4	CHECK VALVE	2.000	3	C		CV	C O				
	CONTROL ROOM CHILLED WATER PUMP DISCHARGE CHECK VALVE													
1-VS-571	11448-FM -041A	2 OF 3	C-7	MAN GATE	3.000	3	B		EV	C O				
	CONTROL ROOM CHILLED WATER SYSTEM HEADER CROSS CONNECT ISOLATION VALVE													
1-VS-641	11448-FM -041A	3 OF 3	D-6	CHECK VALVE	4.000	3	C		CV	C O				
	CONTROL ROOM CHILLED WATER SYSTEM PUMP DISCHARGE CHECK VALVE													
1-VS-645	11448-FM -041A	3 OF 3	D-5	CHECK VALVE	4.000	3	C		CV	C O				
	CONTROL ROOM CHILLED WATER SYSTEM PUMP DISCHARGE CHECK VALVE													
1-VS-672	11448-FM -041A	3 OF 3	F-6	CHECK VALVE	4.000	3	C		CV	O				
	CONTROL ROOM CHILLED WATER SYSTEM DISCHARGE HEADER CHECK VALVE													
1-VS-MOV-100A	11448-CBB-006A	1 OF 2	C-4	MO BFLY	36.000	2	AE	CIV	LT VP	C OC				
	CONTAINMENT PURGE SUPPLY, INSIDE CONTAINMENT ISOLATION VALVE													
1-VS-MOV-100B	11448-CBB-006A	1 OF 2	C-3	MO BFLY	36.000	2	AE	CIV	LT VP	C OC				
	CONTAINMENT PURGE SUPPLY, OUTSIDE CONTAINMENT ISOLATION VALVE													
1-VS-MOV-100C	11448-CBB-006A	1 OF 2	D-4	MO BFLY	36.000	2	AE	CIV	LT VP	C OC				

CV-1

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	CONTAINMENT PURGE EXHAUST, INSIDE CONTAINMENT ISOLATION VALVE													
1-VS-MOV-100D	11448-CBB-006A	1 OF 2	D-3	MO BFLY	36.000	2	AE	CIV	LT VP	C OC				
	CONTAINMENT PURGE EXHAUST, OUTSIDE CONTAINMENT ISOLATION VALVE													
1-VS-MOV-101	11448-CBB-006A	1 OF 2	D-3	MO BFLY	8.000	2	AE	CIV	LT VP	C OC				
	CONTAINMENT PURGE BYPASS, OUTSIDE CONTAINMENT ISOLATION VALVE													
1-VS-MOV-102	11448-CBB-006A	1 OF 2	C-3	MO BFLY	18.000	2	AE	CIV	LT VP	C OC				
	CONTAINMENT VACUUM BREAKER													

RELIEF REQUEST V-26

System : Safety Injection

Valve(s): 1-SI-107 1-SI-109
1-SI-128 1-SI-130
1-SI-145 1-SI-147

Category: C

Class : 1

Function: Accumulator Discharge Check

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Section 4.3.2.4(a) - This section states in part that, "The necessary valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat on cessation or reversal of flow, or opens to the position required to fulfill its function, as specified in para. 1.1, or both. Observation may be by observing a direct indicator such as a position indicating device, or by other indicator(s) such as changes in system pressure, flow rate, level, temperature, seat leakage testing or other positive means." This section implies that the techniques used to verify obturator movement be applied to every valve on a test frequency that is practical.

Basis For Request

Exercise to the Open Position

Non-intrusive techniques are used to verify obturator movement for the SI accumulator discharge check valves. These techniques provide a "positive means" for verifying obturator movement, however, due to the burden of applying these techniques in the field, a sampling program will be used as described in the alternate testing section.

Exercise to the Closed Position

Valves 1-SI-107 and 109, 1-SI-128 and 130, and 1-SI-145 and 147 perform as pairs of valves in series to isolate the accumulators from the reactor coolant system. The downstream valves, 1-SI-109, 130 and 147 were previously chosen as the isolation valves and were subject to back seat tests while the other valves were

CN-1

considered as backup valves and were not subject to back seat tests. The other set of valves cannot be individually back seated with the current piping configuration. Testing experience has shown that a severe water hammer can be produced by attempting to individually test the downstream isolation valve.

To individually test these valves, a reactor coolant system pressure in excess of 1000 psi was needed to properly seat the valves. The line upstream was then vented using a 3/4 inch sample line. Flow in the sample line was monitored to verify that the check valve seated. Also, the accumulator was isolated by the upstream motor operated isolation valve.

During one test, a steam bubble was created in the volume of pipe upstream of the check valve due to the initial high pressure and temperature in the line, and due to the subsequent venting of the line and the flashing of water to steam. When the motor operated isolation valve was opened following the test to restore the accumulator to service, a severe water hammer was created by the collapsing steam bubble. Although less severe hydraulic transients had been observed in previous tests, the potential for system damage became obvious after this test.

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Other test methodologies were evaluated to determine if valve closure could be verified while reducing or eliminating the possibility of creating another water hammer event. For example, testing at a lower reactor coolant temperature and pressure reduces the amount of water flashing to steam. However, testing has shown that the check valves do not seat properly at reactor coolant system pressures less then 1000 psi. It was concluded that with the current system configuration, a test could not be designed that would meet these criteria.

Treating the check valves as a pair of isolation valves would eliminate the possibility of creating a water hammer event through testing. The accumulators have level indicators and high/low tank level alarms in the control room. Therefore, during normal operation the accumulator level is constantly monitored to ensure that one out of two check valves is seated properly to prevent in leakage from the reactor coolant system.

Alternate Testing Proposed

Exercise to the Open Position

During the first refueling outage where non-intrusive techniques are used, all valves in the group will be tested to verify that the techniques verify valve obturator movement. During subsequent refueling outages, flow testing will be performed on all valves in the group, but the non-intrusive techniques need be applied only to one valve in each group, on a rotating basis, unless indications of problems are identified. In this case, all valves in the group will be subjected to the non-intrusive techniques. The test frequency is in accordance with Generic Letter 89-04, Position 2.

Valves 1-SI-130 and 147 are in one group and valves 1-SI-107, 109, 128 and 145 are in the other group. Because 1-SI-130 and 147 are downstream from where RHR connects to the SI line, they experience different service conditions than the other valves.

The justification for testing these valves during reactor refuelings was moved to Reactor Refueling Justification RRV-3

Exercise to the Closed Position

Valves 1-SI-107 and 109, 1-SI-128 and 130, and 1-SI-145 and 147 perform as pairs of valves in series to isolate the accumulators from the reactor coolant system. Monitoring the accumulator level during normal operation will be an adequate demonstration that one out of two valves in series is seating properly. If leakage past both valves in series to the accumulators becomes unacceptable for normal operation, both valves will be declared inoperable. The check valves will not be individually tested to the closed position.

CN-4

indication, there is no open/closed switch. The speed at which the valve goes open or closed depends upon the speed at which the operator turns the potentiometer knob, which in turn affects the repeatability of the stroke time measurements.

Valves 1-RH-FCV-1605 and 1-RH-HCV-1758 are controlled by a potentiometer and have no remote indication. The stroke time is measured by locally observing stem movement. Differences in interpreting when the valve stem starts and stops affect the repeatability of the stroke time measurements.

Valves 1-SW-PCV-100A, B, C, D and E, and 1-SW-PCV-101A, B, C, D and E have no remote indication or manual remote control. The valve position is manipulated by venting the actuator diaphragm and the stroke time is measured by observing the movement of the local position indicator. Differences in the speed at which the petcock is opened to vent the diaphragm and in interpreting when the position indicator starts and stops affect the repeatability of the stroke time measurements.

