SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

HOUSTON LIGHTING AND POWER COMPANY

UNIT 2 PUMP AND VALVE INSERVICE TEST PLAN

Approved by:

Plant Manager

Plant Manager

Date

Revision 2

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1.0 INTRODUCTION

1.1 General

This document is prepared in accordance with the requirements of the Code of Federal Regulations 10CFR50.55a(g). Regulatory Guide 1.26, Revision 3. was used for safety-related classification determination for the pumps included in this plan. Draft Regulatory Guide, Task MS 901-4, "Identification of Valves for Inclusion in Inservice Testing Programs", was used as guidance for determining the valves subject to the testing requirements of Subsection IWV of the ASME Boiler and Pressure Vessel Code.

1.2 Scope

This document provides a description of the pump and valve inservice testing plan for the South Texas Project Electric Generating Station Unit 2 prepared in accordance with the requirements of Subsections IWP and IWV of the ASME Boiler and Pressure Vessel Code Section XI, 1983 Edition through Summer 1983 Addenda. This plan is referenced by South Texas Project Electric Generating Station Unit 2 Technical Specification 4.0.5. 1.3 Effective Period

This document shall go into effect prior to fuel load and shall them remain in effect through the first 120 month interval of commercial operation. 1.4 Plan Revisions

As a minimum, this plan will be reviewed and revised as necessary for compliance with the ASME code in effect 12 months prior to the end of the first 120 months of commercial operation. Similarly, this plan will be reviewed and revised for each subsequent 120 month interval. Houston Lighting and Power Company reserves the right to submit plan revisions which may enhance or improve this pump and valve inservice test plan at any time within the effective period.

1.0 INTRODUCTION

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2.0 INSERVICE TESTING OF PUMPS

The table "Unit 2 IST Pump List" describes the inservice test plan for pumps subject to the requirements of Subsection IWP of the ASME Boiler and Pressure Vessel Code Section XI, 1983 Edition through Summer 1983 Addenda. The table provides the following information:

- a. Identification of the pumps to be tested,
- b. Applicable ASME code class,
- c. PAID and PAID grid coordinates (See Section 4.0. Drawings),
- d. Test parameters to be measured,
- e. Test interval.
- f. Relief requests,
- g. Remarks.

Relief from the requirements of Section XI is requested where full compliance with the code is not practical. In such cases, specific information is provided in Section 2.1 which identifies the applicable code requirements, justification for the relief request, and the alternate testing to be performed.

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Unit 2 IST Pump List Auxiliary Feedwater - AF

Pump Identification	Code Class	P&ID	P&ID Grid Coordinates		Measured Test Parameters	Test Interval	Relief Requests	Remarks
Auxiliary Feedwater	3	F00024	F7	1.	Inlet Pressure (Pi)	Quarterly	-	
Pump 21				2.	Outlet Pressure (Po)	Quarterly	-	
Auxiliary Feedwater Pump 22	3	F00024	D7	3.	Differential Pressure (△P = Po-Pi)	 Quarterly	-	
				4.	Flow Rate (Q)	Quarterly	-	
Auxiliary Feedwater Pump 23	3	F00024	B7	5.	Vibration Amplitude (V)	Quarterly	RR4, RR6	
				6.	Bearing Temperature (Tb)	Annually	RR7	
				7.	Lubricant Level or Pressure	Observe Quarterly	-	
				8.	Speed (N)	Not Applicable	-	

Unit 2 IST Pump List Auxiliary Feedwater - AF

Pump Identification	Code Class	P&ID	P&ID Grid Coordinates		Measured Test Parameters	Test Interval	Relief	Remarks
Auxiliary Feedwater Pump 24	3	F00024	Н7	1.	Inlet Pressure (Pi)	Quarterly	-	
rump 24				2.	Outlet Pressure (Po)	Quarterly	-	
				3.	Differential Pressure (△P = Po-Pi)	Quarterly	-	
				4.	Flow Rate (Q)	Quarterly	-	
				5.	Vibration Amplitude (V)	Quarterly	RR4, RR6	
				6.	Bearing Temperature (10)	Annually	RR7	
				7.	Lubricant Level or Pressure	Observe Quarterly	-	
				8.	Speed (N)	Quarterly	-	

Unit 2 IST Pump List Component Cooling Water - CC

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Pump Identification	ASME Code Class	P&ID	P&ID Grid Coordinates	Measured Test Parameters	Test Interval	Relief	Remarks
Component Cooling Water Pump 2A	3	F05017	B7	l 1. Inlet Pressure (Pi)	Quarterly	-	
				2. Outlet Pressure (Po)	Quarterly	- !!	
Component Cooling Water Pump 2B	3	F05018	B7	3. Differential Pressure (△P = Po-Pi)	Quarterly	-	
				4. Flow Rate (Q)	Quarterly	-	
Component Cooling Water Pump 2C	3	F05019	B7	5. Vibration Amplitude (V)	Quarterly	RR4, RR6	
				6. Bearing Temperature (To)	Annually	RR7	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed (N)	Not Applicable	-	

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Unit 2 IST Pump List Essential Chilled Water - CH

Pump Identification	ASME Code Class	P&ID	P&ID Grid Coordinates	<u> </u>	Measured Test Parameters	Test Interval	Relief	Remarks
Essential Chilled Water Pump 21 A	3	V10001	F7	1.	Inlet Pressure (Pi)	Quarterly	-	
				1 2.	Outlet Pressure (Po)	Quarterly	-	
Essential Chilled Water Pump 21 B	3	V10001	D7	3.	Differential Pressure (△P = Po-Pi)	Quarterly	-	
				4.	Flow Rate (Q)	Quarterly	-	
Essential Chilled Water Pump 21 C	3	V10001	A7	5.	Vibration Amplitude (V)	Quarterly	RR4, RE6	
				6.	Bearing Temperature (Tb)	Annually	RR7	
				7.	Lubricant Level or Pressure	Observe Quarterly	-	
				8.	Speed (N)	Not Applicable	-	

Unit 2 IST Pump List Containment Spray - CS

Pump Identification	ASME Code Class	P&ID	P&ID Grid Coordinates	-	Measured Test Parameters	Test Interval	Relief Requests	Remarks
Containment Spray Pump 2A	2	F05037	G3	1	Inlet Pressure (Pi)	 Quarterly 	-	
				1 2.	Outlet Pressure (Po)	Quarterly	-	
Containment Spray Pump 2B	2	F05037	E3	3.	Differential Pressure (△P = Po-Pi)	Quarterly	- 	
Containment Spray	2	F05037	С3	4.	Flow Rate (Q)	Quarterly	-	
Pump 2C				5.	Vibration Amplitude (V)	Quarterly	PR4, RR6	
				6.	Bearing Temperature (Tb)	Not Applicable	RR1	
				7.	Lubricant Level or Pressure	Not Applicable	RR1	
				8.	Speed (N)	Not Applicable	-	

Unit 2 IST Pump List Chemical and Volume Control - CV

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Pump Identification	ASME Code Class	P&ID	P&ID Grid Coordinates		Measured Test Parameters	Test Interval	Relief Requests	Remarks
Boric Acid Transfer Pump 2A	3	F05009	D5	1		Quarterly	-	
Boric Acid Transfer Pump 2B	3	F05009	C5	1	Outlet Pressure (Po) Differential Pressure ($\triangle P = Po-Pi$)	Quarterly Quarterly	-	
				4.	Flow Rate (Q)	Quarterly	-	
				5.	Vibration Amplitude (V)	Quarterly	RR4, RR6	
				6.	Bearing Temperature (Tb)	Not Applicable	RR1	
				7.	Lubricant Level or Pressure	Not Applicable	RR1	
				8.	Speed (N)	Not Applicable	-	

Unit 2 IST Pump List Chemical and Volume Control - CV

Pump Identification	Code Class	PEID	P&ID Grid Coordinates		Measured Test Parameters	Test Interval	Relief Requests	Remarks
Centrifugal Charging Pump 2A	2	F05007	D5	1.	Inlet Pressure (Pi)	Quarterly	-	
Charging rump 2n	1 1			2.	Outlet Pressure (Po)	Quarterly	-	
Centrifugal Charging Pump 2B	2	F05007	B5	3.	Differential Pressure (△P = Po-Pi)	Quarterly	-	
				4.	Flow Rate (Q)	Quarterly	-	
				5.	Vibration Amplitude (V)	Quarterly	RR4, RR5	
				6.	Bearing Temperature (Tb)	Annually	RR7	
				7.	Lubricant Level or Pressure	Observe Quarterly	-	
				8.	Speed (N)	Not Applicable	-	

Unit 2 IST Pump List Essential Cooling Water - EW

Pump Identification	ASME Code Class	P&ID	P&ID Grid Coordinates		Measured Test Parameters	Test Interval	Relief Requests	Remarks
Essential Cooling Water Pump 2A	3	F05038	G3	1	Inlet Pressure (Pi) Outlet Pressure (Po)	Quarterly	RR2	
Essential Cooling Water Pump 2B	3	F05038	E3	1	Differential Pressure (△P = Po-Pi)	 Quarterly	RR2	
Essential Cooling	3	F05038	B3	1	Flow Rate (Q) Vibration Amplitude (V)	Quarterly	- -	
Water Pump 2C				1	Bearing Temperature (Tb)	1	RR1	
				7.	Lubricant Level or Pressure	Not Applicable	RR1	
				8.	Speed (N)	Not Applicable	-	

Unit 2 IST Pump List Essential Cooling Water - EW

Pump Identification	Code Class	P&ID	P&ID Grid Coordinates		Measured Test Parameters	Test Interval	Relief Requests	Remarks
Essential Cooling	3	F05039	D7	1.	Inlet Pressure (Pi)	Quarterly	-	
Booster Pump 2A	1			2.	Outlet Pressure (Po)	Quarterly	-	
Essential Cooling Water Screen Wash	3	F05039	D4	3.	Differential Pressure (△P = Po-Pi)	Quarterly	-	
Booster Pump 2B	1 1			4.	Flow Rate (Q)	Quarterly	- 11	
Essential Cooling Water Screen Wash Booster Pump 2C	3	F05039	D2	5.	Vibration Amplitude (V)	 Quarterly	RR4, RR6	
Booster rump 20	1 1			6.	Bearing Temperature (Tb)	Annually	RR7	
				7.	Lubricant Level or Pressure	Observe Quarterly	-	
	1 1			8.	Speed (N)	Not Applicable	i - ii	

Unit 2 IST Pump List Residual Heat Removal - RH

Pump Identification	ASME Code Class	PEID	PSID Grid Coordinates	And the same of the same of	Measured t Parameters	Test Interval	Relief Requests	Remarks
Residual Reat Removal Pump 2A	2	£20000	B6		Pressure (Pi)	Quarterly Quarterly	-	
Residual Heat Removal Pump 2B	2	F20000	D6	3. Differ	ential Pressure Po-Pi)	Not Applicable	- 11	
Residual Heat Removal Pump 2C	2	F2000G	G6	4. Flow F	tate (Q)	Quarterly	- RR4. RR5	
				1	g Temperature (Tb)	1	RP1	
				7. Lubric	ant Level or	Not Applicable	RR1	
				a. Speed	(■)	Not Applicable	-	

Unit 2 IST Pump List Safety Injection - SI

Pump Identification	ASME Code Class	PEID	Grid Coordinates	Measured Test Parameters	Test Interval	Relief	Remarks
High Head Safety Injection Pump 2A	2	F05013	F4	1. Inlet Pressure (Pi) 2. Outlet Pressure (Po)	Quarterly Quarterly	- 11	
High Head Safety Injection Pump 2B	2	F05014	G3	3. Differential Pressure (△P = Po-Pi)	Quarterly	F93	
High Head Safety Injection Pump 2C	2	F05015	F3	4. Flow Rate (Q) 5. Vibration Amplitude (V)	Quarterly Quarterly	RR3 	
				6. Bearing Temperature (Tb)	1	RR1	
				7. Jubricant Level or Pressure	Not Applicable	RR1	
				8. Speed (N)	Not Applicable	-	

Unit 2 IST Pump List Safety Injection - SI

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Pump Identification	Code Class	P&ID	P&ID Grid Coordinates	Measured Test Paramet	Test Interval	Relief	Remarks
Low Head Safety Injection Pump 2A	2	F05013	сз	1. Inlet Pressure		-	
Low Head Safety Injection Pump 2B	2	F05014	D3	 Outlet Pressure Differential Pr (△P = Po-Pi) 		RR3	
Low Head Safety Injection Pump 2C	2	F05015	D3	4. Flow Rate (Q) 5. Vibration Ampli	Quarterly tude (V) Quarterly	1 11	
				6. Bearing Tempera		RR1	
				7. Lubricant Level Pressure	or Not Applicable	RR1	
				8. Sp∞ed (N)	Not Applicable	. -	

2.1 Requests for Relief from ASME Boiler and Pressure Versel Code Section XI Requirements

RRI

Test Requirement

Table IWP-3100-1 requires that proper lubricant level or pressure be observed and bearing temperature be measured during each inservice test.

Basis for Relief

The bearings of the Containment Spray Pumps, the Boric Acid Transfer Pumps, the Essential Cooling Water Pumps, the Residual Heat Removal Pumps, the High Head Safety Injection Pumps, and the Low Head Safety Injection Pumps are lubricated and cooled by the pumped fluid making it impractical to verify proper lubricant level or pressure and measure bearing temperature.

Alternate Testing

Lubricant level or pressure will not be observed and bearing temperature will not be measured for these pumps.

RR2

Test Requirement

IWP-4200 requires direct measurement of pressure.

Basis for Relief

The Essential Cooling Water Pumps are vertical submerged suction centrifugal pumps with no direct means to measure inlet pressure as required.

Alternate Testing

The inlet pressure will be calculated based on the water level above the pump inlet.

RR3

Test Requirement

IWP-3100 requires that the resistance of the system shall be varied until either the measured differential pressure or the measured flow rate equals the corresponding reference value.

Basis for Relief

Both the High Head Safety Injection Pumps and the Low Head Safety Injection Pumps have a recirculation flow path containing a restricting orifice which limits flow through the recirculation line to a specific, fixed flow rate. When these pumps are tested using their respective fixed-resistance flow paths, the flow rates will be approximately the same each time the tests are conducted.

Alternate Testing

Pump testing will be performed using the fixed-resistance flow paths. The measured differential pressure will be compared to the allowable ranges given in Table IWP-3100-2 in order to determine pump operability.

RR4

Test Requirement

IWP-4120 requires the full scale range of each instrument to be three times the reference value or less.

Basis for Relief

Portable vibration indicators have selectable ranges in overlapping scales (multiples of 1 and 3 full scale). It is possible to have an indicated vibration which, in order to read on an available scale, will not be in the range of the instrument required by IWP-4120.

Alternate Testing

The portable vibration indicators, which provide overall readout repeatability within the accuracy limits of Table IWP-4110-1, will be used to obtain vibration data except when permanently installed instrumentation is used.

RR5

Test Requirement

IWP-4120 requires the full scale range of each instrument to be three times the reference value or less.

Basis for Relief

The Centrifugal Charging Pumps (located in the Mechanical Auxiliary Building) and the Residual Heat Removal Pumps (located in the Reactor Containment Building) are in areas of high radiation. For ALARA considerations, the Vibration Monitoring System (located in the Control Room) is used to measure vibration amplitude. The vibration monitoring system is an online system which constantly monitors the machine and provides alarms when alert limits are reached. The full scale range of each instrument is fixed and the above requirement could be exceeded. Rescaling the instrument to meet the requirements of IWP-4120 for a low reference value would impair the ability of the system to monitor the machine up to the severity limit determined by size, speed and application.

Alternate Testing

The Vibration Monitoring System will be used to obtain vibration data for the Residual Heat Removal and Centrifugal Charging Pumps. The system provides overall readout repeatability within the accuracy limits specified in Table IWP-4110-1 with indication in increments of at least 0.2 mils. If the Vibration Monitoring System is unavailable, portable vibration indicators will be used as described in RR4.

RR6

Test Requirement

IWP-4510 requires at least one displacement vibration amplitude shall be read during each inservice test. Table IWP-3100-2 defines the allowable range of vibration based on displacement amplitude.

Basis for Relief

The use of a velocity standard, rather than a displacement standard, is more indicative of jump condition and is industry accepted.