CN-1

Valves 1-SW-TCV-108A, B and C control the flow of service water to the charging pump lube oil coolers. There is no remote indication or manual position switch. Valve position is controlled by lube oil temperature. The valves are locally manipulated by isolating the power source, and timed by observing stem movement. Differences in interpreting when the valve stem starts and stops affect the repeatability of the stroke time measurements.

Alternate Testing Proposed

The full-stroke will be measured by locally observing stem movement and not from the initiation of the actuating signal. Also, maximum stroke times will be established in accordance with Paragraph 4.2.1.9(a). However, the ranges described in Paragraphs 4.2.1.8(b) and (d) will not be applied.

RELIEF REQUEST V-47 (Cont.)

TABLE V-47

Valve	Category	Class	Function
1-CC-LCV-101	B	3	Charging Pump Seal Cooling Surge Tank Level Control
1-MS-RV-101A,B,C	B	2	Main Steam Header Discharge to Atmosphere PORV
1-RH-FCV-1605	B	2	RHR Heat Exchanger Bypass Flow Control Valve
1-RH-HCV-1758	B	2	RHR Heat Exchanger Discharge Flow Control Valve
1-SW-PCV-100A,B,C 1-SW-PCV-100D,E 1-SW-PCV-101A,B,C 1-SW-PCV-101D,E	B	3	Control Room Condenser Water System Pressure Control Valves
1-SW-TCV-108A,B,C	B	3	Service Water to Charging Pump Lube Oil Cooler Temperature Control Valves

CN-4

RELIEF REQUEST V-50

System : Service Water

Valve(s): 1-SW-108 1-SW-262
1-SW-113 1-SW-268

CN-1

Category: C

Class : 3 (1-SW-108,113,262,268)

Function: Charging Pump Service Water Pump discharge Check Valves

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Paragraph 4.3.2.4(c) reads in part that, "disassembly every refueling outage to verify operability of check valves may be used." This sentence implies that each valve in the group given above must be disassembled every refueling outage.

Basis For Request

The design basis for the charging pump service water system is currently undergoing reevaluation. A full flow acceptance criteria will not be avaliable until this reevaluation is complete.

These check valves can be disassembled while the plant is operating. To allow for flexibility in planning for refueling outages and still meet the intent of OM Part 10, the valves will be disassembled on a reactor refueling frequency but not necessarily during refueling outages.

Alternate Testing Proposed

These valves will be placed into two groups and one valve from each group will be disassembled and inspected on a reactor refueling frequency. A different valve will be disassembled for each inspection. Valves 1-SW-108 and 113 will be in one group, and valves 1-SW-262 and 268 will be in the other group. If a valve fails its inspection, the remaining valves in the group will be disassembled and inspected. The check valves will be partial stroke tested every three months. This test frequency is in accordance with Generic Letter 89-04, Position 2.

CN-1

RELIEF REQUEST V-52

System : Chemical and Volume Control and Safety Injection

Valve(s): 1-CH-LCV-1115B, 1-CH-LCV-1115D, 1-SI-25, 1-SI-MOV-1885A, 1-SI-MOV-1885B, 1-SI-MOV-1885C, 1-SI-MOV-1885D

Category: A and A/C

Class : 2

Function: RWST Isolation Valves

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Section 4.2.2.3(f) - Valves or valve combinations with leakage rates exceeding the values specified by the Owner in (e) above shall be declared inoperable and be either repaired or replaced.

CN-1

Basis For Request

Valves 1-CH-LCV-1115B and D, and 1-SI-25 are in the supply line to the charging pumps from the RWST. Valves 1-SI-MOV-1885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

The RWST isolation valves work as a system of valves to protect the RWST from the contaminated sump water. Permissible valve leakage rates are based on each valve's possible contribution to the total allowable leakage rate to the RWST. When the leakages from each valve have been measured and summed, an individual valve's permissible leakage rate may have been exceeded but the overall allowable leakage to the RWST may not have been exceeded. In these cases, a repair or replacement may not be necessary because the system of isolation valves has been verified to be performing adequately.

CAI-1

Alternate Testing Proposed

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed.

RELIEF REQUEST V-53

System : Service Water

Valve(s): 1-SW-839
1-SW-840

Category: C

Class : 3

Function: Control room condenser water system discharge Check Valves

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Paragraph 4.3.2.4(c) reads in part that, "disassembly every refueling outage to verify operability of check valves may be used." This sentence implies that each valve in the group given above must be disassembled every refueling outage.

Basis For Request

The discharge check valves are downstream from the recirculation loops for two of the five trains in the control room condenser water system. These two trains were added to the control room air conditioning system in 1994 and were designed to operate with a service water temperature of 95 ^{0}F. These two trains have such a large cooling capacity that one of the two trains can absorb the heating load of the entire control room air conditioning system. To maintain a high service water temperature, these trains must be operated with most of the service water flow diverted to the recirculation lines.

To achieve full design flow through the check valve, one train would have to be isolated and the flow of the other train diverted to the discharge check valve. If the flow was diverted to the discharge check valve, the service water temperature would drop and the condenser system would trip off line on low condenser suction pressure. Thus both trains would be out of service. Also, the control room air conditioning system heat load balance would be upset.

The Surry control room is common to both units. One of the two additional trains must be available for service while either Unit 1 or Unit 2 is operable. Therefore, performing the full flow test is not practical when either unit is operating. As an alternate test, these valves will be disassembled and inspected.

CN-1

These check valves can be disassembled while the plant is operating. To allow for flexibility in planning for refueling outages and still meet the intent of OM Part 10, the valves will be disassembled on a reactor refueling frequency but not necessarily during refueling outages.

CN-1

Alternate Testing Proposed

These valves will be placed into a group and one valve from the group will be disassembled and inspected on a reactor refueling frequency. A different valve will be disassembled for each inspection. If a valve fails its inspection, the remaining valve will be disassembled and inspected. The check valves will be partial stroke tested every three months. This test frequency is in accordance with Generic Letter 89-04, Position 2.

COLD SHUTDOWN JUSTIFICATION CSV-29

CJ-1

Cold Shutdown Justification Withdrawn

COLD SHUTDOWN JUSTIFICATION CSV-32

System : Main Steam

Valve(s): 1-MS-NRV-101A
1-MS-NRV-101B
1-MS-NRV-101C

Category: C

Class : NC

CAT-1

Function: Main Steam Non-Return Valves

Cold Shutdown Justification

Valve Description

The main steam non-return valves (NRVs) at Surry Power Station are located in the main steam valve house and are a globe type stop check design. The valves measure approximately 16 feet from the bottom of the valve body to the top of the hand wheel and weigh almost 18,000 lbs. The disk is welded to a hollow piston and the whole assembly is free to move about 25 vertical inches within the valve body cylinder. The disk measures 25.5 inches across and the disk and piston assembly weighs approximately 1,200 lbs. When the main steam system is not inservice, a motor operator is used to run the valve stem down onto the disk to secure the main steam line.

The valves open to allow steam to the turbine. For accident conditions, the non-return valves in conjunction with the main steam trip valves prevent the blowdown of more than one steam generator for any break location, even if one valve fails to close. For example, for a break upstream of the trip valve in one line, the closure of either the non-return valve in that line or the trip valves in the other lines prevents the blowdown of the other steam generators.

Method of Testing

The piping downstream of each non-return valve leads to a common distribution manifold and cannot be isolated. Therefore, performing a back seat test using flow is not practical. Also, valve disassembly and inspection are not practical alternatives due to the size of the valve and the weight of the disk.

COLD SHUTDOWN JUSTIFICATION CSV-34

System : Service Water

Valve(s): 1-SW-12

Category: B

Class : 3

Function: Service Water Supply Header Manual Isolation Valve

Cold Shutdown Justification

The 10 inch manual isolation valve 1-SW-12 isolates service water to the plant chilled water system condensers. A full stroke test of 1-SW-12 may require that the condensers be secured. The chilled water system supplies cooling water to the containment coolers for each unit. The chilled water system is needed during much of the year while the plant is operating to ensure that the containment coolers have enough added capacity to maintain the containment air partial pressure within the acceptable operation range as described in Technical Specification Section 3.8, Figure 3.8-1. Therefore, service water flow should not be interrupted to the chilled water system while the plant is operating.