Alternate Testing

At least one velocity vibration measurement (in/sec unfiltered peak) shell be read during each inservice test. The frequency response range of the vibration measuring transducers and the readout system shall be from one-half minimum pump shaft rotational speed to at least 1,000 Hertz with an accuracy of at least ± 5%. All other requirements of IWP-4510 and IWP-4520 shall be complied with. Allowable ranges of vibration velocity for pump testing shall be as follows:

	Test Quantity	Acceptable Range	Alert Range	Required Action
1.	V, when	0 to 0.075	0.075 to 0.1	>0.1
	04V _{r1} 40.05	in/sec	in/sec	in/sec
	in/sec			
2.	V _t when	0 to 0.15	0.15 to 0.2	>0.2
	0.05 \ v_r2 \ 0.1	in/sec	in/sec	in/sec
	in/sec			
3.	V _t when	0 to 0.2	0.2 to 0.25	>0.25
	0.14V _{r3} 40.15	in/sec	in/sec	in/sec
	in/sec			
4.	V _t when	0 to 0.285	0.285 to 0.314	>0.314
	0.15 V .4 CO.25	in/sec	in/sec	in/sec
	in/sec			

Definitions: V_r = Reference velocity measurement (in/sec unfiltered peak)

V_t = Surveillance test velocity measurement (in/sec unfiltered peak) RR7

Test Requirement

IWP-3300 requires a bearing temperature measurement at least once a year.

Basis for Relief

The yearly temperature measurement will not provide significant information about pump conditions. Industry experience has shown that bearing temperature changes caused by degrading bearings occur only after major degradation has occurred at the pump. Prior to this major pump degradation, the vibration measurement would provide the necessary information to warn of an impending malfunction. Deletion of this measurement will not have a significant effect on pump evaluation since vibration amplitude is measured quarterly.

Alternate Testing

Vibration velocity, as described in RR6, will be measured quarterly in lieu of bearing temperature measurement for all pumps which would require bearing temperature measurement per IWP-4310 except the Centrifugal Charging Pumps. The Centrifugal Charging Pumps, due to ALARA considerations, will have vibration measured quarterly using remote instrumentation which provides only vibration displacement.

3.0 INSERVICE TESTING OF VALVES

The table "Unit 2 IST Valve List" describes the inservice test plan for valves subject to the requirements of Subsection IWV of the ASKE Boiler and Pressure Vessel Code Section XI, 1983 Edition through Summer 1983 Addenda. The table provides the following information:

- a. Identification of the valves to be tested.
- b. Description of valve function,
- c. Applicable ASME code class.
- d. Palb and Palb grid coordinates (See Section 4.0, Drawings).
- e. Section XI valve category,
- f. Valve size.
- g. Valve type,
- h. Valve actuator type.
- i. Normal position during power operation,
- j. Failure position,
- k. Test requirements and alternate testing.
- 1. Relief requests and/or clarification (if necessary).
- m. Stroke time limit (if applicable).

Relief from the requirements of Section XI is requested where full compliance with the code is not practical. In such cases, specific information is provided in Section 3.1 which identifies the applicable code requirements, justification for the relief request, and the alternate testing to be performed. In certain cases, relief is not requested, but the code-required testing is performed in an unusual or complicated manner. In such cases, clarifications are provided in Section 3.1 to explain the actual testing method to be used.

Some valves have a fail-safe position. Valves which fail open or fail closed are tested to their failure positions during the exercising tests. The test method used meets the requirements of IWV-3415 in every case, since remote valve control switch operation removes actuator power from each fail-safe valve.

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Rapid-acting valves are valves which have very short stroke times less than or equal to 2 seconds, and are not trended in accordance with IWV-3417(a). Instead, stroke times are compared to the specified stroke time limits not to exceed 2 seconds and corrective actions (if required) are taken in accordance with IWV-3417(b).

Unit 2 IST Valve List Legend

VALVE ID - Valve Identification

The alphanumeric valve designator used as a unique identifier for each valve.

VALVE FUNCTION - Valve Function Description

A brief description of the function of each valve.

CL - Code Class

The appropriate ASME code classification (Salety Class 1,2,3 or NS (Non-Safety Related)) for each valve.

PAID - Piping and Instrumentation Diagram

The P&ID showing the location of each valve in the system (See Section 4.0, Drawings).

GC - P&ID Grid Coordinates

The grid coordinates describing where each valve appears on each P&ID.

CAT- Section XI Category

The category applicable to each valve per IWV-2200.

SIZE - Valve Size

The size of the valve (inside diameter) in inches.

TYPE - Valve Type

The type of valve described by the following:

A = Angle

ARC= Auto Recirc Check

B = Butterfly

BL = Ball

CK = Check

D = Diaphragm

GL = Globe

GT = Gate

PR = Pressure Relief or Safety

SCK= Stop Check

ACT - Actuator Type

The type of actuator on each valve described by the following:

AO = Air Operated

HO = Hydraulic Operated

M = Manual

MO = Motor Operated

SA = Self/System Actuated

SO = Solenoid Operated

NORM. POS. - Normal Position

The normal position of each valve during power operation described by the following:

NC = Normally Closed

NO = Normaily Open

NI = Normally Intermittent (Open or Closed)

NT = Normally Throttled or Controlling

FAIL POS. - Feil-safe Position

The position of each valve when actuator power or air is secured as described by the following:

FC = Fails Closed

FO = Fails Open

FAI = Fails As Is

- = Not Applicable

TEST REQUIREMENT - Test Requirements (Alternate Testing)

The test requirements (or alternate testing) required for each valve as described by the following:

- CV = Exercise check valves to the position required to fulfill their function at least once every three (3) months.
- LT = Valves are leak tested per Appendix J to 10CFR50 at each refueling outage or by alternate testing method.
- MT = Stroke time measurements are taken and compared to the stroke time limiting value per Section XI Article IWV-3410.

- Exercise valves (full stroke) for operability at least once every three (3) months except when the other train(s) of a redundant system are inoperable. Nonredundant valves in the remaining train(s) should not be cycled if their failure would cause a total loss of system function.
- R = Remote valve position indicator is used during valve stroking and must be calibrated at least once every two (2) years.
- SRV = Safety and relief valves are tested per Section XI Article IWV-3510.
- (CP) = Containment Purge Valves are leak tested per plant Technical Specifications.
- (CS) = Exercise valve (full stroke) for operability during each cold shutdown and at each refueling outage. In case of frequent cold shutdowns, valve testing is not required to be performed more often than once every three (3) months.

Valve testing will commence not later than 48 hours after an unscheduled cold shutdown and continue until complete or until plant is ready to return to power. Completion of all valve testing is not a prerequisite to return to power. Any testing not completed at one cold shutdown should be performed during the subsequent cold shutdowns to meet the code-specified testing frequency.

- (CSDI)= Exercise valve (partial stroke) for operability at each cold shutdown not to exceed once every three (3) months and disassemble and inspect check valve at each refueling outage.
- (CSP)= Exercise valve (partial stroke) for operability at least once every three (3) months and exercise valve (full stroke) at each cold shutdown not to exceed once every three (3) months.
- (CSR)= Exercise valve (partial stroke) for operability at each cold shutdown not to exceed once every three (3) months and exercise valve (full stroke) at each refueling outage.
- (DI) = Disassemble and inspect check valve at each refueling outage.
- (NA) = No cesting required.
- (NST) = No stroke time measurements are taken.
- (NT) = Stroke time not trended due to very short stroke times (valves are classified as rapid-acting).

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- (PIV) = Reactor Coolant System Pressure Isolation Valves are leak tested per plant Technical Specifications.
- (PO) = Valve seat leak tightness is demonstrated during normal plant operation.
- (PRR)= Exercise valve (partial stroke) for operability at least once every three (3) months and exercise valve (full stroke) at each refueling outage.
- (PRS)= Exercise valve (partial stroke) for operability at least once every three (3) months providing RCS pressure is greater than pump shutoff head and exercise valve (full stroke) at each refueling outage.
- (RR) = Exercise valve (full stroke) for operability at each refueling outage not to exceed once every two (2) years.

RR/C - Relief Request/Clarification

The appropriate relief request for each valve when alternate testing is proposed or clarification of testing method if required (See Section 3.1).

ST - Stroke Time

The close and open stroke time limiting value for power-operated valves in seconds.

Unit 2 IST Valve List Auxiliary Feedwater - AF

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		1 1		1	1	1			NORM.	FAIL	TEST		S	T
VALVE ID	VALVE FUNCTION	CL	PEID	GC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	10
AF-0036	AFW Pump No.21 Auto Recirc.	3	F00024	F6	c	4	ARC	SA	NC		CV			<u> </u>
AF-0058	AFW Pump No.22 Auto Recirc.	3	F00024	D6	c	4	ARC	SA	NC		C V			<u> </u>
AF-0091	AFW Pump No.23 Auto Recirc.	3	F00024	B6	c	4	ARC	SA	NC.		CV		ļ	-
AF-0011	AFW Pump Bo.24 Auto Recirc.	3	F00024	H5	c	4	ARC	SA	RC.	<u> </u>	СУ		l	İ
		1 1		1	1					1				
FV-7517	AFW Pump No.21 Disch.Crosstie	3	F00024	F4	В	4	GL	AO	BC	FC	Q.R.HT		10	ļ
FV-7516	AFW Pump No.22 Disch.Crosstie	3	F00024	D4	В	4	GL	AO	NC	FC	Q.R.HT		10	-
CV-7515	AFW Pump No.23 Disch.Crosstie	3	F00024	B4	В	4	GL	AO	NC	FC	Q.R.HT		10	
FV-7518	AFW Pump No.24 Disch.Crosstie	3	F00024	G4	B	1 4	GL	AO	NC.	FC	Q.R.MT		10	!
Prior .														
FV-7525	AFW Pump No.21 Disch.Control	3	F90024	F4	В	4	GL	HO	NO	FAI	Q.R.HT		55	5:
FV-7524	AFW Pump No.22 Disch.Control	3	F00024	D4	B	4	GL	MO	NO	FAI	Q.R.MT		57	5
FV-7523	AFW Pump No.23 Disch.Control	3	F00024	B4	В	4	GL	HO	NO_	FAI	Q.R.HT		158	158
FV-7526	AFW Pump No.24 Disch.Control	3	F00024	НЗ	В	4	GL	HO	NO	FAI	Q.R.HT		150	141

Unit 2 IST Valve List Auxiliary Feedwater - AF

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								_	NORM.	PAIL	NORM. FAIL TEST		ST	J
VALVE ID	VALVE FUNCTION	13	PEID	30	CAT	SIZE	TAPE	ACT	POS.	POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C O	ER/C	U	9
OV-0048 A	MOV-0048 AFW Pump No.21 Disch.Stop Ck.		F00024	122	BC	*	SCK	NO.	NG.	FAI	2 F00024 FZ BC 4 SCK NO BC FAI Q.R.HT	RE1.2 45 45	45	3
								SA	S.		SA NC CV(CS)	FE1.2	1	1
N-0065 A	MOV-0065 AFW Pump No.22 Disch.Stop Ck.	2	F00024	102	BC	*	SCK	OH .	2	FAI	2 F00024 DZ BC 4 SCK NO NC FAI Q.R.MT	FE1.2 44 45	*	- 65
-								SA	NC.	1	SA NC CV(CS)	821.2	1	1
N-0085 A	HOV-0085 AFW Pump 30.23 Disch.Stop Ck.	2	F00024	B2	BC	*	SCK	9	2	FAI	2 F00024 BZ BC 4 SCK NO NC FAI Q.R.NT	EE1.2 45 45	45	3
-								SA	SA NC	-	CV(CS) EZ1.2	E21.2		1
A 6100-V	MOV-0919 AFW Pump No. 24 Disch. Stop Ck.	2	F00024	HZ	BC	*	SCK	2	2	FAI	2 F00024 H2 BC 4 SCK NO NC FAI Q.R.MT	PE1.2 37 37	37	2
								SA) MC	1	SA RC CV(CS)	RE1.2	1	1

	-	-	_	-		-				
AF-0119 AFW to SGZA Check	2 1 10002	4 11	U	00	R	SA	J.	1	CV(CS)	2 F00024 F1 C 8 CK SA RC CV(CS) RR2.3
AF-0120 AFW to SGZB Check	2 10002	10 P	U	00	8	SA	NC.	1	CV(CS)	2 F00024 D1 C 8 CK SA NC CV(CS) ER2.3
AF-0121 AFW to SG2C Check	2 1 10002	13	U	60	8	SA	NC.	1	CV(CS)	2 F00024 C1 C 8 CK SA RC CV(CS) RR2.3
AF-0122 AFW to SGZD Check.	2 10002	4 111	υ	80	R	SA	MC	1	CV(CS)	2 F00024 H1 C 8 CK SA NC CV(CS) RE2.3

Unit 2 IST Valve List Auxiliary Feedwater - AF

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VALVE ID	VAL.VE FUNCTION	cr	PEID	lgc	CAT	SIZE	TYPE	ACT	POS.		TEST REQUIREMENT	RR/C	C	
HOV-0143	AFW Pump Turbine Stop	2	F00024	G8	BC	4	SCK	HO	NO	FAI	Q.R.HT		34	58
		11		1				SA	NC.		CV		ļ	
FY-0143	AFW Pump Turbine Stop Bypass	2	F00024	G8	В	1	GT	so	NC	FC	Q.R.MT (MT)	RR7	2	2
MOV-0514	AFW Pump Turbine Control	3	F00024	G7	B	4	GT	HO	I NC	FAI	Q.R.HT		1 17	16

Unit 2 IST Valve List Post Accident Sampling - AP

AALVE ID	VALVE FUNCTION	벙	PLEID	_ 8	CAT	SIZE	TYPE	ACT	GC CAT SIZE TYPE ACT POS.		POS. REQUIREMENT RE/C	ER/C	0 2
1-2453	FV-2453 Containment Sump Sample	2	247501	67	4	1	5	So	SO NC	2	Q.R.HT(HT)	287	2
											15	1	1
1-2454	FV-2454 RHR Sample	7	2 247501	-E	4	1	15	SO NC	2	2	Q.R.HT(BT)	ER7	2
											13		
-2455	FV-2455 RCS Sample	2	247591	107	4	1	15		SO NC	2	Q.R.HT(NT) RR7.42	RE7.42	2
				-	-					1	13	-	1
-2455A	FV-2455A RCS Sample	2	2 247501	101	4	1	5	80	SO NC	5	Q.R.HT(HT) RR7.42	887.92	2
		-									5	1	1
-2456	FY-2456 Containment Atmosphere Sample	2	247501	5	4	1	15	So	SO NC	F	C R.WT(WT)	7227	2
											55		1
-2457	FY-2457 Gaseous PASS Return	- 12	2 247501	2	4	1	5	20)	2	Q.R.MT(BT)	1387	2
								-			13	1	1
-2458	FV-2458 Liquid PASS Return	7	2 247501	2	4	-	15	S	SO NC	2	Q.R.ET(ST) ERT	ER7	2
							-				177	1	

Unit 2 IST Valve List Breathing Air - BA

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					-		_				_	HORK.	FAIL	WORM. FAIL TEST		S	-
VALVE ID	VALVE FUNCTION	CTION		7	5	PEID	39	CAI	SIZE	TIPE	ACT	Pos.	POS.	CL. PEID GC CAT SIZE TIPZ ACT POS. POS. REQUIREMENT RE/C C O	ER/C	3	0
1-0004	BA-0004 Breathing Air to CTMT OB Isol. 2 F05044 F6 A 1 GT N NC Q(NA) C4	to CT	IT OB	Isol.	- 2	F05044	P.6	4	-	15	×	NC.	1	Q(MA)	5		
														13	1		
9000-	BA-0006 Breathing Air to CIMI IB Check 2 FUS044 G6 AC 1 CK SA NC	to CT	II IB	Check	2	F05044	99	AC	1	8	Se	NC.	1	CV(FR)		1	
											-			5	1	1	

Unit 2 IST Valve List Component Cooling Water - CC

	_ :						_!	NORM.	FAIL	NORM. FAIL TEST ST	-	S	1
MOV-0642 CCW HTX 2A BYPASS	3	710507	98	B B	312E	B	MO	E E	FAI	S 705017 B6 B 16 B NO NC FAI 9.R.NT 16 16	1	97	97
NOV-0644 CCW HTX 2B Bypess	3	F05018	B6	B	16	2	N N	SE SE	FAI	3 F05018 B6 B 16 B NO NC FAI Q.R.MT 116 16	1	116	16
HOV-0646 CCW HIX 2C Bypass	3	F05019	186	B	16	B	MO	MC	FAI	3 F05019 186 B 16 B NO NC FAI Q.R.MT 16 17	1	116	17