CN-1

Full stroke exercising the valve during the cold shutdowns will be an adequate demonstration of operational readiness because the valve is a simple manual gate valve that is not subject to the failure mechanisms associated with power operated valves. The small increase in safety gained by partial stroke exercising the valve every three months does not justify the burden of performing the partial stroke test.

Testing Frequency

This manual isolation valve will be full stroke exercised every cold shutdown but not more frequently than once every three months.

REACTOR REFUELING JUSTIFICATION RRV-3

System : Safety Injection

Valve(s): 1-SI-107 1-SI-109
1-SI-128 1-SI-130
1-SI-145 1-SI-147

Category: C

Class : 1

Function: Accumulator Discharge Check

Reactor Refueling Justification

These valves cannot be partial or full flow tested during normal operation because the accumulator pressure (600 to 650 psig) is below Reactor Coolant System pressure and the injection of borated water would upset the reactor coolant chemistry. During cold shutdown, the RCS pressure still prevents full flow testing.

To achieve full flow through the valves during reactor refueling, the accumulator would have to be discharged from an initial pressure of 600 psig. Discharging the accumulator from this pressure would stress the piping system and inject nitrogen into the RCS. Nitrogen in the RCS has been linked to gas binding of the RHR pumps. However, the accumulator can be discharged from a lower pressure during reactor refuelings when the RCS is depressurized. At this pressure, full flow conditions will not be established; however, enough flow will be developed to open the check valves to the full open position. This event can be verified and documented using non-intrusive diagnostic techniques.

A partial flow test is not practical during cold shutdowns. The flow from the accumulator is dependent on the pressure differential between the accumulator and the RCS. The pressure differential cannot be controlled to the fine degree necessary to preclude dumping too much water into the pressurizer, thus making it difficult to control pressurizer level while pressure is being reduced during cooldown. Also, dumping cold accumulator water into the RCS could thermally shock the system.

CN-1

Testing Frequency

Non-intrusive diagnostic techniques will be used to determine that the check valves open to the full open position. A sampling program will be applied to the non-intrusive techniques as described in Relief Request V-26.

REACTOR REFUELING JUSTIFICATION RRV-5

System : RWST Cross Tie

Valve(s): 1-SI-25
1-SI-410

Category: C

Class : 2

Function: Charging Pump Suction from RWST Cross Tie

Reactor Refueling Justification

Exercising these valves during power operation would require the charging pump suctions to be aligned with the refueling water storage tank. This would cause a sudden increase in reactor coolant boron inventory.

Full flow for the charging system can only be established during reactor refueling when the RCS is depressurized.

Valve 1-SI-25 must close to preserve inventory from the Unit 2 RWST when the cross tie lines are opened. This valve is also subject to leak testing, which is performed every reactor refueling. Verification of closure will be performed during the leak test every reactor refueling instead of every cold shutdown because the small increase in safety gained by testing during cold shutdown does not justify performing a leak rate test. CN-1

Testing Frequency

These valves will partial flow tested during every cold shutdown and full flow tested during every reactor refueling.

Valve 1-SI-25 will be exercised to the closed position every refueling outage. CN-1

ATTACHMENT 2

CHANGES TO SURRY UNIT 2

THIRD INTERVAL
INSERVICE TESTING PROGRAM

REVISION 0
CHANGE 1

ATTACHMENT

SUMMARY OF CHANGES TO THE
SURRY UNIT 2
IST PROGRAM

The following is a section by section summary of changes for Revision 0, Change 1 of the Surry Power Station Unit 2 Inservice Testing (IST) Program for the third IST interval. Revision 0 for the third IST interval was submitted on October 19, 1993 (Serial No. 93-658).

INSERVICE TESTING PROGRAM FOR PUMPS AND VALVES

3.0 PUMP INSERVICE TEST PROGRAM DESCRIPTION

3.5 PUMP INSERVICE TEST TABLES

Unit 2 Pump Number	Program Change
2-CC-P-2A 2-CC-P-2B	Relief Request P-19 was added for the suction pressure instrumentation.

3.6 PUMP TEST PROGRAM RELIEF REQUESTS

Unit 2 Relief Request	Program Change
P-19	This relief request is being added to the IST Program for the component cooling water pumps 2-CC-P-2A and B. Recently installed inlet pressure gauges have a full scale range of 0 to 3.5 psig. Readings from these inlet pressure gauges over the past year indicate that the dynamic pressures fall within the bottom third of full scale. However, the difference in the error between the 0 to 3.5 psig gauges and gauges that would meet the ASME Section XI three times full-scale rule are so small that the 0 to 3.5 psig gauges can be considered to be equivalent in terms of accuracy for determining differential pressure. Therefore, inlet pressure will be measured with gauges that have a full-scale of 0 to 3.5 psig.

ATTACHMENT

SUMMARY OF CHANGES TO THE
SURRY UNIT 2
IST PROGRAM

3.7 ALTERNATIVE TESTING FOR NON-CODE PUMPS

Unit 2 Non-Code Alternative Test	Program Change
PNC-1	Reference to the frequency response range of the vibration transducers was added. The minimum pump shaft rotational speed for the diesel fuel oil pumps is 690 rpm. To meet the one-third shaft speed requirement, the low end of the frequency response range would have to be 3.8 hz. The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 hz. These transducers are capable of detecting vibrations at frequencies of at least one times the rotational speed of the pump, which is adequate for detecting degradation in positive displacement pumps. A note indicating that OM Part 6 does not require the measurement of suction pressure for positive displacement pumps was added.

ATTACHMENT

SUMMARY OF CHANGES TO THE
SURRY UNIT 2
IST PROGRAM

4.0 VALVE INSERVICE TEST PROGRAM DESCRIPTION

4.4 VALVE INSERVICE TEST TABLES

Unit 2 Valve Number	Comment/Program Change
2-MS-NRV-201A 2-MS-NRV-201B 2-MS-NRV-201C 2-MS-TV-209 2-MS-TV-210	Program Change: The ASME Code Classification was changed from Class 2 to non-Code Class.
2-CH-LCV-2115B 2-CH-LCV-2115D 2-SI-25 2-SI-MOV-2885A 2-SI-MOV-2885B 2-SI-MOV-2885C 2-SI-MOV-2885D	As for Unit 1, these isolation valves prevent leakage of contaminated containment sump water to the refueling water storage tank from the discharge side of the low head safety injection pumps during recirculation mode transfer phase of safety injection. Relief Request V-52 is being added to the IST program and states that in addition to replacement and repair as corrective actions, an evaluation can be performed. Relief Request V-52 was sent to the NRC by letter dated April 26, 1994 (serial No. 94-223) and is being included in the IST Program through Change 1 to Revision 0. Program Change: Relief Request V-52 is being added for the leak test.
2-SI-25	The test method to verify valve closure was changed from disassembly and inspection to back seat testing every reactor refueling. Refer to Reactor Refueling Justification RVV-5. Program Change: Reactor Refueling Justification RRV-5 was revised.

ATTACHMENT

SUMMARY OF CHANGES TO THE
SURRY UNIT 2
IST PROGRAM

2-SI-107 2-SI-109 2-SI-128 2-SI-130 2-SI-145 2-SI-147	These accumulator discharge check valves will be tested as pairs to the closed position. Refer to Relief Request V-26. Program Change: Relief Request V-26 was revised to indicate that valves 2-SI-107 and 109, and 2-SI-128 and 130, and 2-SI-145 and 147 will be tested as pairs of valves in series to the closed position. Also, Cold Shutdown Justification CSV-29 is no longer necessary for valves 2-SI-109, 130 and 147, and was deleted from the program.
2-SW-130	The internal parts were removed from this check valve. Program Change: The valve was removed from the IST program.

4.5 VALVE TEST PROGRAM RELIEF REQUESTS

Unit 2 Relief Request	Program Change
V-26	This relief request was revised to indicate that the accumulator discharge check valves will be tested as pairs of valves to the closed position. Valves 2-SI-107 and 109, 2-SI-128 and 130, and 2-SI-145 and 147 perform as pairs of valves in series to isolate the accumulators from the reactor coolant system. The downstream valves, 1-SI-109, 130 and 147 were previously chosen as the isolation valves and were subject to back seat tests while the other valves were considered as backup valves and were not subject to back seat tests. The other set of valves cannot be individually back seated with the current piping configuration. Testing experience has shown that a severe water hammer can be produced by attempting to individually test the downstream isolation valve. Treating the check valves as a pair of isolation valves would eliminate the possibility of creating

a water hammer event through testing. The accumulators have level indicators and high/low tank level alarms in the control room. Therefore, during normal operation the accumulator level is constantly monitored to ensure that one out of two check valves is seated properly to prevent in leakage from the reactor coolant system.

V-50 Valve 2-SW-130 was removed from the relief request.

V-52 This relief request is being added to the IST program for the RWST isolation valves. The RWST isolation valves prevent leakage of contaminated containment sump water to the refueling water storage tank from the discharge side of the low head safety injection pumps during the recirculation mode transfer phase of safety injection. Relief Request V-52 states that in addition to replacement and repair as corrective actions, an evaluation can be performed. Relief Request V-52 was sent to the NRC by letter dated April 26, 1994 (Serial No. 94-223) and is being included in the IST Program through Change 1 to Revision 0.

4.6 VALVE TEST PROGRAM COLD SHUTDOWN JUSTIFICATIONS

Unit 2 Cold Shutdown Just	Program Change
CSV-29	This cold shutdown justification is being deleted from the IST program. The accumulator discharge check valves will be tested as pairs to the closed position per Relief Request V-26.

ATTACHMENT

SUMMARY OF CHANGES TO THE
SURRY UNIT 2
IST PROGRAM

4.7 VALVE TEST PROGRAM REACTOR REFUELING JUSTIFICATIONS

Units 2 Reactor Refuel Just	Program Change
RRV-3	Justification was added for not performing a partial stroke test on the accumulator discharge check valves during cold shutdowns.
RRV-5	Reactor Refueling Justification RRV-5 was revised to indicate that 1-SI-25 (Unit 1) and 2-SI-25 (Unit 2) will be back seat/leak tested to verify closure every reactor refueling instead of disassembled and inspected.

SURRY POWER STATION
UNIT 2
REPLACEMENT PAGES

PUMP INSERVICE TEST TABLE

Pump Ident.	ASME Class	System Resist	Inlet Press	Disch Press	Diff Press	Flow Rate	Vibration	Pump Speed	Lubrication Level/Pressure	Relief Request
1-CC-P-1C	3	VAR	Q	Q	Q	Q	Q	NA	Q	1,16
1-CC-P-1D	3	VAR	Q	Q	Q	Q	Q	NA	Q	1,16
1-CH-P-2C	2	VAR	Q	Q	Q	Q	Q	NA	NA	1,18
1-CH-P-2D	2	VAR	Q	Q	Q	Q	Q	NA	NA	1,18
2-CC-P-2A	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,19
2-CC-P-2B	3	VAR	Q	Q	Q	Q	Q	NA	NA	1,19
2-SW-P-10A	3	VAR	Q	Q	Q	Q	Q	NA	NA	1
2-SW-P-10B	3	VAR	Q	Q	Q	Q	Q	NA	NA	1
1-EE-P-1B	NC	FIX	NA	Q	NA	Q	Q	NA	NA	1,PNC-1
1-EE-P-1E	NC	FIX	NA	Q	NA	Q	Q	NA	NA	1,PNC-1

CN-1

Note: PNC-1 is not a request for relief but a description of alternative testing for non-Code pumps. Refer to Section 3.7.

RELIEF REQUEST P-19

System : Component Cooling Water

Pump(s): 2-CC-P-2A
2-CC-P-2B

Class : 3

OM Part 6 Code Requirements
For Which Relief Is Requested

The full-scale range of each instrument shall be three times the reference value or less (OM Part 6, Paragraph 4.6.1.2).

Basis For Request

Recently installed inlet pressure gauges have a full scale range of 0 to 3.5 psig. Readings from these inlet pressure gauges over the past year indicate that the dynamic pressures fall within the bottom third of full scale. However, the difference in the error between the 0 to 3.5 psig gauges and gauges that would meet the three times full-scale rule are so small that the 0 to 3.5 psig gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

For example, the lowest recorded inlet pressure for pump 2-CC-P-2A is 0.5 psig. A gauge that meets the three times full-scale rule would have a full scale of 1.5 psig or less. A 2% accuracy for the 1.5 psig gauge translates to an error of 0.03 psig. A 2% accuracy for the 3.5 psig gauge translates to an error of 0.07 psig. The difference in error of 0.04 psig is insignificant when determining the differential pressures for these pumps which range between 50 and 60 psig. Therefore, the two gauges can be considered to be equivalent in terms of accuracy for determining differential pressure.

Alternate Testing Proposed

Inlet pressure will be measured with gauges that have a full-scale of 0 to 3.5 psig.

CN-1

NON-CODE ALTERNATIVE TESTING PNC-1

System : Fuel Oil

Pump(s): 1-EE-P-1B
1-EE-P-1E

Class : NC

OM Part 6 Code Requirements
Which Cannot Be Met

Measure test quantities after the pump has been running for at least two minutes (OM Part 6, Paragraph 5.6).

The frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 HZ (OM Part 6, Paragraph 4.6.1.6).

Basis For Alternate Testing

The pump operating time is limited due to operational restraints. While the diesels are running, these pumps start automatically when the fuel oil level in the day tank reaches the low level switch, and stop when the level reaches the high level switch. The pump run time can vary depending upon the diesel load and the resulting fuel consumption rate. If the pumps are allowed to run for two minutes prior to measuring the test quantities and the fuel consumption rate is low, not enough time is available to gather all of the required Section XI test data.

The minimum pump shaft rotational speed for these pumps is 690 rpm. To meet the one-third shaft speed requirement, the low end of the frequency response range would have to be 3.8 hz. The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 hz. These transducers are capable of detecting vibrations at frequencies of at least one times the rotational speed of the pump, which is adequate for detecting degradation in positive displacement pumps. CN-1

Alternate Testing

The measurement of Section XI quantities will begin when the pump automatically starts on a low tank level signal.

The transducers used for testing the diesel fuel oil transfer pumps have a low end frequency response of 10 hz versus the 3.8 hz required by the Code for a pump running at 690 rpm. CN-1

CN-1

Note: The diesel oil transfer pumps are positive displacement pumps. According to OM Part 6, Table 2, only discharge pressure need be measured for positive displacement pumps.