	_						-				-	-	
NOV-0643 CCW HTV. 2A Outlet	3	F05017	185	1	24	10	OH .	NO	FAI	3 F05017 B5 B 24 B NO NO FAI Q.R.M.T	- 17 17	111	111
MOV-0645 CCW HTX 2B Outlet	3	F05018	BS	8	24	9	O.	No	FAI	3 F05018 B5 B 24 B NO NO FAI Q.R.NT	177 16	-1	16
MOV-0647 CCW HTX 2C Outlet	3	F05019	BS	8	8	8	MO	No	FAI	3 F05019 B5 B C4 B H0 N0 FAI Q.R.HT 15 17	1	115	117

17	1	97		16	
- 111 111		- 17 126	7.17	176	
1	1	1	1	16 16	-
2 F05017 D2 A 14 B RO WC FAI Q.R.NT	177	2 F05018 D2 A 14 B NO NC FAI Q.R.NT	17	2 F05019 DZ A 14 B NO NC FAI Q.R.NT	17
FAI		FAI		FAI	
2		MC		MC	
0		0		MO	
		8		8	
- 41		47		4	
4		4		4	
05		D2		D2	
F05017		F05018		F05019	
2		2		2	
MOV-0057 CCW to RCFC 21A,22A OB ISO1.		NOV-0136 CCW to RCFC 21B,22B OB ISO1.		MOV-0197 CCW to RCFC 21C, 22C OB ISOl.	
NOV-005		NOV-013		MOV-019	

Unit 2 IST Valve List Component Cooling Water - CC

	_					H		HORM.	FAIL	NORM. FAIL TEST		ST
VALVE FUNCTION	13	PEID	8	CAT	SIZE	TYPE	ACT	POS.	POS.	CL. PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C O	RR/C	0 0
MOV-0059 CHW to RCFC 21A.22A OB Isol.	2	F05017	20	4	~	9	MO	NO	FAI	2 FOSO17 D2 A 8 B NO NO FAL Q.R.NT	1	10 14
										177	1	1
MOV-0137 CHW to RCFC 21B,22B OB Isol.	2	205018	20	4	80	8	MO	No	FAI	2 FOSO18 DZ A 8 B NO NO FAI Q.R.HT	1	1014
										15	1	
MOV-0199 CHW to RCFC 21C,22C OB Isol.	2	2 F05019 DZ A 8	20	4	80		NO.	NO	FAI	B NO NO FAI Q.R.HT	1	10 14
										13	:	

	+				
b	17	t	13	5	
		1			
0		310		1	
SA		SA		SA	
8		8		8	
*		14		77	
NC.		AC		AC	
102		102		102	
05017		05018		05019	
2 F05017 D2 AC 14 CK SA NO		2 F05018 D2 AC 14 CK SA NO		2 F05019 DZ AC 14 CK SA NO	
CC-0058 CCW to RCFC 21A.22A IB CK.		CC-0138 CCW to RCPC 21B,22B IB CK.		CC-0198 CCW to RCFC 21C,22C IB CK.	
cc-0058 c		CC-0138		CC-0198	

Unit 2 IST Valve List Component Cooling Water - CC

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57	0	18 18		17 16		17 16	
_	-	-=-		7			
	RR/C	1	1	1	1	1	1
NORM. FAIL TEST	CL PLID GC CAT SIZE TIPE ACT POS. POS. REQUIREMENT RR/C C O	MOV-0068 CCW from RCFC 21A.22A IB ISOL. 2 F05017 D4 A 14 B NO NO FAI Q.R.HT	15	MOV-0147 CCW from RCFC 21B.22B IB Isol. 2 F05018 D4 A 14 B NO NO FAI Q.R.NT	13	2 F05019 D4 A 14 B NO NO FAI Q.R.HT	*
FAIL	POS.	FAI		FAI		FAI	
HOEM.	POS.	1		0		0	
	ACT	9		9		9	
_	TYPE	8		В		8	
	SIZE	4		2		41	
	CAT	4	7	4		4	
	33	DA		DA		8	
	PEID	F05017		F05018		F05019	
	7	2		2		2	_
		IB Isol.		IB Isol.		MOV-0208 CCW from RCFC 21C.22C IB Isol.	
	VALVE FUNCTION	21A.22A		218.228		210,220	
		M RCFC		m RCFC		m RCFC	
		fro		fro		fro	
	_	CC		CC		20	
	VALVE ID	MOV-0068		NOV-0147		NOV-0208	

3.6	J	- 17 16		97	1
16		171		116	-
16 16	1	-	1	- 16 16	
Q.R.RT	17	Q.E.NT	17	Q.R.HT	LI
FAI		FAI		FAI	
) MC		NC.		MC	
9		MO		MO	
		B		8	
*		*		2	
4		4		4	
8		80		8	
F05017		F05018		F05019	
2		2		2	
MOV-0069 CCW from RCFC 218.228 OB ISO1. 2 F05017 D4 A 14 B NO NC FAI Q.R.KT		MOV-0148 CCW from RCFC 21B.22B 0B Isol. 2 F05018 D4 A 14 B NO NC FAI Q.E.NT		NOV-0210 CCW from RCFC 21C.22C 0B ISOL. 2 F05019 D4 A 14 B NO NC FAI Q.R.HT	
rom RCFC		rom RCFC		rom RCFC	
NOO		CCW E		CCW E	
MOV-0069		NOV-0148		NOV-0210	

Unit 2 IST Valve List Component Cooling Water - CC

CL PEID GC CAT SIZE TTPE ACT POS. POS. REQUIREMENT RR/C C 0	R.WT 10 14		R.HT 10 14		R.HT 10 14	
NORM. FAIL TEST POS. REQUIR	FAI Q.	+	rai o	+	FAI Q	-
CT POS.	NO NO		NO NO		NO NO	
ZE TTPE A	88		E2 80		88	
CAT SI	4		4		4	
PEID GC	Z FOSO17 C4 A 8 B HO NO FAI Q.R.HT		2 F05018 C4 A 8 B NO NO FAI Q.R.HT	+	Z FOSO19 C4 A 8 B NO NO FAI Q.R.HT	
- 13	2		- 2		- 7	
VALVE FUNCTION	MOV-0070 CHW from RCFC 21A.22A OB Isol.		HOV-0149 CHW from RCFC 21B.22B OB Isol.		MOV-0209 CHW from RCFC 21C.22C OB Isol.	
VALVE ID	MOV-0070		MOV-0149 C		MOV-0209 C	-

- 17 17		- 11 11		16 16	1
			+	-7-	
-					
2 F05017 E2 A 16 B NO NO FAI Q.R.NT	177	2 F05018 E2 A 16 B NO NO FAI Q.R.NT	177	Z FOSO19 EZ A 16 B NO NO FAI Q.R.HT	*
FAI		FAI		FAI	
1		MO		10	
Mo		0		NO.	
B					
97	7	16	7	16	
4	1	4	-	4	
E2		22		23	
F05017		F05018		F05019	
2	-	2		2	
NOV-0012 CCW to RHR 2A HTM OB ISO1.		HOW-0122 CCW to RHR 2B HTK 0B Isol.		HOW-0182 CCW to RHR 2C HTK OB ISOL.	
HR 2		HR 2	İ	HR 2	
to		to		to	
CC		00		CCM	
MOV-0012		NOV-0122		MOV-0182	

Unit 2 IST Valve List Component Cooling Water - CC

VALVE FUNCTION	망	P&ID	_8_	CAT	SIZE	TIPE	ACT	POS.	POS.	CL PAID GC CAT SIZE TIPE ACT POS. POS. REQUIREMENT RR/C C O	ER/C	43	0
CC-0013 CCW to RHR 2A HTM IB Check	2	2 F05017 E2	E2	AC	16	AC 16 CK SA MC	SA)	1	ŧ	1		
										17	1		1
CC-0123 CCW to RHR 2B HTX IB Check	2	2 F05018 E2 AC 16 CK SA NC	EZ	- BC	16	8	SA	S C	1	b	1		1
										13	!	1	1
CC-0182 CCW to RHR 2C HTM IB Check	2	2 F05019 E2 AC 16 CK SA NC	E2	- BC	16	8	SA	N.	1	t	1		
										13	1		
FV-4531 RHR 2A HTX Outlet	-	3 F05017 62	- 25	8	97	4 91	- V	AO FC	2	FO Q.E.MT	1		17
FV-4548 RHR 2B HTX Outlet	3	F05018	62	B	16	8	Ao	NC.	2	3 F05018 G2 B 16 B A0 RC F0 0.E.MT	1	20	20

- 17 17	-	91 81 18 16		16 16	
0.R.HI	17	Q.R.HT	17	0.E.R.	:
FAI		FAI		FAI	
IO NO		ON ON		08 0	
-	-		+	-	
91		16		91	
4		64 A		HS A	
2 F05017 G4 A 16 B NO NO FAI Q.R.HT		2 F05018 G4 A 16 B NO NO FAI Q.R.HT		2 F05019 He A 16 B NO FO FAI Q.R.HT	
MOV-0049 CCW from RHR 2A IB Isol.		HOV-0129 CCV from RHR 2B IB Isol.		HOV-0189 CCW from RHR 2C IB Isol.	
HOV-0049		MOV-0129		NOV-0189	

31 F05019 |G2 | B | 16 | B

FV-4565 RHR 2C HTX Outlet

VALVE ID	VALVE FUNCTION	_ 5	PEID	28	CAT	SIZE	TYPE	ACT	POS.	PAIL POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RE/C C 0	PR/C	20	0
NOV-0050	MOV-0050 CCW from RHR 2A OB Isol.	2	2 705017 64		4	9T V	B NO NO	MO	0	FAIL	0.R.MT	1	91 91	97
											13	1	1	1
NOV-0130	MOV-0130 CCW from RHR 2B 0B Isol.	2	2 F05018 G4 A	3		16 B	8	1	NO NO	FAL	0.R.NT	1	176	116
											13	1	1	1
NOV-0190	NOV-0190 CCW from RHR 2C OB ISOl.	2	2 105019	H	4	16	16 B	MO	NO NO	FAI	Q.R.MT	1	171	7
											5		1	
 cc-0746	CC-0746 CCW Surge Tank Vacuum Breaker	3	3 805017 86		U	1	C 1 OK SA RC	SA	2		CV(DI)	98		
CC-0315	CC-0315 CCW A Supply Hdr. Check	3	3 F05020 F7 C 24 CK SA NO	12	U	24	8	SA	8	1	đ		1_1_	1_1_
CC-0313	CC-0313 CCW B Supply Hdr. Check	3	3 F05020 E7 C 24 CK SA NO	13	U	24	R	SA	9	1	t	1	1	
CC-0311	CC-0311 CCW C Supply Hdr. Check	<u></u>	3 F05020 E7 C 24 CK SA NO	E7	U	24	R	SA	0	1	b	1	1	1
NOV-0768	MOV-0768 CCW A Supply to Chg. Pmp. Clr. 3 F05020 G7 B 6 B NO FAI Q.R.MT		F05020	67	-	9	-	2	2	FAL	0.8.87		16 16	9
NOV-0770	MOV-0770 CCW B Supply to Chg. Pmp. Clr. 3 F05020 G7 B	8	F05020	67	8	•	-	10	B NO NO	ZWI	Q.R.KT	1	17	7
HOV-0771	MOV-0771 CCW C Supply to Chg. Pmp. Cir. 3 F05020 G7	3	F05020		8	9	B	9	30	B NO RO FAI	Q.R.HT	1	E	111

Unit 2 IST Valve List Component Cooling Water - CC

ST	4		1			- 7	2	97	17	16 16	1-1
90	52	14	91	91	5113			97	1	116	23
The second secon	1		1	RR2.39	RR2.34	RR7	RR7		1	1	
POS. REQUIREMENT RR/C	0.R.MT	B NO NO FAI Q.R.MT	3 FOSO20 E6 B 18 B HO NO FAI Q.R.HT	B 18 B NO NO FAIQ(CS).R.MT ER2.34 16	FAI Q(CS) .R.NT RR2.34 15	3 F05020 D8 B 1.5 GT S0 NO PC Q.R.MI(NI)	3 F05020 D8 B 1.5 GT S0 NO FC Q.R.HT(NT)	Q.R.MT	Q.R.MT	B NO FAI Q.R.NT	FC Q.R.MT
POS. POS.	B 6 B AO NO FC	FAI	FAI	FAI	FAI	2	22	FAI	FAI	FAI	22
	0	0	NO	0	B NO NO	0	0	B NO NO	B NO NO	MO	B AO NO
- LJ	Ao	9	0	9	0	So	SO	0	0	NO	No.
TPE	8	8	В	m	m	15	15	m	8	B	- 8
GC CAT SIZE TYPE ACT POS.	9	81	18	81	B 18	1.5	1.5	-	9	9	
CATIS		- B	- B	8	8	B	8		8	1	
29	67	E7	93	-	3	80	D8 -		-	B7	H 78
PEID	3 F05020 G7	3 F05020 E7 B 18	F05020		3 F05020 les	0205020	F05020	3 F05020 B7	3 F05020 B7	3 F05020 B7 B	
25	- 8	- 6	- 6	-	3		3	-	- 6	3	3-
VALVE FUNCTION	FV-4656 CCW Supply to Chg. Pmp. Clrs.	MOV-0447 CCW to Spent Fuel Pool HTX	MOV-0032 CCW tc Spent Fuel Pool HTX	MOV-6235 CCW to NWS Loop Isol.	HOV-0236 CCW to NWS LOOP ISOL.	FV-4540 CCW to PASS ISO1.	FV-4541 CCW to PASS Isol.	MOV-0772 CCW A Ret. from Chg. Pp. Clr.	MOV-0774 CCW B Ret. from Chg. Pp. Clr.	MOV-0775 CCW C Ret. from Chg. Pp. Clr.	FV-4657 CCW Ret. from Chg. Pp. Clr.
VALVE ID	FV-4656	MOV-0447	MOV-0032	NOV-0235	MOV-0236	FV-4540	FV-4541	MOV-0772	MOV-0774	MOV-0775	 FV-4657

Unit 2 IST Valve List Component Cooling Water - CC

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	!!							NORM.				_s	T
VALVE ID VALVE FUNCTION	CL	PEID	GC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	10
MOV-0297 CCW to CTHT HTX OB Isol.	3	F05021	G8	B	6	В	МО	NO	FAI	Q.R.MT		15	ļ
MOV-0392 CCW to RCDT HTX IB Isol.	3	F05021	G3	B	4	GT	МО	NO	FAI	Q.R.HT		12	ļ
MOV-0393 Letdown HTX IB Isol.	3	F05021	G3	В	6	В	МО	NO	FAI	Q.R.HT		115	<u> </u>
MOV-0052 CCW A Return Isolation		F05020	 D7	l l B	24	B	MO	NO	 FAI	Q.R.MT		1 17	1
MOV-0132 CCW B Return Isolation	3	F05020	 C7	В	24	В	MO	NO	FAI	Q.R.HT		115	115
MOV-0192 CCW C Return Isolation	3	F05020	lc7	В	24	В	MO	NO	FAI	Q.R.ET		115	115
MOV-0316 CCW A Supply Isolation		F05020	 E7	l L B	24	В	l mo	NO	 PAI	Q.R.MT	l	1 17	1
MOV-0314 CCW B Supply Isolation		F05020	1	1			Mo		FAI			18	1
MOV-0312 CCW C Supply Isolation	3	F05020	F7	B	24	В	MO	NO	FAI	Q.R.MT		115	117

Unit 2 IST Valve List Component Cooling Water - CC

VALVE ID VALVE FUNCTION	_ _	PEID	8 8	CAT	SIZE	TYPE	ACT	POS.	FAIL POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C 0	2/2a	10 0
tion	7	1205021	2	4	7	2	2			Z FUSUZI 188 A 12 B RU RU FAL Q.K.FIT		
NOV-0318 CCW to RCP OB Isolation	2	F05021	Н8	4	12	8	NO	2	FAI	2 F05021 H8 A 12 B NO NO FAI Q.R.NT	1	or
										13	1	1
	2	2 F05021 G8 AC 12 CK SA NO	89	VC VC	12	ğ	SA	0	1	CV(RR)	RRS	RR8
										17	1	1