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	"C" CHARGING PUMP DISCHARGE RECIRC LINE CHECK VALVE													
2-CH-276	11548-CBM-088B	2 OF 2	D-4	CHECK VALVE	3.000	2	C		CV	C O			1	
	"C" CHARGING PUMP DISCHARGE CHECK VALVE													
2-CH-309	11548-CBM-088C	1 OF 2	D-4	CHECK VALVE	3.000	2	AC	CIV	CV LT	C C			6	
	MAIN CHARGING SUPPLY HEADER, INSIDE CONTAINMENT ISOLATION CHECK VALVE													
2-CH-FCV-2113A	11548-CBM-088B	1 OF 2	C-3	AO GLOBE	1.000	2	B		EV FS ST VP	O O O OC				
	MANUAL EMERGENCY BORATION PATH FLOW CONTROL VALVE													
2-CH-FCV-2114A	11548-CBM-088B	1 OF 2	D-4	AO GLOBE	2.000	2	B		EV FS ST VP	C C C OC				
	PRIMARY GRADE WATER SUPPLY TO BORIC ACID BLENDER ISOLATION VALVE													
2-CH-FCV-2160	11548-CBM-088C	1 OF 2	B-4	AO GLOBE	2.000	1	AE	CIV	LT VP	C OC				
	CHARGING FLOW CONTROL TO LOOP FILL HEADER, OUTSIDE CONTAINMENT ISOLATION VALVE													
2-CH-LCV-2115B	11548-CBM-088B	2 OF 2	B-8	MO GATE	8.000	2	A		EV LT ST VP	C O C C O OC	52			CN-1
	CHARGING PUMP SUPPLY ISOLATION VALVE FROM REFUELING WATER STORAGE TANK													
2-CH-LCV-2115C	11548-CBM-088B	1 OF 2	C-6	MO GATE	4.000	2	B		EV ST VP	C C OC		11 11		
	CHARGING PUMP SUPPLY ISOLATION FROM VOLUME CONTROL TANK													
2-CH-LCV-2115D	11548-CBM-088B	2 OF 2	C-8	MO GATE	8.000	2	A		EV LT ST VP	C O C C O OC	52			CN-1

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
2-MS-087	11548-CBM-064A	1 OF 6	C-6	MANUAL GATE	4.000	2	B		EV	C				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE													
2-MS-120	11548-CBM-064A	2 OF 6	C-6	MANUAL GATE	4.000	2	B		EV	C				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE													
2-MS-158	11548-CBM-064A	3 OF 6	C-6	MANUAL GATE	4.000	2	B		EV	C				
	MAIN STEAM LINE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP ISOLATION VALVE													
2-MS-176	11548-CBM-064A	4 OF 6	C-7	CHECK VALVE	3.000	2	C		CV	C O	42 42			
	"A" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP													
2-MS-178	11548-CBM-064A	4 OF 6	D-7	CHECK VALVE	3.000	2	C		CV	C O	42 42			
	"B" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP													
2-MS-182	11548-CBM-064A	4 OF 6	D-7	CHECK VALVE	3.000	2	C		CV	C O	42 42			
	"C" MAIN STEAM HEADER SUPPLY CHECK VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP													
2-MS-NRV-201A	11548-CBM-064A	1 OF 6	E-4	NO STOP CHECK	30.000	NC	C		CV VP	C OC		32		CN-1
	"A" MAIN STEAM HEADER NON-RETURN VALVE													
2-MS-NRV-201B	11548-CBM-064A	2 OF 6	D-3	NO STOP CHECK	30.000	NC	C		CV VP	C OC		32		CN-1
	"B" MAIN STEAM HEADER NON-RETURN VALVE													
2-MS-NRV-201C	11548-CBM-064A	3 OF 6	D-3	NO STOP CHECK	30.000	NC	C		CV VP	C OC		32		CN-1
	"C" MAIN STEAM HEADER NON-RETURN VALVE													
2-MS-PCV-202A	11548-CBM-064A	4 OF 6	C-4	AO GATE	3.000	2	B		EV FS ST VP	C O C C O OC				
	MAIN STEAM SUPPLY TRIP VALVE TO TURBINE DRIVEN AUXILIARY FEEDWATER PUMP													

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
2-MS-TV-201B	11548-CBM-064A	2 OF 6	C-4	AO CHECK VALVE	30.000	2	B		EV	C		1		
									ST	C		1		
									VP	OC				
	"B" MAIN STEAM HEADER TRIP VALVE													
2-MS-TV-201C	11548-CBM-064A	3 OF 6	C-4	AO CHECK VALVE	30.000	2	B		EV	C		1		
									ST	C		1		
									VP	OC				
	"C" MAIN STEAM HEADER TRIP VALVE													
2-MS-TV-209	11548-CBM-064A	4 OF 6	F-5	AO GATE	3.000	NC	B		EV	C				
									FS	C				
									ST	C				
									VP	OC				
	MAIN STEAM HIGH PRESSURE DRAIN ISOLATION TO CONDENSER													
2-MS-TV-210	11548-CBM-064A	4 OF 6	F-7	AO GATE	2.000	NC	B		EV	C				
									FS	C				
									ST	C				
									VP	OC				
	MAIN STEAM HIGH PRESSURE DRAIN ISOLATION TO STEAM GENERATOR BLOWDOWN SYSTEM													

CN-1

CN-1

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
2-SI-025	11548-CBM-089A	1 OF 3	E-5	CHECK VALVE	8.000	2	AC		CV	C			5	
										O			5	
									LT	C	52			
	RWST SUPPLY CHECK VALVE TO CHARGING PUMP SUCTION HEADER													
2-SI-032	11548-CBM-089B	1 OF 4	E-3	MAN GLOBE	1.000	2	AE	CIV	LT	C				
	ACCUMULATOR MAKEUP LINE, OUTSIDE CONTAINMENT ISOLATION VALVE													
2-SI-046A	11548-CBM-089A	1 OF 3	A-3	CHECK VALVE	12.000	2	C		CV	O			2	
	RWST SUPPLY CHECK VALVE TO "A" LOW HEAD SI PUMP SUCTION													
2-SI-046B	11548-CBM-089A	1 OF 3	B-3	CHECK VALVE	12.000	2	C		CV	O			2	
	RWST SUPPLY CHECK VALVE TO "B" LOW HEAD SI PUMP SUCTION													
2-SI-047	11548-CBM-089A	1 OF 3	B-5	CHECK VALVE	12.000	2	C		CV	O	20			
	"B" LOW HEAD SI PUMP SUCTION CHECK VALVE FROM CONTAINMENT SUMP													
2-SI-050	11548-CBM-089A	1 OF 3	C-4	CHECK VALVE	10.000	2	C		CV	C			2	
										O			2	
	"B" LOW HEAD SI PUMP DISCHARGE CHECK VALVE													
2-SI-053	11548-CBM-089A	2 OF 3	B-4	CHECK VALVE	2.000	2	C		CV	O				
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE DISCHARGE CHECK VALVE													
2-SI-056	11548-CBM-089A	1 OF 3	B-7	CHECK VALVE	12.000	2	C		CV	O	20			
	"A" LOW HEAD SI PUMP SUCTION CHECK VALVE FROM CONTAINMENT SUMP													
2-SI-061	11548-CBM-089A	2 OF 3	B-5	CHECK VALVE	2.000	2	C		CV	O				
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE DISCHARGE CHECK VALVE													
2-SI-073	11548-CBM-089A	2 OF 3	E-7	MAN GLOBE	.750	2	AE	CIV	LT	C				
	ACCUMULATOR TEST LINE, OUTSIDE CONTAINMENT ISOLATION VALVE													
2-SI-079	11548-CBM-089B	4 OF 4	F-7	CHECK VALVE	6.000	1	AC	PIV	CV	C			4	
										O			4	
									LT	C				
	RCS COLD LEG SI ADMISSION CHECK VALVE													
2-SI-082	11548-CBM-089B	4 OF 4	E-7	CHECK VALVE	6.000	1	AC	PIV	CV	C			4	

CN-1

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-	
2-SI-082	11548-CBM-089B	4 OF 4	E-7	CHECK VALVE	6.000	1	AC	PIV	CV LT	O C			4		
	RCS COLD LEG SI ADMISSION CHECK VALVE														
2-SI-085	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	6.000	1	AC	PIV	CV LT	C O C			4 4		
	RCS COLD LEG SI ADMISSION CHECK VALVE														
2-SI-088	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4		
	RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-091	11548-CBM-089B	4 OF 4	C-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4		
	RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-094	11548-CBM-089B	4 OF 4	B-7	CHECK VALVE	6.000	1	C		CV	C O	27		4 4		
	RCS HOT LEG SI ADMISSION CHECK VALVE														
2-SI-107	11548-CBM-089B	1 OF 4	B-7	CHECK VALVE	12.000	1	C		CV	C O	26 26		 3		CN-1
	"A" ACCUMULATOR DISCHARGE CHECK VALVE														
2-SI-109	11548-CBM-089B	1 OF 4	B-8	CHECK VALVE	12.000	1	C		CV	C O	26 26		 3		CN-1
	"A" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
2-SI-128	11548-CBM-089B	2 OF 4	B-6	CHECK VALVE	12.000	1	C		CV	C O	26 26		 3		CN-1
	"B" ACCUMULATOR DISCHARGE CHECK VALVE														
2-SI-130	11548-CBM-089B	2 OF 4	B-7	CHECK VALVE	12.000	1	C		CV	C O	26 26		 3		CN-1
	"B" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE														
2-SI-145	11548-CBM-089B	3 OF 4	B-5	CHECK VALVE	12.000	1	C		CV	C O	26 26		 3		CN-1
	"C" ACCUMULATOR DISCHARGE CHECK VALVE														

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
2-SI-147	11548-CBM-089B	3 OF 4	B-7	CHECK VALVE	12.000	1	C		CV	C O	26 26		 3	
	"C" ACCUMULATOR COLD LEG ADMISSION CHECK VALVE													
2-SI-150	11548-CBM-089A	3 OF 3	F-6	MAN GLOBE	.750	2	AE	CIV	LT	C				
	BORON INJECTION TANK BYPASS LINE ISOLATION VALVE - TO RCS COLD LEG													
2-SI-174	11548-CBM-089A	3 OF 3	D-6	MAN GLOBE	.750	2	AE	CIV	LT	C				
	HIGH HEAD SAFETY INJECTION TO RCS													
2-SI-224	11548-CBM-089B	4 OF 4	F-3	CHECK VALVE	3.000	2	C		CV	O			4	
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE													
2-SI-225	11548-CBM-089B	4 OF 4	E-3	CHECK VALVE	3.000	2	C		CV	O			4	
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS COLD LEGS, INSIDE CONT CHECK VALVE													
2-SI-226	11548-CBM-089B	4 OF 4	C-3	CHECK VALVE	3.000	2	C		CV	O			4	
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE													
2-SI-227	11548-CBM-089B	4 OF 4	C-3	CHECK VALVE	3.000	2	C		CV	O			4	
	HIGH HEAD SI FROM CHARGING PUMPS TO RCS HOT LEGS, INSIDE CONT CHECK VALVE													
2-SI-228	11548-CBM-089B	4 OF 4	B-3	CHECK VALVE	6.000	2	C		CV	O			4	
	LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE													
2-SI-229	11548-CBM-089B	4 OF 4	B-3	CHECK VALVE	6.000	2	C		CV	O			4	
	LOW HEAD SI FROM LHSI PUMP TO RCS HOT LEGS, INSIDE CONT CHECK VALVE													
2-SI-235	11548-CBM-089B	4 OF 4	F-7	CHECK VALVE	2.000	1	C		CV	C O			4 4	
	HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE													
2-SI-236	11548-CBM-089B	4 OF 4	E-7	CHECK VALVE	2.000	1	C		CV	C O			4 4	
	HIGH HEAD SI TO RCS COLD LEG, INSIDE MISSILE BARRIER CHECK VALVE													
2-SI-237	11548-CBM-089B	4 OF 4	D-7	CHECK VALVE	2.000	1	C		CV	C O			4 4	

T-CV

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-	
2-SI-MOV-2867D	11548-CBM-089A	3 OF 3	E-6	MO GATE	3.000	2	A	CIV	EV	C		18			
										O		18			
									LT	C					
									ST	C		18			
										O		18			
									VP	OC					
	BORON INJECTION TANK OUTLET TO RCS COLD LEG, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SI-MOV-2869A	11548-CBM-089A	3 OF 3	C-7	MO GATE	3.000	2	A	CIV	EV	C		25			
										O		25			
									LT	C					
									ST	C		25			
										O		25			
									VP	OC					
	HIGH HEAD SI FROM CHARGING HEADER TO RCS HOT LEGS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SI-MOV-2869B	11548-CBM-089A	3 OF 3	E-4	MO GATE	3.000	2	A	CIV	EV	C		25			
										O		25			
									LT	C					
									ST	C		25			
										O		25			
									VP	OC					
	HIGH HEAD SI FROM CHARGING HEADER TO RCS HOT LEGS, OUTSIDE CONTAINMENT ISOLATION VALVE														
2-SI-MOV-2885A	11548-CBM-089A	2 OF 3	B-5	MO GATE	2.000	2	A		EV	C					
									LT	C	52				CN-1
									ST	C					
									VP	OC					
	"A" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
2-SI-MOV-2885B	11548-CBM-089A	2 OF 3	B-4	MO GATE	2.000	2	A		EV	C					
									LT	C	52				CN-1
									ST	C					
									VP	OC					
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
2-SI-MOV-2885C	11548-CBM-089A	2 OF 3	B-4	MO GATE	2.000	2	A		EV	C					
									LT	C	52				CN-1
									ST	C					
									VP	OC					
	"B" LOW HEAD SI PUMP MINIMUM FLOW/TEST LINE ISOLATION														
2-SI-MOV-2885D	11548-CBM-089A	2 OF 3	B-5	MO GATE	2.000	2	A		EV	C					
									LT	C	52				CN-1
									ST	C					
									VP	OC					

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
2-SW-108	11548-CBM-071B	1 OF 2	B-4	CHECK VALVE	2.000	3	C		CV	C O	 50			
	CHARGING PUMP SERVICE WATER PUMP CHECK VALVE													
2-SW-113	11548-CBM-071B	1 OF 2	B-7	CHECK VALVE	2.000	3	C		CV	C O	 50			
	CHARGING PUMP SERVICE WATER PUMP CHECK VALVE													
2-SW-206	11548-CBM-071A	3 OF 3	E-8	MAN GATE	2.000	2	AE	CIV	LT	C				
	CONTAINMENT ISOLATION VALVE FOR SERVICE WATER DRAINS TO HEAT EXCHANGER													
2-SW-208	11548-CBM-071A	3 OF 3	E-8	MAN GATE	2.000	2	AE	CIV	LT	C				
	CONTAINMENT ISOLATION VALVE FOR SERVICE WATER DRAINS TO HEAT EXCHANGER													
2-SW-246	11548-CBM-071A	3 OF 3	D-8	CHECK VALVE	3.000	NC	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE													
2-SW-247	11548-CBM-071A	3 OF 3	D-7	CHECK VALVE	3.000	3	C		CV	O	46			
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE													
2-SW-248	11548-CBM-071A	3 OF 3	D-7	CHECK VALVE	3.000	NC	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE													
2-SW-249	11548-CBM-071A	3 OF 3	D-6	CHECK VALVE	3.000	3	C		CV	O	46			
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE													
2-SW-250	11548-CBM-071A	3 OF 3	D-6	CHECK VALVE	3.000	NC	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE													
2-SW-251	11548-CBM-071A	3 OF 3	D-6	CHECK VALVE	3.000	3	C		CV	O	46			
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE													
2-SW-252	11548-CBM-071A	3 OF 3	D-5	CHECK VALVE	3.000	NC	C		CV	O				
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER RETURN VENT VALVE													
2-SW-253	11548-CBM-071A	3 OF 3	D-5	CHECK VALVE	3.000	3	C		CV	O	46			