07		10	1		
				5	1
2 F05021 B1 A 12 B NO FO FAI Q.R.HT	LT	2 F05021 B1 A 12 B NO NO FAI Q.R.HT	LT	CV(RR)	LT
FAI	-	FAI		1	
0		0		DE	
9		9		SA	
8				B	
77		77			
4		4		- V	
-		-19-		- 19-	
F05021		F05021		2 F05021 B1 AC 1 CK SA NC	
2		2		2	
MOV-0403 CCW from RCP IB Isolation		NOV-0542 CCW from RCP IB Isolation		CC-0446 CCW from RCP IB Check	
NOV-040		NOV-05		CC-0446	

Unit 2 IST Valve List Component Cooling Water - CC

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				_	-		_	_	HORM.	FAIL	NORM. FAIL TEST		ST
	VALVE FUNCTION	12	PEID	35	CAT	SIZE	TYPE	ACT	POS.	POS.	CL PAID GC CAT SIZE TYPE ACT POS. POS. REGUIREMENT RR/C C O	RR/C	3
*	MOV-0404 CCW from RCP OB Isolation	2	F05021	==	4	77	8	NO.	2	FAI	2 F05021 H1 A 12 B NO NO FAI Q.R.NT	1	01
											5	1	- -
7	FV-4493 CCW from RCP OB Isolation	2	F05021	_ E	4	77	8	NO.	0	N.	2 F05021 H1 A 12 B AO NO FC G.R.MT	1	8
											17	1	

HOV-0060 CCW to RCFC 22A Isol.	3 50	2017	2 B	9		2	10	FAI	3 F05017 D2 B 10 B NO NO FAI Q.R.NT	 - 102 102
MOV-0139 CCW to RCFC 22B Isol.	3 50	2018	2 B	9		N	NO.	FAI	3 F05018 D2 B 10 B NO NO FAI Q.R.NT	 102 102
MOV-0200 CCW to RCFC 22C ISOl.	3 50	1 6105)2 B	10	- H	MO H	I KO	FAI	3 F05019 D2 B 10 B NO KO FAI 9.R.MT	 107 107

- 81 81	80 77	175 73
1		
3 FOSO17 C4 B 10 B NO NO FAI Q.R.MT	3 FOSO18 C4 B 10 B NO NO FAI Q.R.HT	3 FUSO19 C4 B 10 B NO NO FAI 0.R.MT 175 173
FAI	FAI	FAIL
MO	NO	20
W	9	0
8	8	8
10	10	10
В	m	8
3	5	83
F05017	F05018	F05019
3	3	3
MOV-0063 CCW from RCFC 22A Iscl.	NOV-0142 CCW from RCFC 22B Isol.	MOV-0203 CCW from RCFC 22C Isol.
MOV-0063 CCW 1	NOV-0142 CCW 1	MOV-0203 CCW

Unit 2 IST Valve List Component Cooling Water - CC

			_						-	TORH.	FAIL	NORM. FAIL TEST		ST	
VALVE ID	VALVE FUNCTION	TON	7	PEID	30	CAT	SIZE	TYPE	ACT	Sos.	POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RE/C C O	RR/C	U	0
-0064 CCW	NOV-0064 CCW to RCFC 21A Isol.	Isol.	3	F05017	D2	8	10	9	9	NO	FAI	3 F05017 D2 B 10 B NO FO FAI Q.R.NT 178 79	1	178	12
-0143 CCW	MOV-0143 CCW to RCFC 21B Isol.	Isol.	3	F05018	D2	B	10	B	NO.	1	FAI	3 FOSO18 D2 B 10 B NO FAI Q.R.HT 78 76	1	78	92
-0204 CCW	HOV-0204 CCW to RCFC 21C Isol.	Isol.	3	F05019	102	В	10	8	KO	No	FAI	3 F05019 D2 B 10 B NO FAI Q.R.NT 77 76	1	111	9/

10V-0067 CCW from RCFC 21A Isol.	3	F05017	EA	80	10	8	0	2	FAL	3 F05017 E4 B 10 B NO NO FAI Q.R.HT 83 83	_1	8	83
NOV-0146 CCW from RCFC 21B Isol.	3	F05018	E4	8	10	В	0	No	FAI	3 FOSO18 E4 B 10 B NO NO FAI Q.R.MT	- m m	111	11
MOV-0207 CCW from RCFC 21C Isol.	3	F05019	E4	В	10	B	MO	MO	FAI	3 FOSO19 E4 B 10 B NO NO FAI Q.R.NT	1	103 103	103

		3		5	
- 3	_4_		_4.	2	1
	1	1	1	1	1
FV-0862 CCW from RCFC 21A.22A CB ISO1. 2 F05017 C4 A 8 B AO NO FC Q.R.MT	LT	FV-0863 CCW from RCFC 21B.22B OB Isol. 2 F05018 C4 A 8 B A0 NO FC Q.R.HT	15	FV-0864 CCW from RCFC 21C.22C 0B Isol. 2 F05019 C4 A 8 B A0 NO FC Q.R.NT	17
5		5		5	
MO		NO		NO	
- O#	-	9		- Q	
Ф		B			
80		00		80	
4		4		4	
5		5		5	
F05017		F05018		F05019	
- 72		2		2	
Isol.		Isol.		Isol.	
80		80		90	
A22.		3.22B		22C	
2 210		2 211		220	
RCF		RCF		RCF	
from		from		from	
CC		CCM		CCA	
FV-0862		FV-0863		FV-0864	

Unit 2 IST Valve List Essential Chilled Water - CH

	11		1	1	1	1	1	NORM.	FAIL	TEST		5	r
VALVE ID VALVE FUNCTION	CL	PEID	IGC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	0
TV-9476A EAB Cont. Rm. AHU TCV	3	¥10002	F6	В	2	В	AO	NT	FO	Q.R.ET(NT)	RR7		_2
TV-9476B EAB Cont. Rm. AHU Bypass	3	¥10002	F6	В	2	В	AO	NT	FC	Q.R.MT(NT)	RR7	2	ļ
TV-9477A EAB Main AHU TCV	3	¥10002	C6	В	4	В	AO	NT	FO	Q.R.HT(NT)	RR7		12
TV-9477B EAB Main AHU Bypass	3	¥10002	C6	В	4	B	AO	NT	FC	Q.R.MT(NT)	RR7	2	
TV-9486A EAB Cont. Rm. AHU TCV	3	¥10002	F4	В	2	В	AO	BT	FO	Q.R.MT(NT)	RR7	ļ	1
TV-9486B EAB Cont. Rm. AHU Bypass	3	V10002	F4	В	2	В	AO	NT	FC	G.R.HT(NT)	RR7	2	ļ
TV-9487A EAB Main AHU TCV	3	¥10002	C4	В	4	В	AO	NT	FO	Q.R.MT(NT)	RRT	<u> </u>	1
TV-9487B EAB Main AHU Bypass	3	¥10002	C4	В	4	В	AO	NT	FC	Q.R.MT(NT)	RR7	2	ļ
TV-9496A EAB Cont. Rm. AHU TCV	3	¥10002	F1	В	2	В	AO	NT	FO	Q.R.HT(NT)	RR7	ļ	نــا
TV-9496B EAB Cont. Rm. ANU Bypass	3	V10002	FI	B	2	В	AO	NT	FC	Q.R.HT(NT)	RR7	1 2	ļ
TV-9497A EAB Main AHU TCV	3	¥10002	C1	B	4	В	AO	NT	FO	Q.R.HT(BT)	RR7	ļ	1
TV-9497B EAB Main AHU Bypass	3	V10002	i cı	B	1 4	В	AO	NT	FC	iq.R.HT(NT)	RR7	1 2	i

CH-0286 CHW Pump 21 A Disch. Check	3 V10001 F7 C 8 CK SA NO CV	
CH-0295 CHW Pump 21 B Disch. Check	3 V10001 D7 C 8 CK SA NO CV	
CH-0304 CHW Pump 21 C Disch. Check	3 V10001 A7 C 8 CK SA NO CV	

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Unit 2 IST Valve List Containment Bydrogen Monitoring - CM

0 15	2 2	-4-	2 2	-4	2 2	4	2 2		2 2	4	2 2	-	2 2		2 2	
		-4-		-4-				-4-		-4-		-4-		-4		
RR/C	RR7	1	RR7	1	RRT	1	RR7	1	287	1	ER.7	1	RR7	1	RRT	
POS. REQUIREMENT	Q.R.HT(HT)	13	Q.R.MT(NT)	13	Q.R.HT(HT)	13	Q.R.HT(HT)	5	Q.R.MT(NT)	13	Q.R.HT(HT)	LT	Q.R.NT(NT)	13	Q.R.HT(HT)	
POS. POS.	5		5		FC		5		2		2		2		2	
	MC		MC		NC		MC		NC		NC		MC.		2	
ACT	So		So		So		80		So		So		So		03	
CAT SIZE TYPE ACT POS.	5		15		15		5		15		5		15		5	
SIZE	7		7		7		7		7		7		7		7	
CATIS	~	1	4	7	4	-	4	7	4		4	1	-		4	
25	F4		F4		E4		23		02		74		5		S	
PEID	200046		200046		200046		200046		200046		200046		200046		200046	
당	2		2		7		2		2		2		7		7	
VALVE FUNCTION	FV-4135 CTHT Sample IB Isol.		FV-4101 CTMT Sample OB Isol.		FW-4127 CTMT Sample Return OB Isol.		FV-4128 CTMT Sample Return IB Isol.		FV-4136 CTMT Sample IB Isol.		FV-4104 CINT Sample OB Isol.		FV-4133 CTMT Sample Return OB Isol.		FV-4134 CIMI Sample Return IB Isol.	
VALVE ID	FV-4135		FV-41C1		FV-4127		FV-4128		FV-4136		FV-4104		FV-4133		FV-4134	

Unit 2 IST Valve List Containment Hydrogen Monitoring - CM

		11		1	1	1	1	1	NORM.				ST	
VALVE ID	VALVE FUNCTION	CL	Paid	IGC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	0
FV-4100	CTMT Sample Pt. 1	2	Z00046	G6	В	1	GT	so	NC	FC	O.R.HT(NT)	RR7	2	_2
FV-4124	CTMT Sample Pt. 3	2	Z00046	F6	В	1	GT	so	NC	FC	Q.R.MT(NT)	RR7	2	2
FV-4125	CTMT Sample Pt. 5	2	200046	F6	В	1	GT	so	NC	FC	Q.R.MT(NT)	RR7	2	_2
FV-4126	CTMT Sample Pt. 6	2	Z00046	E6	В	1	GT	so	NC	FC	Q.R.MT(NT)	RR7	2	2
FV-4103	CTMT Sample Pt. 2	2	Z00046	E6	В	1	GT	so	NC	FC	Q.R.MT(NT)	RR7	2	2
FV-4129	CTMT Sample Pt. 4	2	Z00046	D6	B	1	GT	so	NC	FC	Q.R.MT(NT)	RR7	2	2
FV-4130	CTMT Sample Pt. 7	2	200046	D6	В	1	GT	so	NC	FC	Q.R.HT(NT)	RR7	2	2
FV-4131	CTMT Sample Pt. 8	2	200046	C6	B	1	GT	So	NC.	FC	Q.R.MT(NT)	RR7	2	2

Unit 2 IST Valve List Containment Spray - CS

					_							HORM.	FAIL	NORM. FAIL TEST		S	
VACVE ID	VALVE FUNCTION	CTION			CF	PEID	25	CAT	SIZE	TYPE	ACT	POS.	POS.	CL PAID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C O	RR/C	0	0
7-0015A Sp	ray Additive	Tank	ZA OL	itlet	3	F05037	199	B	7	Q	MO	NC	FAI	MOV-0015A Spray Additive Tank 2A Outlet 3 F05037 G6 B 2 D NO NC FAI Q.R.HT 10 12	1	70	12
7-0015B Sp	ray Additive	Tank	2B OL	itlet	- 6	F05037	E6	8	7	9	N.	MC	FAI	MOV-0015B Spray Additive Tank 2B Outlet 3 F05037 E6 B 2 D MO NC FAI Q.R.NT 13 14	1	13	57
V-0015C Sp	MOV-0015C Spray Additive Tank 2C Outlet 3 F05037 C6 B 2 D MO NC FAI Q.R.MT 111 14	Tank	2C OU	tlet	- 6	F05037	293	8	7	Q	- N	NC.	FAI	O.R.MT	1	1	14

t	5	5
A NC	A NC	A NC
- K	CK	CK -
7	2	2
U	0	 ပ
7 64	7 64	7 C4
F0503	F0503	F0503
2	2	2
Outlet	Outlet	Outlet
IK 2A	IK 2B	1k 2c
e Tar	e Tar	e Tar
Additiv	Additiv	Additiv
Spray	Spray	Spray
CS-0018A Spray Additive Tank 2A Outlet 2 F05037 G4 C 2 CK SA NC	CS. 0018B Spray Additive Tank 2B Outlet 2 F05037 E4 C 2 CK SA NC CV	CS-0018C Spray Additive Tank 2C Outlet 2 F05037 C4 C 2 CK SA RC

- 15 15		15 15		25 25	1
	1	1	1	1	1
2 F05037 G5 A 8 GT NO NC FAI Q.R.MT	13	2 F05037 E5 A 8 GT NO NC FAI Q.R.NT	173	2 F05037 CS A 8 GT NO NC FAI Q.R.NT	17
FAI		FAI		FAI	
JEC .		MC		MC	
- N		9		NO.	
5		15		5	
		00		80	
4		4		4	
62		ES		CS	
F05037		F05037		F05037	
7		2		2	
OB ISO1.		OB Isol.		OB Isol.	
MOV-0001A CS Pump 2A Disch. OB ISOL.		MOV-0001B CS Pump 2B Disch. OB Isol.		NOV-COOLC CS Pump 2C Disch. OB Isol	
MOV-0001A C		MOV-0001B		NOV-COOLC C	

Unit 2 IST Valve List Containment Spray - CS

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VALVE PUNCTION	_ t	PETD	- 2	- AT	ZETT	PELAC	T POS.	FAIL	CT. PEID GC CAT SIZE TYPE ACT POS. PROHIPEMENT RE/C C O	SP/C	S	. 0
CS-0002 CS Plump 24 Disch. TR Check		2 POSO37 G7 AC 8 CK SA NC	- 19	A 104			N.		CV(DI)	644	bdd	
	_		_	-	_	-	_	-			_	
	-			+	+	+	-		13	-	1	
CS-0004 CS Pump 2B Disch. IB Check	7	2 F05037 E8 AC 8 CK SA NC	E8	AC 8		- 2	A NC	-4	CV(DI)	RR9	_1	1
						-+			5	1	_1	<u> </u>
CS-0005 CS Pump 2B Disch. IB Check	2	2 F05037 D8 AC 8 CK SA NC	- 88	AC 8	-	- 3	A NC	1	CV(DI)	RR9	RR9	
									17	1	1	1
CS-0006 CS Pump 2C Disch. IB Check	2	2 F05037 C7 AC 8 CK SA NC	123	AC 8			A NC		CV(DI)	RR9	<u> </u>	
						-			171	1		

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Unit 2 IST Valve List Chemical and Volume Control - CV

	VALVE	VALVE FUNCTION			CL PEID	GC	CAT	SIZE	TYPE	ACT	NORM. FAIL POS. POS. RU	PAIL POS.	GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C 0	RR/C	C O
1	ZA Sea	HOV-0033A RCP 2A Seal Injection OB Isol.	OB Isol.	-	2 F05005 C8 A	83		2	D	- 0	NO	FAI	D NO NO FAI Q(CS).R.NT RR2.10 10	RR2.10	10
													13	-	-1
0	2B Sea	MOV-0033B RCP 2B Seal Injection OB Isol.	OB Isol.		2 F05005 C8 A	8	-	7	D NO NO	0	NO	FAI	FAI Q(CS),R.M. RRZ,10 10	RR2.10	10
1													5	1	<u> </u>
4	2C Sea	MOV-0033C RCP 2C Seal Injection OB Isol.	OB Isol.		2 F05005 C8 A	8		7	a	NO.	NO	FAI	D NO NO FAI Q(CS).R.HT RR2.10	RR2,10	01
83										-			5	-	- -
4	2D Sea	MOV-0033D RCP 2D Seal Injection OB Isol.	OB ISO1.	and the same of	2 F05005 C8 A	8	Contract of the last	7	a	NO.	NO	FAI	D NO NO FAI Q(CS).R.NT RR2.10 10	RR2.10	10
THE													13	1	1

							1
<u> </u>	_4_	- <u> </u> -	-4-	_4-	_4	_4-	
RR8	1	RR8	1	888	1	888	1
CV(RR)	13	CV(RR)	LT	CV(RR)	LT	CV(RR)	11
				1			
NO		9		NO		0	
SA		SA		SA		SA	
R		8		8		R	
2		2		2		2	
AC		AC		AC		¥C	
83		83		83		8	
2 F05005 C8 AC 2 CK SA NO		2 F05005 C8 AC 2 CK SA NO		2 F05005 C8 AC 2 CK SA NO		2 F05005 C8 AC 2	
7				2			
IB Check		IB Check		IB Check		IB Check	
CV-0034A RCP 2A Seal Injection IB Check		CV-0034B RCP 2B Seal Injection IB Check		CV-0034C RCP 2C Seal Injection IB Check		CV-0034D RCP 2D Seal Injection IB Check	
Seal		Seal		Seal		Seal	
2A		28		2C		20	
RCP		RCF		RCP		RCP	
CV-0034A		CV-0034B		CV-0034C		CV-0034D	

Unit 2 IST Valve List Chemical and Volume Control - CV

								-		=	OEM.	FAIL	NOEM. FAIL TEST	2,44	ST
VALVE ID	VALVE	VALVE FUNCTION		3	PEID	100	ATIS	12E	TIPE	ACT	os.	POS.	Paid GCICATISIZE TIPE ACTIPOS. POS. REQUIREMENT	KK/C	0 -
V-0078	CV-0078 RCP Seal Inj. Return IB CK.	ni. Retur	n IB Ck.	2	P05005 F3 AC .75 CK SA NC	F3	AC	.75	×	SA	MC	1	CV(RR)	cs	1
													17	1	-1
0V-0077	MOV-0077 RCP Seal Inj. Return IB Isol. 2	nj. Retur	n IB Isol.	2	F05005	F3		2	Q	NO	No	FAI	FOSO05 F3 A 2 D NO NO FAIQ(CS).R.HT RR2.10	RR2.10	10
													17	1	
0V-0079	MOV-0079 RCP Seal Inj. Return OB Isol. 2	ni. Retur	n OB Isol.		F05005	F3		2	Q	MO	NO	FAI	F05005 F3 A 2 D NO NO FAIQ(CS).R.MT RR2.10	RR2,10	10
														1	- <u> </u> - <u> </u>

LCV-0465 Letdown Isolation	-	F05005	Н8	8	-	GT	MO	NO	F05005 H8 B 4 GT NO NO FAI Q(CS), R.HT RR2.35 16	R.HT	RR2.35	79
LCV-0468 Letdown Isolation	7	F05005	H7	- B		- 15	MO	NO	F05005 H7 B 4 GT NO NO FAI Q(CS), R. MT RR2, 35 17	R.MT	RR2.35	
Letdown Flow Orifice Header			_	-	-	_	-		Q(CS),R,MT	R,NT		_
FV-0011 Isolation	2	2 F05005		B	3	GL	AO	NO	35 B 3 GL AO NO FC (NT)		RR2.7.35 2	2

CV-0022	CV-0022 Letdown IB Check	2	2 F05005 H3 AC .75 CK SA NC	_ EE	- J	.75	- H	- V	2	1	CV (FR)	В	<u> </u>
					1						11		<u> </u>
MOV-0023	MOV-0023 Letdown IB Isolation	2	F05005	E	4	4	5	- 0	0	FAI	2 F05005 H3 A 4 GT NO NO FAIO(CS).R.HT RR2.36 15	PR2,36	115
					+	7					11	-	<u> </u>
MOV-0024	NOV-0024 Letdown OB Isolation	2	2 F05005 H3 A 4 GT NO NO	H	V	4		- 0	0	FAI	FAI Q(CS).R.NT RR2.36	RR2.36	01
											5	1	<u> </u>

Unit 2 IST Valve List Chemical and Volume Control - CV

VALVE ID	VALVE FURCTION	2	P&ID	_ 8	GC CAT SIZE TYPE ACT POS.	IZE	LYPE	ACT	FOS.	NORM. FAIL POS. POS. R	FAIL TEST POS. REQUIREMENT RE/C	RR/C	CS	. 0
CV-0157	RC Purification OB Isolation	7	2 F05006 F2	F2	4	4	CT	=	NC	1	Q(KA)	5	1	11
						7		-			17	1	1	
CV-0158	CV-0158 RC Purification IB Check	2	2 F05006 F2	123	NC.	4	ğ	SA NC	NC	1	CV(RR)	S	1	1
					-	7					15	1	1	1
MOV-0113A	MOV-0113A VCT Cutlet Valve	2	2 F05007 E4 B	E4		9	GT NO RO	9	THE RESIDENCE OF THE	FAI	FAI Q(CS).R.MT RRZ.11 16	ER2.11	-191	1 11
KOV-0112B	KOV-0112B VCT Outlet Valve	2	2 F05007 E4 B 6 GT MO NO	EA	В В		53	0	NO NO	FAI	FAI Q(CS), R.MT RR2,11 16	1882.11	-191	11
CV-0224	RWST to Chg. Pump Suction	2	F05007 C3		0	9	8	VS	NC NC	1	cv(cs)	RR2.12		1 11
MOV-0113B	MOV-0113B RWST to Chg. Pump Suction	7	F05007 C4	5		9	57	NO.	NC.	FAI	FAI Q(CS).R.MT RR2.12	RR2.12	1	11
MOV-0112C	MOV-0112C RWST to Chg. Pump Suction	2	2 F05007 C4 B 6	C4	B		5	NO	GT NO NC	FAI	FAI 0(CS) . R.NT RRZ. 12	RR2.12	1	16
CV-235A	CV-235A Cent. Chg. Pp. 2A Disch. Ck.	2	2 F05007 B6 C 3	B6			CK SA RC	SA	NC NC	1_1	5			

|CV-235B |Cent. Chg. Pp. 2B Disch. Ck. | 2 | F05007 |D6 | C

Unit 2 IST Valve List Chemical and Volume Control - CV

	VALVE ID VALV	E FUN	VALVE FUNCTION		3	PEID	_ 2	CAT	SIZE	TTPE	ACT	GC CAT SIZE TYPE ACT POS. POS.	The state of	POS. REQUIREMENT RR/C	RR/C	CCS
CV-234A	Cent. Chg. Pp. 2A Recirc. Ck.	. Pp.	ZA Recirc	3	2	2 F05007 C6 C	92	0	2	2 CK SA	SA	MC.	1	کہ	1	- <u> </u>
CV-234B	CV-234B Cent. Chg. Pp. 23 Recirc. Ck.	. Pp.	. 23 Recirc	25	- 2	2 F05007 D6 C	106	0	7	2 CK SA NC	SA	NC.	_1	24		-
rcv-0201	FCV-0201 Cent. Chg. Pp. 2A Recirc.	Pp.	2A Recirc		7	F05007	95	- m	7	15	No.	AO NC	2	Q.R.MT		
PCV-0202	FCV-0202 Cent. Chg. Pp. 2B Recirc.	Pp.	. 2B Recirc		2	2 F05007 D6 B	D6	- 10	2	5	V V	2 GL AO NC	20	Q.R.HT		1
rcv-0205	 FCV-0205 Charging Flow Control Valve	Flow	Control Va	lve	2	2 F05007 E7 B	E7		_ w	15	NO NO	3 GL AO NT	2		RR2.13	
HOV-0025	NOV-0025 Charging OB Isolation	OB IS	solation		7	2 F05005 G3	G3	4	4	15	9	4 GT NO NO	- Z	FAI Q(CS).R.HT RR2.14 15	BR2.19	-151
CV-0026	Charging IB Check	IB Ch	neck.		7	F05005 G3	8	- V	4	8	SA	0	1_4_	CV(RR)	888	
														13		
CV-0001	 Normal Charging Check	argin	ng Check		==	1 F05005 G8 C	68	U	*	8	-	SA NO		CV(CS)	FR2.37	
CV-0002	Wormal Charoing Check	argin	ng Check		7	F05005 G8 C	68	v	4	8		SA NO	1	cv(cs)	RR2.37	ij

Unit 2 IST Valve List Chemical and Volume Control - CV

									NORM.	Maria Control Control				-
VALVE ID	VALVE FUNCTION	CL	PEID	IGC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	
CV-0004	Alternate Charging Check	1	F05005	F8	С	4	CK	SA	NC		CV(CS)	RR2.37		
CV-0005	Alternate Charging Check	1	F05005	F8	c	4	CK	SA	NC	l	CV(CS)	RR2.37		<u></u>
LV-3119	Aux. Press. Spray Control Vlv.	L L	F05005	 F7	В	1 2	GL	AO	I NC	 FC	 Q(CS).R.HT	 RR2.15	13	L
CV-0009	Aux. Press. Spray Check	1	F05005	F8	c	2	CK	SA	NC	<u> </u>	CV(CS)	RR2.15		<u> </u>
CV-0334	 Boric Acid Gravity Feed Check	3	F05009	ID3	Lc	3	CK	 SA	l wc	<u> </u>	cv(cs)	 RR2.16		<u> </u>
	Boric Acid Trans. Pump		F05009	 D6		4		 SA	===		cv(cs)	 RR2.16		
CV-0338	Boric Acid Trans. Pump 2B Disch. Check	3				4	CK	SA	1		CV(CS)	RR2.16		-
	Boric Acid Trans. Pump			1	<u> </u>	ı	ı	ı	1	1	1	<u> </u>		1
CV-0351	Boric Acid Trans. Pump	3	F05009	E6	C	1 .75	CK	SA	I NC	 	CV	 -		1-
CV-0346	2B Recirc. Check	3	F05009	İDS	i c	.75	CK	SA	i NC	i	i cv	ii		<u>i-</u>
	Boric Acid Trans. To			ī	<u> </u>	1	1	1	ı	ı	1	1		1
MOV-0218	Chg. Pump Suction	2	F05007	ВЗ	В	4	GT	HO	NC	FAI	Q.R.MT	<u> </u>		-
CV-0217	Boric Acid Trans. To Chg. Pump Suction		F05007	 B3	!	!	CK	!	I NC	!	CV(CS)	RR2.16		!

Unit 2 IST Valve List Chemical and Volume Control - CV

VALVE ID	VALVE FUNCTION			29	CATIS	IZE	TYPE	ACT	NORM POS.	PAIL POS.	PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C O	RR/C	90	ST
CA-0670	CV-0670 Chg. Pump Disch. Check	- 2	2 F05007 D6 C 4 CK SA NO	190	- 5	4	8	SA	NO		5	1	_4	_ !
MOV-0003	MOV-0003 Normal Charging Isolation	2	2 F05005 G7 B		- m	4	15	- OH	NO NO	FAI	4 GT NO NO FAI Q(CS).R.MT RR2.37 11	882.3	1-3-	 1
NOV-0006	NOV-0006 Alternate Charging Isolation	2	F05005	125	B	4	15	0	MC	FAI	2 F05005 G7 B 4 GT NO NC FAI Q(CS).R.NT RR2.37 10 11	RR2.3		=======================================
MOV-0082	MOV-0082 Excess Letdown Isolation		F05005 F5 B	ES	B	2	Q	MO.	MC	HO NC FAI	Q.R.NT			_
NOV-0083	MOV-0083 Excess Letdown Isolation		F05005 F5, B	FS	8	2	2 D	MO	MC	HO NC FAI	Q.R.NT			12
MOV-83776	MOV-8377A CCP 2A Discharge Isolation	2	F05007 D6 B	90		3	15	MO	NO	3 GT NO NO FAI	G.R.MT		1-7-	15 15
MOV-8377E	MOV-8377B CCP 2B Discharge Isolation	2	2 F05007 C6 B 3 GT MO NO FAI	95	m	3	15	MO	NO	FAI	Q.R.MT		-=	15 16
MOV-8348		2	F05007	B6		7	15	NO.	MC MC	FAI	2 GL NO NC FAI Q.R.NI	1		13 13

Unit 2 IST Valve List Demineralized Water - DW

VALVE ID	VALVE FUNCTION	CL	PEID	IGC	CAT	SIZE	TYPE			POS.	TEST REQUIREMENT	RR/C	CO
DW-0501	DW To CTMT OB Isolation	2	F05034	F4	A	2	D	H	NC.		Q(NA)	C4	
				1	_					<u> </u>	LT		
DW-0502	DW TO CTMT IB Check	2	F05034	F3	AC	2	CK	SA	NC	ļ	CV(RR)	CS	<u> </u>
											LT		il

Unit 2 IST Valve List
Radioactive Vents and Drains - ED

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VALVE ID	VALVE FUNCTION	CL	PEID	 GC	CAT	SIZE	TYPE		ACT OF THE PARTY O	POS.	TEST REQUIREMENT	RR/C	CO
MOV-0064	CTMT Sump Disch. IB Isol.	2	F05030	G7	A	3	GT	MO	NO	FAI	Q.R.MT		10
		4		Ļ						<u> </u>	LT		
FV-7800	CTMT Sump Disch. OB isol.	2	F05030	G6	A	3	GT	AO	NO	FC	Q.R.MT		10
				1							LT		ll

Unit 2 IST Valve List Essential Cooling Water - EW

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		1 1		1		1	1	1	NORM.	FAIL	TEST		1_57	•
VALVE ID	VALVE FUNCTION	CL	PEID	GC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	0
EW-0006	ECW Pump 2A Disch. Check	3	F05038	H4	c	30	CK	SA	No		CV			==
EW-0042	ECW Pump 2B Disch. Check	3	F05038	E4	С	30	CK	SA	NO		CV			<u> </u>
EW-0079	ECW Pump 2C Disch. Check	3	F05038	Ic4	С	30	CK	SA	NO	i	CV	-	ii	
	1	1 1		1		ı	Γ	ı	<u> </u>	ı	1 1		ı	
MOV-0121	ECW Pump 2A Disch. Isolation	3	F05038	H4	В	30	B	MO	NO	FAI	Q.R.HT		1	1
MOV-0137	ECW Pump 2B Disch. Isolation	3	F05038	E4	В	30	В	40	NO	FAI	Q.R.HT		ļ	1
MOV-0151	ECW Pump 2C Disch. Isolation	3	F05038	Ic4	В	30	В	MO	NO	FAI	Q.R.MT		i	1
	CCW Screen Wash Pump	!!					!	!	!	!			!	
EW-0253	2A Discharge Check	3	F05039	D7	C	3	CK	SA	NO	+	CV		ļ	
EW-0254	ECW Screen Wash Pump 2B Discharge Check	1 3	P05039	lps	C	3	CK	SA	NO	1	CV			l
- V-J+	ECW Screen Wash Pump	11		ī		i	1	1	I	1			1	
EW-0255	2C Discharge Check	1 3	F05039	D2	c	3	CK	I SA	NO	1	~v		1	
	ECW Screen Wash Pump	!!		1		!		!		!	<u> </u>		!	
FV-6914	2A Discharge Isolation	3	F05039	D7	В	3	GL	AO	NO	FO	Q.R.MT		ļ	
FV-6924	ECW Screen Wash Pump	3	F05039	DS	В	3	GL	AO	NO	FO	Q.R.MT		1	
		-		-	-	-	-	-	-				1	

Unit 2 IST Valve List Essential Cooling Water - EW

		1 1		1					NORM.	FAIL	TEST		S	<u> </u>
VALVE ID	VALVE FUNCTION	CL	PEID	GC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	10
	ECW Loop A to Essential	1 1		1		1	1	1	1	1			1	1
EW-0262	CHW Chillers	13	F05038	H6	C	14	CK	SA	NO	1	CA		l	
	ECW Loop B to Essential	1 1		1		1	i	1		1			1	
EW-0263	CHW Chillers	13	F05038	F6	C	14	CK	SA	NO	1	CV		1	1
	ECW Loop C to Essential	1 1		1	1	1			1	1			1	1
EW-0264	CHW Chillers	1 3	F05038	IC6	C	14	CK	SA	NO	1	CV		I	1
	1	1 1				ı	!	!	!	!	!!!		!	!
FV-6935	ECW Loop A Drain to ECW Sump	3	F05038	F7	B	4	GT	AO	NO	FC	Q.R.HT	_=_	15	!
FV-6936	ECW Loop B Drain to ECW Sump	3	F05038	C7	В	4	GT	AO	NO	FC	Q.R.HT		17	ļ
FV-6937	ECW Loop C Drain to ECW Sump	1 2	F05038	IA7	B		GT	1 40	wo	FC	O.R.MT		1 9	1
	Essen. CHW Chiller 22A Outlet	!		!	!	!	!	!	!	1	!	!	!	!
PV-6904	Pressure Control Valve	3	F05038	IF6	18	B	B	HC	NT	FC	Q.R.HT		110	110
	Essen. CHW Chiller 22B Outlet	!		!	1	! -	!	!	!	!			1	!
PV-6905	Pressure Control Valve	3	F05038	ID6	1 8	B	B	HC	NT I	FC	Q.R.MT		110	11
	Essen. CHW Chiller 22C Outlet	! -		1	! -	! _	! _	!	!	!			!	1
PV-6906	Pressure Control Valve	1 3	F05038	IA6	18	B	1 B	1 HC) NT	FC	Q.R.MT		110	111
	Essen. CHW Chiller 21A Outlet	1		1	1	1	1	1	1	1	I all a substitute	1	T	1
PV-6854	Pressure Control Valve	1 3	F05038	F7	B	1 6	B	H	TH	FC	Q.R.HT	<u> </u>	110	11
	Essen. CHW Chiller 21B Outlet	1		1	1	1	1	1	1	1			1	1
PV-6864	Pressure Control Valve	3	F05038	D7	B	1 6	B	H	NT	FC	Q.R.MT	<u> </u>	110	11
	Essen. CHW Chiller 21C Outlet			1	1	!	1	!	1	1		1	!	1
			F05038			6			NT	FC	Q.R.HT		110	The same of

Unit 2 IST Valve List Spent Fuel Pool Cooling and Cleanup - FC

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VALVE ID	VALVE FUNCTION		PEID	 GC	CAT	SIZE	TIPE	ACT	West of the second	POS.	REQUIREMENT	RR/C	C	-
XFC-0006C	In CTMT Spent Fuel Cooling IB Isolation	2	F05028	B5	A	10	GT	H	NC.		Q(WA)	C4	 	
	- c									1	LT		ļ	
XFC-0007C	In CTMT Spent Fuel Cooling GB Isolation		F05028	B4	A	10	GT	H	NC	ļ	Q(NA)	C4	ļ	
								i			LT		!	