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	RECIRCULATION SPRAY HEAT EXCHANGER SERVICE WATER SUPPLY VENT VALVE													
2-SW-442	11548-CBM-071B	1 OF 2	B-4	CHECK VALVE	2.000	3	C		CV	O	50			
	CHARGING PUMP SERVICE WATER PUMP DISCHARGE CHECK VALVE													
2-SW-445	11548-CBM-071B	1 OF 2	B-6	CHECK VALVE	2.000	3	C		CV	O	50			
	CHARGING PUMP SERVICE WATER PUMP DISCHARGE CHECK VALVE													
2-SW-MOV-201A	11548-CBM-071A	3 OF 3	B-4	MO BFLY	36.000	3	B		EV ST VP	C C OC				
	BEARING COOLING WATER HEAT EXCHANGER ISOLATION VALVE													
2-SW-MOV-201B	11548-CBM-071A	3 OF 3	B-4	MO BFLY	36.000	3	B		EV ST VP	C C OC				
	BEARING COOLING WATER HEAT EXCHANGER ISOLATION VALVE													
2-SW-MOV-202A	11548-CBM-071A	2 OF 3	D-6	MO BFLY	42.000	3	B		EV ST VP	C C OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO COMPONENT COOLING HEAT EXCHANGERS													
2-SW-MOV-202B	11548-CBM-071A	2 OF 3	D-5	MO BFLY	42.000	3	B		EV ST VP	C C OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO COMPONENT COOLING HEAT EXCHANGERS													
2-SW-MOV-203A	11548-CBM-071A	3 OF 3	B-8	MO BFLY	30.000	3	B		EV ST VP	O O OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS													
2-SW-MOV-203B	11548-CBM-071A	3 OF 3	B-8	MO BFLY	30.000	3	B		EV ST VP	O O OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS													
2-SW-MOV-203C	11548-CBM-071A	3 OF 3	B-3	MO BFLY	30.000	3	B		EV ST VP	O O OC				

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS													
2-SW-MOV-203D	11548-CBM-071A	3 OF 3	B-2	MO BFLY	30.000	3	B		EV	O				
									ST	O				
									VP	OC				
	SERVICE WATER HEADER SUPPLY ISOLATION TO RECIRC SPRAY HEAT EXCHANGERS													
2-SW-MOV-204A	11548-CBM-071A	3 OF 3	D-7	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER SUPPLY TO "A" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
2-SW-MOV-204B	11548-CBM-071A	3 OF 3	D-6	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER SUPPLY TO "B" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
2-SW-MOV-204C	11548-CBM-071A	3 OF 3	D-5	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER SUPPLY TO "C" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
2-SW-MOV-204D	11548-CBM-071A	3 OF 3	D-4	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER SUPPLY TO "D" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
2-SW-MOV-205A	11548-CBM-071A	3 OF 3	D-8	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER RETURN FROM "A" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
2-SW-MOV-205B	11548-CBM-071A	3 OF 3	D-7	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				

VALVE NUMBER	DRAWING NUMBER	SHEET NUMBER	DRWG COOR	VALVE TYPE	VALVE SIZE	ASME CLASS	IWV CAT	ISO VALVE TYPE	TEST TYPE	TEST POS	REL REQ V-	CS JUST CSV-	RR JUST RRV-	NC ALT TEST VCN-
	SERVICE WATER RETURN FROM "B" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
2-SW-MOV-205C	11548-CBM-071A	3 OF 3	D-6	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER RETURN FROM "C" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
2-SW-MOV-205D	11548-CBM-071A	3 OF 3	D-5	MO BFLY	24.000	3	B		EV	C O				
									ST	C O				
									VP	OC				
	SERVICE WATER RETURN FROM "D" RECIRC SPRAY HEAT EXCHANGER, OUTSIDE CONT ISOLATION VALVE													
2-SW-TCV-208A	11548-CBM-071B	1 OF 2	E-7	AO GATE	1.500	3	B		EV	O				
									FS	O				
									ST	O	47			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE													
2-SW-TCV-208B	11548-CBM-071B	1 OF 2	E-5	AO GATE	1.500	3	B		EV	O				
									FS	O				
									ST	O	47			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE													
2-SW-TCV-208C	11548-CBM-071B	1 OF 2	E-4	AO GATE	1.500	3	B		EV	O				
									FS	O				
									ST	O	47			
	SERVICE WATER TO CHARGING PUMP LUBE OIL COOLER TEMPERATURE CONTROL VALVE													

RELIEF REQUEST V-26

System : Safety Injection

Valve(s): 2-SI-107 2-SI-109
2-SI-128 2-SI-130
2-SI-145 2-SI-147

Category: C

Class : 1

Function: Accumulator Discharge Check

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Section 4.3.2.4(a) - This section states in part that, "The necessary valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat on cessation or reversal of flow, or opens to the position required to fulfill its function, as specified in para. 1.1, or both. Observation may be by observing a direct indicator such as a position indicating device, or by other indicator(s) such as changes in system pressure, flow rate, level, temperature, seat leakage testing or other positive means." This section implies that the techniques used to verify obturator movement be applied to every valve on a test frequency that is practical.

Basis For Request

Exercise to the Open Position

Non-intrusive techniques are used to verify obturator movement for the SI accumulator discharge check valves. These techniques provide a "positive means" for verifying obturator movement, however, due to the burden of applying these techniques in the field, a sampling program will be used as described in the alternate testing section.

Exercise to the Closed Position

Valves 2-SI-107 and 109, 2-SI-128 and 130, and 2-SI-145 and 147 perform as pairs of valves in series to isolate the accumulators from the reactor coolant system. The downstream valves, 2-SI-109, 130 and 147 were previously chosen as the isolation valves and were subject to back seat tests while the other valves were

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considered as backup valves and were not subject to back seat tests. The other set of valves cannot be individually back seated with the current piping configuration. Testing experience has shown that a severe water hammer can be produced by attempting to individually test the downstream isolation valve.

To individually test these valves, a reactor coolant system pressure in excess of 1000 psi was needed to properly seat the valves. The line upstream was then vented using a 3/4 inch sample line. Flow in the sample line was monitored to verify that the check valve seated. Also, the accumulator was isolated by the upstream motor operated isolation valve.

During one test, a steam bubble was created in the volume of pipe upstream of the check valve due to the initial high pressure and temperature in the line, and due to the subsequent venting of the line and the flashing of water to steam. When the motor operated isolation valve was opened following the test to restore the accumulator to service, a severe water hammer was created by the collapsing steam bubble. Although less severe hydraulic transients had been observed in previous tests, the potential for system damage became obvious after this test.

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Other test methodologies were evaluated to determine if valve closure could be verified while reducing or eliminating the possibility of creating another water hammer event. For example, testing at a lower reactor coolant temperature and pressure reduces the amount of water flashing to steam. However, testing has shown that the check valves do not seat properly at reactor coolant system pressures less then 1000 psi. It was concluded that with the current system configuration, a test could not be designed that would meet these criteria.

Treating the check valves as a pair of isolation valves would eliminate the possibility of creating a water hammer event through testing. The accumulators have level indicators and high/low tank level alarms in the control room. Therefore, during normal operation the accumulator level is constantly monitored to ensure that one out of two check valves is seated properly to prevent in leakage from the reactor coolant system.

Alternate Testing Proposed

Exercise to the Open Position

During the first refueling outage where non-intrusive techniques are used, all valves in the group will be tested to verify that the techniques verify valve obturator movement. During subsequent refueling outages, flow testing will be performed on all valves in the group, but the non-intrusive techniques need be applied only to one valve in each group, on a rotating basis, unless indications of problems are identified. In this case, all valves in the group will be subjected to the non-intrusive techniques. The test frequency is in accordance with Generic Letter 89-04, Position 2.

Valves 2-SI-130 and 147 are in one group and valves 2-SI-107, 109, 128 and 145 are in the other group. Because 2-SI-130 and 147 are downstream from where RHR connects to the SI line, they experience different service conditions than the other valves.