XFC-0013E	In CTMT Spent Fuel Cooling OB Isolation		F05028	 B6	A	10	GT	H	NC	11	Q(NA)	Ca	1	ļ
										1 1	LT		!	ļ
	In CTMT Spent Fuel Cooling IB Isolation	2	F05028	 B6	A	10	GT	H	NC		Q(FA)	C4	<u> </u>	ļ
								<u> </u>		<u>i i</u>	LT	<u> </u>	<u> </u>	<u> </u>
XFC-0050	In CTMT Refueling Cavity IB Isolation	2	F05028	B6	A	3	GT	H	NC		Q(NA)	C4	ļ	ļ
											LT	<u> </u>	<u> </u>	l

Unit 2 IST Valve List Fire Protection - FP

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VALVE ID	VALVE FUNCTION	CL	P&ID	GC	CAT	SIZE	TYPE			POS.	TEST REQUIREMENT	RR/C	ST
MOV-0756	Fire Prot. to CTMT OB Isol.	2	F05047	E8	A	6	GT	MO	NC	FAI	Q.R.MT		1 20
		11								<u> </u>	LT		
FP-0943	Fire Prot. to CTMT IB Isol.	2	F05047	E8	AC	6	CK	SA	NC		CV(RR)	C5	ļ
											LT		<u> </u>

Unit 2 IST Valve List Feedwater - FW

						-	-		HORM.	FAIL	NORM. FAIL TEST	- 4	ST
VALVE ID	VALVE FUNCTION	3 3	Name of	3		777		W.	9		CLI PRID ISCICLIFFIANT FUS. FUS. FEGULACIONI SECUL	-	- 5
FV-7141 FWIV	PWIV	12	F00063	189	9	12	15	- PH	2	2	Z F00063 168 B 18 GT HO NO FC Q COST KALIKKZ. II LU	-	4
FV-7142 FWIV	FVIV	2	F00063	99	B	18	5	HO	NO	FC	2 F00063 G6 B 18 GT HO NO FC Q(CSP),R.HT RR2,17 10	17	10
FV-7143 FWIV	FWIV	2	F00063	8	8	18	15	H	1	2	2 F00063 G4 B 18 GT HO NO FC Q(CSP).R.MT RR2.17 10	7	101
FV-7144 FWIV	FWIV	2	F00063	62	8	18	GT	HO	000	FC	2 F00063 G2 B 18 GT HO NO FC Q(CSP), R.HT RR2, 17 10	177	10

V-7148A	FV-7148A FWIV BYPASS	2	F00063	67	8	6	GE	8)E	- L	2 F00063 G7 B 3 GL AO NC FC Q.R.NT		- 3
1-7147A	FV-7147A FWIV BYPASS	2	F00063	65	RQ	6	15	Ao	E E	FC	2 F00063 G5 B 3 GL AO NC FC Q.R.NT		8
7-71464	FV-71464 FWIV BYPASS	2	F00063	63	В	8	15	AO)	7	2 F00063 G3 B 3 GL AO KC FC Q.R.MT		3
V-7145A	FV-7145A FWIV BYPASS	2	F00063	61	8	8	GE	Ao	MC		2 F00063 G1 B 3 GL AO NC FC 0.R.NT	!	1

FV-7189	FV-7189 FW to AF Warm-up	2	F00063	F8	8	6	35	AO	MC	- FC	2 F00063 F8 B 3 GL AO NC FC Q(CS), R. NT RR2, 3 5	RR2.33	2
FV-7190	FV-7190 FW to AF Warm-up	2	F00063	F6	- E	3	GL	AO	MC	FC	2 F00063 F6 B 3 GL AO NC FC Q(CS).R.NT ER2.38 5	RR2.38	2
FV-7191	FV-7191 FW to AF Warm-up	2	F00063	14	8	3	GL	Ao	EC.	7	2 F00063 F4 B 3 GL AO NC FC Q(CS).R.NT RR2.38 5	RR2.38	2 5
FV-71.92	FV-7192 FW to AF Warm-up	2	F00063	F2	a	3	GE	AO	MC	FC	2 F00063 F2 B 3 GL AO NC FC Q(CS).R. NT RR2.38 5	RR2,38	

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Unit 2 IST Valve List Feedwater - FW

				1 1						FAIL		l np/c	S	-
VALVE ID	VALVE FUNCTION	CL	PEID	IGCI	CAT	SIZE	TIPE	ACT	PUS.	IPUS.	REQUIREMENT	KK/C	-	10
FCV-0551	FW Regulator Valve	INS	F00063	D8	В	16	A	AO	NT	FC	Q(CS).R.HT	RR2.18	7	ļ
FCV-0552	FW Regulator Valve	NS	P00063	D6	В	16	Α	AO	NT	FC	Q(CS).R.HT	RR2.18	6	ļ
FCV-0553	FW Regulator Valve	MS	F00063	D4	В	16	A	AO	NT	PC	Q(CS).R.HT	RR2.18	6	ļ
FCV-0554	FW Regulator Valve	INS	F00063	D2	В	16	A	AO	NT	FC	Q(CS).R.MT	RR2.18	7	İ

		!!		!!						1				1
FV-7151	FW Regulator Bypass	INS	F00063	D7	В	4	GL	AO	NC	FC	Q(CS),R.HT	RR2.19	7	
FV-7152	FW Regulator Bypass	INS	F00063	D5	В	4	GL	AO	NC	FC	Q(CS) .R.HT	RR2.19	5	
FV-7153	FW Regulator Bypass	INS	F00063	D3	В	4	GL	AO	NC	PC	Q(CS).R.HT	RR2.19	5	ļ
FV-7154	FW Regulator Bypass	INS	F00063	DI	В	4	GL	AO	NC	FC	Q(CS) .R.HT	RR2.19	6	İ

Unit 2 IST Valve List Reactor Containment Building Purge - HC

VALVE FUNCTION	CL P&ID GC CAT SIZE TYPE ACT POS. FOS. REQUIREMENT RR/C C O	ZE IY	PELACT	Pos.	FOS.	REQUIREMENT	RR/C	0 0
MOV-0007 Mormal Purge Supply OB Isol. 2	2 V00018 G3 A 48 B NO NC FAIQ(CS).R.NT RR2.20 60	- 8		NC NC	FAI	Q(CS).R.NT	PR2.20	09
						LT(CP)	-	-4
MOV-0008 Normal Purge Supply IB Isol. 2	2 V00018 G2 A 48 B NO NC FAI Q(CS).R.NT RRZ.20 60	8 B		MC.	FAI	Q(CS).R.NT	RR2.20	09
	The second name and other designations of the second name and the			THE PARTY OF THE P				

T RR2.20 60	2 V00018 C6 A 48 B NO NC FAIQ(CS).R.NT RE2.20 60
2 V00018 C7 A 48 B NO NC FAIG(CS).R.NT RR2.20 60	FAI Q(CS).R.R
NO NC	NO NC
48 B	48 B
C7 A	V 90
2 V00018	2 000018
ge Exhaust	ge Exhaust
MOV-0009 Mormal Purge Exhaust IB Isol.	MOV-0010 Normal Purge Exhaust OB Isol.
MOV-0009	MOV-0010

FV-9776	FV-9776 Supplementary Purge	2	V00019	- 44	 - 81	В	- OV	2	72	2 V00019 F4 A 18 B AO NC FC Q(CS).R.NT ER2.21 4	RR2.21	*	_1
					 					LT(CP)	-		1
10V-0003	Supplementary Purge NOV-0003 Supply IB Isol.	2	V00019	F3	 18	- B	- ON	2	FAI	2 V00019 F3 A 18 B NO NC FAI Q(CS).R.NT RR2.21 10	 RR2.21	10	
										LT(CP)	 	_ <u> </u> _ -	

Unit 2 IST Valve List Reactor Containment Building Purge - HC

VALVE ID	VALVE FUNCTION	CL	P&ID	GC	CAT	SIZE	TYPE		NORM.	The same of the sa	TEST REQUIREMENT	RR/C	ST C 0
MOV-0005	Supplementary Purge Exhaust IB Isol.	2	V 00019	 C7	A	18	В	MO	NC	FAI	Q(CS).R.MT	 RR2.21	10
		_		<u> </u>		<u></u>			<u> </u>	_	LT(CP)	<u> </u>	
FV-9777	Supplementary Purge Exhaust OB Isol.	2	V00019	C6	A	18	В	AO	NC	FC	Q(CS).R.MT	RR2.21	4
				1							LT(CP)		

Unit 2 IST Valve List Instrument Air - IA

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						_							NORH.	FAIL	NORM. FAIL TEST	-	S	ال
VALVE ID		VALVE	VALVE FUNCTION	TION		5	PEI	9	C CA	LISIZ	TYPE	ACT	POS.	POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RE/C C U	KK/C	3	0
-0541	IA-0541 Inst. Air to CIMI IB Check	Air	to CT	AT IB	Check	2	F050	0 0	4 60	2	2 F05040 D4 AC 2 CK SA NO	SA	NO		CV(RR)	ER8	1	
															171	1	1	1
-8565	FY-8565 Inst. Air to CIMI OB Isol.	Air	to CT	MT OB	Isol.	2	F050	0 0	4	1 2		AO	100	_ F		RR2.7.		2
																	$\frac{1}{1}$	_

Unit 2 IST Valve List Main Steam - MS

VALVE ID	VALVE FUNCTION	CL	PEID	 GC	CAT	SIZE	TYPE			POS.	TEST REQUIREMENT	PR/C	C	_
TABLE ID	I VALUE TOROLLON			1		1				1	1			
PV-7411	Main Steam Line 1 Porv	2	F00016	H6	B	10	GT	HO	NC	FC	Q(CS) .R.HT	A .2.23	42	4
PV-7421	Main Steam Line 2 Porv	2	F00016	F6	В	10	GT	но	NC	FC	Q(CS).R.HT	RR2.23	31	3
PV-7431	Main Steam Line 3 Porv	2	F00010	E6	В	10	GT	но	NC	FC	Q(CS).R.NT	RR2.23	30	3
PV-7441	 Main Steam Line 4 Porv	1 2	F00016	Ic6	В	10	GT	но	NC	FC	Q(CS).R.MT	RR2,23	42	3
PSV-7410	Main Steam Line 1 Safety	2	F00016	 H6	c	 6x10	PR	SA	F.C		SRY			
PSV-7410A	 Main Steam Line 1 Safety	2	F00016	Н6	c	6x10	PR	SA	NC	ļ-	SRV			
PSV-7410B		2	F00016	HS	c	6x10	PR	SA	NC		SRV			<u> -</u>
PSV-7410C	 Main Steam Line 1 Safety	2	F00016	HS	c	6x10	PR	SA	NC	ļ	SRV	<u> </u>		-
PSV-7410D	Main Steam Line 1 Safety	1 2	F00016	Інѕ	c	6x10	PR	SA	NC	1	SRV	<u> </u>		<u>_</u>
PSV-7420	 Main Steam Line 2 Safety	2	F00016	 F6	l c	 6x10	PR	SA	l NC	<u> </u>	SRV		 	
PSV-7420A	Main Steam Line 2 Safety	2	F00016	F6	c	6x10	PR	SA	HC.		SRV	<u> </u>		<u> -</u>
PSV-7420B	 Main Steam Line 2 Safety	2	P00016	PS	c	6x10	PR	SA	NC.	ļ	SRV	<u> </u>		-
SV-7420C	 Main Steam Line 2 Safety	2	F00016	FS	c	6x10	PR	SA	IIC.		SRV	<u> </u>		-
SV-7420D	Main Steam Line 2 Safety	2	F00016	F5	c	6x10	PR	SA	I NC	1-	SRV			i-

Unit 2 IST Valve List Main Steam - MS

-		11		1		1	1	1	NUMM.	FAIL	TEST		_S	
VALVE ID	VALVE FUNCTION	CL	PEID	IGC	CAT	SIZE	TIPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	0
PSV-7430 Ha	ain Steam Line 3 Safety	2	F00016	E6	c	6x10	PR	SA	NC.	ļ	SRV		i	-
CSV-7430A Na	ain Steam Line 3 Safety	2	F00016	E6	c	6x10	PR	SA	NC		SRY		ļ	-
PSV-7430B Na	ain Steam Line 3 Safety	2	F00016	ES	c	6x10	PR	SA	NC.	i	SRY		i	<u>i</u>
PSV-7430C Ma	nin Steam Line 3 Safety	2	F00016	E5	c	6x10	PR	SA	NC	ļ	SRY		<u> </u>	
PSV-7430D Na	ain Steam Line 3 Safety	2	F00016	ES	c	6x10	PR	SA	NC.	<u>i</u> .	SRV	i	i	i
PSV-7440 Ma	ain Steam Line 4 Safety	2	F00016	IC6	c	 6x10	PR	SA	I NC		SRV		ļ	<u> </u>
PSV-7440A Na	nin Steam Line 4 Safety	2	F00016	IC6	c	6x10	PR	SA	BC	ļ	SRY		i	
PSV-7440B Na	ain Steam Line 4 Safety	2	F00016	CS	c	6x10	PR	SA	NC.	<u> </u>	SRV		i	
PSV-7440C Na	ain Steam Line 4 Safety	2	F00016	cs	c	6x10	PR	SA	BC.		SRY		ļ	<u> </u>
PSV-7440D Na	ain Steam Line 4 Safety		F00016	ics	c	6x10	PR	SA	BC .	i	SRY	i	i	<u>i</u>
FV-7900A He	ain Steam Line 1 Drain		F00016	 G4	В	1 2	GT	l so	l no	FC	Q.R.MT(NT)	RR7	2	<u> </u>
FV-7901A Na	ain Steam Line 2 Drain	2	F00016	E4	В	2	GI	se	I NO	FC	Q.R.HT(NT)	RR7	1 2	ļ
FV-7902A Ha	ain Steam Line 3 Drain	2	F00016	D4	В	1 2	GT	So	10	FC	Q.Z.HT(NT)	287	1 2	<u> </u> -
FV-7903A Ma	ain Steam Line 4 Drain	1 2	F00016	184	B	1 2	GT	so	NO	FC	Q.R.HT(NT)	RR7	1 2	ļ