The justification for testing these valves during reactor refuelings was moved to Reactor Refueling Justification RRV-3

Exercise to the Closed Position

Valves 2-SI-107 and 109, 2-SI-128 and 130, and 2-SI-145 and 147 perform as pairs of valves in series to isolate the accumulators from the reactor coolant system. Monitoring the accumulator level during normal operation will be an adequate demonstration that one out of two valves in series is seating properly. If leakage past both valves in series to the accumulators becomes unacceptable for normal operation, both valves will be declared inoperable. The check valves will not be individually tested to the closed position.

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RELIEF REQUEST V-50

System : Service Water

Valve(s): 2-SW-108 2-SW-442
2-SW-113 2-SW-445

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Category: C

Class : 3 (2-SW-108,113,442,445)

Function: Charging Pump Service Water Pump discharge Check Valves

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Paragraph 4.3.2.4(c) reads in part that, "disassembly every refueling outage to verify operability of check valves may be used." This sentence implies that each valve in the group given above must be disassembled every refueling outage.

Basis For Request

The design basis for the charging pump service water system is currently undergoing reevaluation. A full flow acceptance criteria will not be avaliable until this reevaluation is complete.

These check valves can be disassembled while the plant is operating. To allow for flexibility in planning for refueling outages and still meet the intent of OM Part 10, the valves will be disassembled on a reactor refueling frequency but not necessarily during refueling outages.

Alternate Testing Proposed

These valves will be placed into two groups and one valve from each group will be disassembled and inspected on a reactor refueling frequency. A different valve will be disassembled for each inspection. Valves 2-SW-108 and 113 will be in one group, and valves 2-SW-442 and 445 will be in the other group. If a valve fails its inspection, the remaining valves in the group will be disassembled and inspected. The check valves will be partial stroke tested every three months. This test frequency is in accordance with Generic Letter 89-04, Position 2.

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RELIEF REQUEST V-52

System : Chemical and Volume Control and Safety Injection

Valve(s):

2-CH-LCV-2115B	2-SI-MOV-2885A
2-CH-LCV-2115D	2-SI-MOV-2885B
2-SI-25	2-SI-MOV-2885C
	2-SI-MOV-2885D

Category: A and A/C

Class : 2

Function: RWST Isolation Valves

OM Part 10 Code Requirements
For Which Relief Is Requested

OM Part 10, Section 4.2.2.3(f) - Valves or valve combinations with leakage rates exceeding the values specified by the Owner in (e) above shall be declared inoperable and be either repaired or replaced.

Basis For Request

Valves 2-CH-LCV-2115B and D, and 2-SI-25 are in the supply line to the charging pumps from the RWST. Valves 2-SI-MOV-2885A, B, C and D are on test lines that run from the discharge of the low head SI pumps to the RWST. During recirculation mode transfer, the RWST is isolated and the low head SI pumps recirculate highly contaminated water from the containment sump to the reactor vessel.

The RWST isolation valves work as a system of valves to protect the RWST from the contaminated sump water. Permissible valve leakage rates are based on each valve's possible contribution to the total allowable leakage rate to the RWST. When the leakages from each valve have been measured and summed, an individual valve's permissible leakage rate may have been exceeded but the overall allowable leakage to the RWST may not have been exceeded. In these cases, a repair or replacement may not be necessary because the system of isolation valves has been verified to be performing adequately.

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Alternate Testing Proposed

In addition to repair or replacement as corrective actions, an evaluation can be performed which demonstrates that even if a valve has exceeded its permissible leakage rate, the overall leakage rate to the RWST will be maintained below the overall allowable RWST leakage rate. No repair or replacement is necessary if the evaluation is performed.

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COLD SHUTDOWN JUSTIFICATION CSV-29

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Cold Shutdown Justification Withdrawn

COLD SHUTDOWN JUSTIFICATION CSV-32

System : Main Steam

Valve(s): 2-MS-NRV-201A
2-MS-NRV-201B
2-MS-NRV-201C

Category: C

Class : NC

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Function: Main Steam Non-Return Valves

Cold Shutdown Justification

Valve Description

The main steam non-return valves (NRVs) at Surry Power Station are located in the main steam valve house and are a globe type stop check design. The valves measure approximately 16 feet from the bottom of the valve body to the top of the hand wheel and weigh almost 18,000 lbs. The disk is welded to a hollow piston and the whole assembly is free to move about 25 vertical inches within the valve body cylinder. The disk measures 25.5 inches across and the disk and piston assembly weighs approximately 1,200 lbs. When the main steam system is not inservice, a motor operator is used to run the valve stem down onto the disk to secure the main steam line.

The valves open to allow steam to the turbine. For accident conditions, the non-return valves in conjunction with the main steam trip valves prevent the blowdown of more than one steam generator for any break location, even if one valve fails to close. For example, for a break upstream of the trip valve in one line, the closure of either the non-return valve in that line or the trip valves in the other lines prevents the blowdown of the other steam generators.

Method of Testing

The piping downstream of each non-return valve leads to a common distribution manifold and cannot be isolated. Therefore, performing a back seat test using flow is not practical. Also, valve disassembly and inspection are not practical alternatives due to the size of the valve and the weight of the disk.

REACTOR REFUELING JUSTIFICATION RRV-3

System : Safety Injection

Valve(s): 2-SI-107 2-SI-109
2-SI-128 2-SI-130
2-SI-145 2-SI-147

Category: C

Class : 1

Function: Accumulator Discharge Check

Reactor Refueling Justification

These valves cannot be partial or full flow tested during normal operation because the accumulator pressure (600 to 650 psig) is below Reactor Coolant System pressure and the injection of borated water would upset the reactor coolant chemistry. During cold shutdown, the RCS pressure still prevents full flow testing.

To achieve full flow through the valves during reactor refueling, the accumulator would have to be discharged from an initial pressure of 600 psig. Discharging the accumulator from this pressure would stress the piping system and inject nitrogen into the RCS. Nitrogen in the RCS has been linked to gas binding of the RHR pumps. However, the accumulator can be discharged from a lower pressure during reactor refuelings when the RCS is depressurized. At this pressure, full flow conditions will not be established; however, enough flow will be developed to open the check valves to the full open position. This event can be verified and documented using non-intrusive diagnostic techniques.

A partial flow test is not practical during cold shutdowns. The flow from the accumulator is dependent on the pressure differential between the accumulator and the RCS. The pressure differential cannot be controlled to the fine degree necessary to preclude dumping too much water into the pressurizer, thus making it difficult to control pressurizer level while pressure is being reduced during cooldown. Also, dumping cold accumulator water into the RCS could thermally shock the system.

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Testing Frequency

Non-intrusive diagnostic techniques will be used to determine that the check valves open to the full open position. A sampling program will be applied to the non-intrusive techniques as described in Relief Request V-26.

REACTOR REFUELING JUSTIFICATION RRV-5

System : RWST Cross Tie

Valve(s): 2-SI-25
2-SI-400

Category: C

Class : 2

Function: Charging Pump Suction from RWST Cross Tie

Reactor Refueling Justification

Exercising these valves during power operation would require the charging pump suctions to be aligned with the refueling water storage tank. This would cause a sudden increase in reactor coolant boron inventory.

Full flow for the charging system can only be established during reactor refueling when the RCS is depressurized.

Valve 2-SI-25 must close to preserve inventory from the Unit 1 RWST when the cross tie lines are opened. This valve is also subject to leak testing, which is performed every reactor refueling. Verification of closure will be performed during the leak test every reactor refueling instead of every cold shutdown because the small increase in safety gained by testing during cold shutdown does not justify performing a leak rate test. CN-1

Testing Frequency

These valves will partial flow tested during every cold shutdown and full flow tested during every reactor refueling.

Valve 2-SI-25 will be exercised to the closed position every refueling outage. CN-1