Unit 2 IST Valve List Main Steam - MS

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VALVE ID	VALVE FUNCTION	망	PEID	300	TISIZ	ETTE	EAC	POS.	PAIL POS.	CL PAID GC CAT SIZE TIPE ACT POS. POS. REQUIREMENT RR/C C O	2/28 C	
FSV-7414 MSIV	MSIV	2	F00016	64	30	- 5	¥	NO	22	2 F00016 G4 B 30 GT A0 NO FC Q(CSP) R.HT RR2.24 5	EE2.24	
FSV-7424 MSIV	MSIV	2	F00016	F4 E	30	- 5		100	2	2 F00016 F4 B 30 GT A0 NO FC Q(CSP).R.HT RR2.24 S	PE2.24	
FSV-7434 MSIV	MSIV	2	F00016	100	30	15	¥ .	0	2	2 F00016 04 B 30 GT A0 NO FC Q(CSP).R.HT ER2.24 5	EE2.24	
FSV-7444 MSIV	MSIV	2	F00016	2	3 30	15	- BK	NO N	FC	2 F00016 C4 B 30 GT A0 NO FC Q(CSP) R WIREZ 24 5	FEZ.24	-

FV-7412	FV-7412 MSIV Bypass	2 F00016 G4 B 4 GT A0 EC FC Q.R.MT	G4 B	-	5	No.	2	72	Q.R.HT	-	
FV-1422	FV-7422 MSIV Bypass	2 F00016 F4 B 4 GT A0 WC FC Q.R.MT	F4 B		5	Ao	N.	2	Q.R.HT	1	- 1
FV-7432	FV-7432 MSIV Bypass	2 F00016 D4 B 4 GT A0 WC FC Q.R.NT	D4 B	-	5	Ao	NC.	22	Q.R.HT	-	
FV-7442	FV-7442 MSIV Bypass	2 F00C16 C4 B 4 GT A0 MC FC Q.R.MT 4	C4 B		5	Ao	MC	2	O.R.M.	1	

Unit 2 IST Valve List
Rer ctor Coolant Pump Oil Changing - PO

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_	-	_	_	NORM.	FAIL	NORM. FAIL TEST		ST
CL PEID GC CAT SIZE TIPE ACT POS. POS. REQUIREMENT RE/C C O	GC CA	TSIZE	TYPE	CT POS.	P05.	REQUIREMENT	ER/C	3
2 F05042 E3 A 2 D H NC	E3 A	2	a	N NC		Q(RA)	5	
						5	1	
2 F05042 E3 A 2 D H HC	E3 A	2	a	N NC	-	Q(NA)	5	
						177	1	I

PO-0217 PCP Oil Drain IR Isol. 2 P05042 B3 A 2 E R RC

Unit 2 IST Valve List Primary Plant Sampling - PS

VALVE ID		ALVE F	VALVE FUNCTION			75	PEID	180	- AT	IZE	TPE	ACT P	OS.	FAIL POS.	CL P&ID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C O	RE/C	C 0
FV-4450 Press. Vapor Sample IB Isol.	Press.	Vapor	Sample	18	Isol.	2	200045	85			- 5	So	NC.	2	2 Z00045 G8 A 1 GT SO NC PC Q.R.NT(NT)	ER.	7
															15	1	-
FV-4452 Press. Vapor Sample OB Isol.	Press.	Vapor	Sample	OB	Isol.	2	200045		V	-	GL	NO.	JE .	22	2 Z00045 G7 A 1 GL AO NC FC Q.R.HT	1	
										-		-			15	1	-
rv-4451 Press. Liquid Sample IB Isol.	Press.	Light	d Sampl	e IB	Isol.	2	2 Z00045 G8 A 1	89	A		15	20	NG.	2	GT SO NC FC Q.R.NT(NT)	F27	2
															13	1	-
FV-4451B Press. Liquid Sample OB Isol.	Press.	Liqui	d Sampl	e 0B	Isol.	2	Z00045	67	B	1	GE	AO	NC.	2	2 Z00045 67 A 1 GL AO NC FC Q.R.MT(NT) RE7	RR7	2
									-			-			15	1	

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Unit 2 IST Valve List Primary Plant Sampling - PS

ST	0 0	2		2		10	
	RE/C	1887	1	ER7	1	1	-
NORM. FAIL TEST	CL PAID GC CAT SIZE TIPE ACT POS. POS. REQUIREMENT RE/C C O	2 Z00045 F8 A 1 GT SO NC FC Q.R.HT(AT)	15	2 Z00045 E8 A 1 GT S0 BC FC Q.R.HT(HT) RR7	13	2 Z00045 F7 A 1 GL AO 8C FC Q.R.NT	:
FAIL	POS.	72		22		22	
HORM.	Sos.	JE C) MC		NC.	
-	ACT	20		S	7	AO	
	TIPE	E		15		15	
-	SIZE	-		7		7	-
-	CAT	4		4		4	
	39	F8		E8		12	
	PEID	200045		200045		2000ds	
	70	2		2		2	-
		IB Isol.		IB Isol.		.tosi	
	VALVE FUNCTION	Sample		Sample		able 0B	
	E FU	Z #1		£ #3		Sa	
	VALV	t Le		Le	1	3	
		PC Ho		RC HO		RC Ho	
"	VALVE ID	FV-4454 P.C. Hot Leg #1 Sample IB Isol.		FV-4455 RC Hot Leg #3 Sample IB Isol.		FV-4456 RC Hot Lek Sample OB Isol.	

4823	FV-4323 KHR Sample IB Isol.	IB Isol.	2	200045	108	V	-	5	So	N.	2	2 Z00045 D8 A 1 GT SO NC FC Q.R.HT(NT) ERT 2	ERT	2
												15	1	
4461	FV-4461 RHR Sample OB ISOL.	OB Isol.	2	200045	107	4	-	15	V V	MC	2	2 Z00045 D7 A 1 GL A0 RC FC Q.R.HT	1	5
	•••					-							1	1

Urit 2 iST Valve List Primary Plant Sampling - PS

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					-	-	-	-	TORM.	FAIL	NORM. FAIL TEST		ST	
VALVE ID	VALV	VALVE FUNCTION	2	2610	GC C	TISIZ	EITPE	ACT	Soc.	POS.	CC. PEID GC CAT SIZE TIPE ACT POS. POS. REQUIREMENT RR/C C O	BR/C	U	0
V-4824	SI Accum.	FV-4824 SI Accum. Sample IR ISOl.	2	5000Z	188	-	5	20	N.C	I,C	2 Z00C45 B8 A 1 GT SO NC CC Q.R.HT(HT) RR7 2	RR7	7	
											5	1		1
V-4466	SI Accum.	FY-4466 SI Accum. Sample OB isol.	2	20002	371	-	35	02) I	2	2 Z00C45 27 A 1 SL 20 RC FC Q.R.HT	1	*	
											-53	1		-

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Unit 2 IST Valve List Reactor Containment Building HVAC Radiation Momitoring - RA

VALVE ID	VALVE FUNCTION		P&ID	lec	CAT	SIZE	TYPE	ACT	POS.		TEST REQUIREMENT	RIF/C	_s	
HOV-0001	CTMT Rad. Mon. Inlet IB Isol.	2	V00017	IG3	_A_	1	BL	HO	NO	FAI	Q.R.MT		10	==
				-						<u> </u>	LT			
HOV-0003	CTM7 Rad. Mon. Return IB Isol.	2	V00017	123	A	1	BL	HO	10	FAI	Q.R.MT		10	
		_		1						1	LT			
MOV-0004	CTMT Pad. Mon. Inlet OB Isol.	2	V00017	G3	A	L	BL	MO	NO	FAI	Q.R.HT		10	
				1		_			<u> </u>	!	LT			
MOV-0006	CTMT Rad. Mon. Return OB Isol.	2	¥00017	F3	1	1	BL	MO	NO	FAI	Q.R.HT		19	
				1							LT		1	

Unit 2 IST Valve List Reactor Coolant - RC

		1 1		1	1		1	1 1	NORM.	FAIL	TEST	THE REAL PROPERTY.	S7	
VALVE ID	VALVE FUNCTION	CL	PEID	IGC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	0
FV-3657A	Inboard Reactor Head Vent	1	F05001	E3	A	1	GL	so	NC	PC	Q.R.HT(NT)	RR7	2	-
		Ц		1							LT(PO)	C25		-
FV-3657B	Inboard Reactor Head Vent	A	F05001	D3	A	1	GL	so	NC	FC	Q.R.HT(NT)	RR7	1 2	-
		Н		-						-	LT(PO)	C25		
FV-3658A	Outboard Reactor Head Vent	1	F05001	E3	A	1	GL	so	NC.	FC	Q.R.HT(HT)	RR7	2	-
		H		<u> </u>						<u> </u>	LT(PO)	C25	ļ	-
FV-3658B	Outboard Reactor Head Vent	1	F05001	D3	A	1_	GL	so	NC.	FC	Q.R.HT(NT)	RR7	2	-
	<u>i</u>	نن		<u>i </u>	<u></u>	<u>L</u>	<u> </u>	Ш		<u>i </u>	LT(PO)	C25	i	
HC V -0601	 Reactor Head Vent Block Valve		F05001	 E2	В	1	GL	so	IIC.	FC	Q.R.HT		1 9	
HCY-0602		1 2	F05001	ID2	В	1	GL	so	NC	PC	Q.R.HT		111	L
	1	1 1		ı	1			1		1			I	-
PSV-3450	Pressurizer Safety	11	F05003	F7	C	6x8	PR	SA	NC.	ļ	SRY	<u> </u>	j	-
PSV-3451	Pressurizer Safety		F05003	F6	2	6x8	PR	SA	NC	 	SRV			-
PSV-3452	Pressurizer Safety	11	F05003	F4	c	6x8	PR	SA	NC	i	SRV		i	-

Unit 2 IST Valve List Reactor Coolant - RC

VALVE ID VALVE FUNCTION	망	PEID		CAT	SIZE	TYPE	ACT	GC CAT SIZE TYPE ACT POS.	FOS. FAIL R	FAIL TEST FAIL RE/C	RR/C	C	. 0
HOV-0001A PORV Block Valve		1 F05003 D8 B 3	108	B		G	9	GT NO NO	FAI	FAI Q.R.HT	-	13	77
MOV-0001B PORV Block Valve		1 F05003 E8 B 3	E8	8		15	9	GT NO NO	FAIL	Q.R.MT	1	3	7
PCV-0655A PORV		1 F05003 D8	D8		8	CL SO NC	So	2	2	FC [Q(CS),R.MT RR2,26	882.26		1
										LT(PO)	523		
PCV-0656A PORV	7	1 F05003 E8	E3			GE	So	GL SO NC	2	FC Q(CS).R.HT RR2.26	RR2.26		2
				-						LT(PO)	523		1
FW-3652 Mitrogen to PRT OB Isol.	2	2 F05004 F3	2	-		18	04) E	2	FC Q.R.HT(FT)	188	7	
FV-3653 Hittogen to ppt IR Icol		2 205004 84	2		7.	t	8	5	1	17	1 8	1 '	1-1-
							3			17			

V-3651	FV-3651 to PRT OB ISO1.	2	2 F05004 E2 A 3 BL AO NC FC Q.R.NT	23	4	 BL	AO FFC	 	LR.RT	-1	-
									13	-	
RC-0046	Reactor Makeup Water XRC-0046 to PRT IB Check	2	2 F05004 E4 AC 3 CK SA NO CV(RR)	EA	- DW	 	SAIRG	 	Y(RR)	RES	
								 	13		- -

Unit 2 IST Valve List Reactor Head Degassing - RD

		-		-	-	-		HORM.	FAIL	NORM. FAIL TEST		ST	
VALVE ID	VALVE FUNCTION	75	PEID	GCC	AT SIZ	ETTPE	ACT	POS.	POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RE/C C O	BE/C	0	0
8D-0008	RD-0008 Degassing Line IB Isol.	2	2 F05046 E7 A 3 BL N NC	E7	3	BE	=	N.		Q(NA)	5	1	
										15	1	1	
0100-02	RD-0010 Degassing Line OB Isol.	2	2 F05046 E7 A 3 BL H HC	E7	A 3	BE	*	SEC.	1	(AR)	85	1	
										13	1		1

Unit 2 IST Valve List Residual Heat Removal - RH

0 2		116 116	R2.27 1115 1115
BR/C	FR2.27	12.23	12.23
CL PAID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C O	1 F20000 B8 A 12 GT NO NC FAIQ(CS).R.NT RR2.27[119 119 L19 L19 L19 L19 L19 L19 L19 L19	1 F20000 D8 A 12 GT NO NC FAIQ(CS).R.NT RR2.27 116 116 LECTOR OF CONTRACT OF C	1 F20000 G8 A 12 GT NO BC FALQ(CS).R.MT RR2.27 115 115
POS. POS.	FAI	FAI	FAI
POS.	2	2	2
VCT.	2	9	<u>Q</u>
TYPE	5	B	5
SIZE	12	77	77
CAT	4	4	4
8	88	80	68
PLID	F20000	F20000	F20000
_ 8	-===		====
	Isol.	Isol.	lsol.
VALVE FUNCTION	MOV-0060A RHR Pump 2A IB Suction Isol.	HOV-0060B RHR Pump 2B IB Suction Isol.	HOV-0060C RHR Pump 2C IB Suction Isol.
VE P	2A	2B	25
W	Pum	Pum	Pumi
	RHR	KHK	ME TE
VALVE ID	MOV-0060A	NOV-0060B	MOV-0060C

- 611	I	113	I	1115	
119	1	113		114	
12.23	1	12.27	1	12.27	1
- 1	-	N N	-	HT E	
(CS).R	LT(PIV)	(CS).R	LT(PIV)	(CS).R	LT(PIV)
FAI		FAI		FAI	
) H)		NC.	
9		0		MO	
5		15		15	
12		77		77	
-	-	4	-	4	
188		108		68	
1 F20000 B8 A 12 GT NO NC FAIQ(CS).R.NT RR2.27 119 119		1 F20000 D8 A 12 GT NO NC FAIO(CS).R.NT RR2.27 113 113		1 F20000 G8 A 12 GT NO NC FAI Q(CS).R.HT RR2.27 114 115	
			-+		
ion Is		ion Is		ion Is	
Suct		Suct		Suct	
80 A		8 OB		C OB	
2 0		2 0		2 da	
IR Pu		HR Pu		IR Pu	
LA R		BR		C	
MOV-0061A RHR Pump 2A OB Suction Isol.		MOV-0061B RHR Pump 2B OB Suction Isol.		MOV-0061C RHR Pump 2C 0B Suction Isol.	

2 F20000 B6 C 8 CK SA RC CV(CSP) RR2.28	2 F20000 D6 C 8 CK SA NC CV(CSP) PR2.28	2 F20000 G6 C 8 CK SA BC CV(CSP) RR2,28
CV(CS	CV(CS)	CV(CSI
1	1	1
CK SA RC	CK SA NC	CK SA NC
8	- 8	- 30
В6 С	D 90) J
F20000	F20000	F20000
2	2	2
Check	Check	
A Disch.	Disch.	Disch.
Pump 2	Pump 2	Pump 2
XRH-0065A RHR Pump 2A Disch. Check	XRH-0065B RHR Pump 2B Disch. Check	XRH-0065C RHR Pump 2C Disch. Check
XXH-0	XCH-0	XRH-0

Unit 2 IST Valve List Residual Heat Removal - RH

15	CL PEID GC (AT SIZE TIPE ACT POS. POS. REQUIREMENT RR/C C O		1	5	<u> </u>	5		5	
NORM FAIL TEST	REQUIREMEN	Q(NA)	177	Q(MA)	13	Q(MA)	17	Q(NA)	
FAIL	POS.	-		1				1	
NORH.	POS.	MC		8 GT N NC		GT R RC		GT N NC	
_	ACT	-		=		=		-=-	
	LILE	15		15				-	
	SIZE	80		80		00		00	
	CAT	4		4		4		4	
	25	106		105		F6		- 22	
	PEID	2 F20000 D6 A 8 GT M NC		2 F20000 D5 A		2 F20000 F6 A 8		2 F20000 F5 A 8	
_	7	2		7		7		2	
		B Isol.		B Isol.		B Isol.		B Isol.	
	VALVE FUNCTION	XRH-0063B RHR Pump 2B to RWST IB ISOL.		XEH-0064B RHR Pump 2B to RWST 0B Isol.		XRH-0063C RHR Pump 2C to RWST IB Isol.		XRH-0064C RHR Pump 2C to RWST OB ISOL.	
	VE F	28		28	1	20		20	
	VAL	Pump		Pump		Pump		Pump	
		RHR		KHE		RHE		RHR	
T	A	163B		164B)63C		1289C	
	VALVE ID	XXH-00		CRH-OC		CRH-OC		CRH-OC	

MOV-0067A RHR Pump 2A Recirc.	2 F20000 A6 B 4 GT NO NC FAI Q.R.HT	A SA	-	15	- OH	MC	FAI	Q.R.MT	_	- 8
MOV-0067B RHR Pump 2B Recirc.	2 F20000 C6 B 4 GT NO NC FAI Q.R.HT	G 90	-	15	9	MC	FAI	Q.R.HT	1	- 9 m
MOV-0067C AHR Pump 2C Recirc.	2 F20000 F6 B 4 GT HO RC FAI Q.R.HT	F6 B	*	15	MO	MC	FAI	Q.R.MT	-	п 6 -

XRH-0068A RHR Pump 2A Recirc. Check	2	2 F20000 A6 C 4 CK SA RC	A6	2		×	SA RC	4		d	1	#
XRH-0068B RHR Pump 2B Recirc. Check	2	2 F20000 C6 C 4 CK SA FC	90	-	-}		SA BC		_	4	1	1
XRH-0068C RHR Pump 2C Recirc. Check	2	2 F20000 F6 C 4 CK SA RC	F6	- 0			SA RC			CA	1	

Unit 2 IST Valve List Residual Heat Removal - RH

	_		_				_	FORM.	FAIL	NORM. FAIL TEST		ST	-
VALVE FUNCTION	CE	PEID	136	CAT	SIZE	TYPE	ACT	. Soc.	POS.	CL P&ID GC CAT SIZE TTPE ACT POS. POS. REQUIREMENT RR/C C O	RR/C	2	0
MOV-00194 RHR 2A to Hot Leg Injection		F20000	3	8	00	15	MO	MC	LAI	2 F20000 C3 B 8 GT NO NC FAI Q.R.NT	- 15 IS	15	7
MOV-0019B RHR 2B to Hot Leg Injection		F20000	<u>E3</u>	m	80	5	MO	MC	LWI	2 F20000 E3 B 8 GT NO NC FAI Q.R.NT	- 111 12	7	77
NOV-0019C RHR 2C to Hot Leg Injection		F20000	н3	B	8	15	NO	MC	FAI	2 F20000 H3 B GT NO NC FAI Q.R.NT	- 1 15 15	15	15

11	1	1	1	1	
11		I	1	1	
RR2.29		ER2.29		PR2.29	-
CV(CS)	LT(PIV)	CV(CS) RR2.29	LT(PIV)	CV(CS) RR2.29	LT(PIV)
Toronto month on				1	
2		MC		MC	
SA		SA		SA	
8		8		8	
80		00		00	
AC		AC		AC	
2		E2		62	
1 F20000 C2 AC 8 CK SA WC		1 F20000 E2 AC 8 CK SA MC		1 F20000 G2 AC 8 CK SA RC	
===	_	===		===	
XRH-0020A RHR 2A to Hot Leg Check		XRH-0020B RHR 2B to Hot Leg Check		XRH-0020C RHR 2C to Hot Leg Check	
Hot		Hot		Hot	
to		B to		to	
HR 2		HR 2		HR 2	
- VO		OBIR		OC R	
жен-005		XRH-002		XRH-002	

MOV-0031A RHR 2A to Cold Leg Injection	2	F20000	B3		00	15	No.	No	FAI	2 F20000 B3 B 8 GT NO NO FAL Q.R.HT	 - 15 15
NOV-0031B RHE 2B to Cold Leg Injection	7	F20000	103	- B	80	15	NO.	10	FAI	2 F20000 D3 B GT NO FAI Q.R.HT	 - 11 13
HOW-0031C RHR 2C to Cold Leg Injection	2	F20000			8	15	0	0	FAI		 - 15 15

Unit 2 IST Valve List Residual Heat Removal - RH

VALVE ID	VALV	VALVE FUNCTION	13	Paid	28	CAT	SIZE	TYPE	ACT	NORM. FAIL	FAIL POS.	POS. REQUIREMENT RR/C C O	RR/C	S	0
XRH-0032A	RHR ZA to	XRH-0032A RHR 2A to Cold Leg Check		1 F20000 B2 AC 8	B2.	AC		CK SA NC	SA	MC	1	CV(CS)	RR2.29	Ì	11
						-						LT(PIV)	-		1
XRH-0032B	RHR 2B to	XRH-0032B RHR 2B to Cold Leg Check		1 F20000 DZ AC 8 CK SA RC	102	- V	80	8	SA	2	1	CV(CS)	FR2.29		11
												LT(PIV)			1
ХКН-0032С	RHR 2C to	XRH-0032C RHR 2C to Cold Leg Check		1 F20000 G2 AC 8	62	AC		CK SA RC	SA	2	1	CV(CS)	RR2.29		1
												LT(PIV)	1	-	11
HCV-864	HCV-864 RHR 2A HTX Outlet	K Outlet	7	F20000	B4	8	00	m	V	2	2	2 F20000 B4 B B A0 NC F0 Q(CS).R.NT RR2.30 39	 RRZ.30		39
HCV-865	RHR 2B HTX Outlet	X Outlet	2	2 F20000 D4 B	DA	B	00	m	AO)	2	AO NC FO Q(CS).R.NT RRZ.30	RR2.30		40
HCV-866	HCV-866 RHR 2C HTX Outlet	K Outlet	7	2 F20000 G4 B 8	45	B		10	AO	2	2	B AO NC FO Q(CS).R.NT RR2.30 35	EE2.30	I	35
FCV-851	RHR 2A HTX BYPASS	K Bypass	2	2 F20000 C5 B	20		00	63	- P	AO FFC		FC [Q(CS).R.MT RR2.30	 RR2.30	38	
FCV-852	RHR 2B HTX BYPASS	K Bypass	2	2 F20000 E5 B 8 B	ES	8	00	1000	AO	NC.	2	AO NC FC Q(CS).R.NT RR2.30 51	RR2.30	15	1
FCV-853	FCV-853 RHR 2C HTK Bypass	K Bypass	12	F20000	HS	В	00	В	AO) MC	2	2 F20000 H5 B B A0 NC PC Q(CS).R.NT RR2.30 36	RR2.30	36	1

OV-00566 RHR 2A to CVCS Letdown	7	F20000	44	-	5	BIO	2	FAI	F20000 A4 B 4 GT B0 RC FAI Q.R.HT	-	11 12	77
IOV-0066B RHR 2B to CVCS Letdown	2	F20000	102	4	- 1	NO.	MC	FAI	ZI FZ0000 DZ B 4 GT NO RC FAI Q.R.HT	1	1111111	=

Unit 2 IST Valve List Residual Heat Removal - RH

VALVE ID		VAL	VALVE FUNCTION		벙	PRID GC CAT SIZE TYPE ACT POS.	3	CATIS	IZE	TYPE	ACT		PAIL.	PAIL TEST REQUIREMENT RE/C	RR/C	C 2
81-0166	RCP	REP Seal St.	RCF Seal Standpipe ZA to KHR Loop ZA	00	2	2 F20000 CS AC .75 CK SA NC	8	AC	.75	R	SA	N.	1	CV(RA)	C41	- -
														LT(PO)	241	
RH-0174	RCP	RCP Seal St.	RCP Seal Standpipe 2A to RHR Loop 2A	to	2	2 F20000 CS AC	_ 5		.75	8	.75 CK SA RC	- DE	-1	CV(RA)	241	
									-					LT(PO)	145	1
RH-0168	RCP	RHR LOOP 2B	RCP Seal Standpipe 2B to RHR Loop 2B	t to	2	2 F20000 F5 AC .75 CK SA NC	13	AC	.75	8	SA	NC	-1	CV(RA)	242	<u>- </u>
														LT(PO)	T#3	
RH-0167	RCP	RUP Seal St.	RCP Seal Standpipe 2B to RHR Loop 2B	to	2	F20000 F5	2	- J	.75 CK	8	SA RC	2	1	CV(RA)	150	
														LT(PO)	745	1
KH-0170	REP	RCP Seal Sta	RCP Seal Standpipe 2C to RHR Loop 2C	6	1 2	2 F20000 H5	HS	- J	-75	8	SA	MC MC	1	CV(BA)	150	
														LT(PO)	140	
RH-0169	RCP	RCP Seal St RHR LOOP 2C	RCP Seal Standpipe 2C to RHR Loop 2C	5	2	2 720000 35	35	- V	.75	5	AC .75 CK SA NC	2	-1	CV(AA)	140	_1
								-						LT(PO)	T63	1

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Unit 2 IST Valve List Reactor Makeup Water - PM

VALVE ID	VALVE FUNCTION	CL	PEID	lgcld	CATIS	IZE	TYPE		POS.		TEST REQUIREMENT	RR/C	CO
FV-7659	RM to CVCS Blend Isol.	3	F05033	F7	B	4	GL	AO	NO	FC	TH.2.0		21
FV-7663	RM to CVCS Blend Isol.	3	F05033	F7	B	4	GL	AO	NO	FC	Q.R.NT		261

Unit 2 IST Valve List Service Air - SA

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		_		_	-	****			HOPH.	FAIL	NORM. FAIL TEST		ST	
VALVE ID	VALVE FUNCTION	CE	PEID	100	ATIS	SIZE	TIPE	ACT	FOS.	POS.	CLI PRID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RE/C C O	BE/C	U	0
1-0504	SA-0504 Service Air to CIMI OB Isol.	2	2 F05041 C4 A 2 BL N AC	5	4	2	BL	×	N.C	1	Q(RA)	5	1	
											13	1		
-0505	SA-0505 Service Air to CTMT IB Check	2	2 F05041 D4 AC 2 CK SA RC	8	- V	14	8	SA	MC	1	CV(RR)	8	1	
					-						13	1		1

Unit 2 IST Valve List Steam Generator Blowdown - SB

		1 1		1				1	NORM .	FAIL	TEST		_ 57	2
VALVE ID	VALVE FUNCTION	CL	PEID	IGC	CAT	SIZE	TYPE	ACT	POS.	POS.	REQUIREMENT	RR/C	C	0
FV-4189	SG 2A to Sec. Sampling Isol.	2	F20001	ES	В	1	GT	sc	NO	FC	Q.R.HT(HT)	RR7	2	
FV-4189A	SG 2A to Sec. Sampling Isol.	2	F20001	H5	В	1	GT	so	NO	FC	Q.R.HT(NT)	RR7	2	
FV-4188	SG 2B to Sec. Sampling Isol.	2	F20001	HI	В	1	GT	so	No	FC	Q.R.HT(NT)	RR7	2	
FV-4188A	SG 2B to Sec. Sampling Iscl.	1 2	F20001	н1	В	1	GT	so	NO	FC	Q.R.MT(NT)	RR7	2	<u> </u>
FV-4187	SG 2C to Sec. Sampling Isol.	2	F20001	DI	В	1	GT	so	NO	FC	Q.R.MI(NT)	RR7	2	
FV-4187A	SG 2C to Sec. Sampling Isol.	2	F20001	ות	В	1	GT	so	NO	FC	Q.R.MT(NT)	RR7	2	
FV-4186	SG 2D to Sec. Sampling Isol.	1 2	F20001	D5	В	1	GT	so	NO	FC	Q.R.HT(HT)	RR7	2	<u> </u>
FV-4186A	SG 2D to Sec. Sampling Isol.	1 2	F20001	DS	B	1	GT	so	NO	FC	Q.R.MT(NT)	RR7	2	i

FV-4153	SG 2A to Flash Tank Isol.	2	F20001	G5	В	4	GT	AO	BO	FC	Q.R.MT	ļ	32
FV-4152	SG 2B to Flash Tank Isol.	2	F20001	G1	В	4	GT	AO	NO	FC	Q.R.MT		31
FV-4151	SG 2C to Flash Tank Isol.	2	F20001	lc1	В	4	GT	AO	NO	FC	Q.R.MT		33
FV-4150	SG 2D to Flash Tank Isol.	12	F20001	ics	В	4	GT	AO	NO	FC	Q.R.HT	i	35

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Unit 2 IST Valve List Standby Diesel Generator Starting Air - SD

		11		1			1		NORM.	FAIL	TEST		_S	
VALVE ID	VALVE FUNCTION	CL	PEID	IGC	CAT	SIZE	TYPE	ACT	POS.	Pos.	REQUIREMENT	RR/C	i c	0
	DG 21 Right Bank	1 1	8041-	1	1		1			1			1	
FY-5435	Cranking Air Valve	1 31	00108	IF2	B	3	GT	AC	NC	1 PC	Q.HT(HST)	RR40	I	
	DG 21 Left Bank	11	8041-	1			1			1			1	
FV-5434	Cranking Air Valve	1 31	00108	IF3	B	3	GT	AO	NC	FC	Q.HT(HST)	RR40		
FV-5535 FV-5534	DG 22 Right Bank Cranking Air Valve DG 22 Left Bank Cranking Air Valve	3	8041- 00108 8041- 00108	1		1	GT	!	NC NC	1	Q.MT(MST)	RR40	1	
FV-5635	DG 23 Right Bank Cranking Air Valve		8041- 00108	ı	ı		 GT			1	Q.MT(BST)	RR40	 	 -
	DG 23 Left Bank	11	8041-	1		1	1	1	1	1	1		i	1
FV-5634	Cranking Air Valve	1 31	80100	173	B	1 3	GT	I AO	NC	I FC	Q.MT(BST)	RR40		-

Unit 2 IST Valve List Salety Injection - SI

									NORM.	FAIL	NORM. FAIL TEST		ST	
VALVE ID	VALVE FUNCTION	Ct	PLID	GC	CATIS	SIZE	TIPE	ACT	Sos.	POS.	CL FEID GC CAT SIZE TIPE ACT POS. POS. REQUIREMENT RE/C C O	RE/C	0	0
TOV-0001A RW	HOV-0001A RWST ISOLATION	2	F05013	63	8	16	15	NO	30	FAI	2 F05013 G3 B 16 GT NO NO FAI Q.R.NT	- 19 19	13	13
TOV-0001B RW	MOV-0001B RWST Isolation	2	F05014	HZ	B	16	15	MO	NO	FAI	2 F05014 HZ B 16 GT NO NO FAI Q.R.HT	91 91	139	13
NOV-0001C RW	MOV-0001C RWST Isolation	2	F05015	HZ	B	16	GT	MO	NO	FAI	2 F05015 H2 B 16 GT NO FAI G.2.NT	- 1 19 19	139	13

XSI-0002A RWST Outlet Check	2 F05013 G3 C 16 CK SA FC	3 63	- 5	8	- S	3	1	CV(PER) ER31	16831	_ -
XSI-0002B RWST Outlet Check	2 F05014 HZ C 16 CK SA NC	4 82		9	28	2	1	CT(PRR RR31	EE31	1
XSI-0002C RWST Outlet Check	2 F05015 H2 C 16 CK SA SC	5 HZ	- 0	6 CK	SA	NC.	1	CV(PRE) RR31	RR31	

FV-3936 EWST to SPPCCS RWPP	2 F05013 F2 B 3 GL /	AO NC	77	Q.R.NT		19
FV-3937 RWST to SPPCCS RWPP	2 F05913 F2 B 3 GL 1	AO NC	22	0.E.MT	1	16

- 19 19		- 19 19		ध ध	<u> </u>
Q.R.HT	13		17		
FAI		FAI		FAI	-
0 FC		0 80		O #C	
15		15		5	
16		16		1 16	
185		B4 /	-	BA	
2 F05013 BS A 16 GT NO NC FAI Q.R.NT		2 F95014 B4 A 16 GT NO NC FAI Q.R.SI		2 FOSO15 B4 A 16 GT NO NC FAI Q.R.NT	
		2	-	7	
2A Outlet		2B Outlet		c outlet	
MOV-0016A Emergency Sump 2A Outlet		NOV-0016B Emergency Sump 2B Outlet		NOV-0016C Emergency Sump 2C Outlet	
Emerge		Energe		Emerge	
NOV-0016A		HOV-0016B		MOV-0016C	

Unit 2 IST Valve List Safety Injection - SI

	_						Line	HOEN.	FAIL	NORM. FAIL TEST		2	
VALVE FUNCTION	13	PEID	36	CAT	SIZE	TIPE	ACT	POS.	POS.	CL PEID GCCATSIZE TIPE ACT POS. POS. REQUIREMENT RE/C C O	ER/C	0	0
HOV-0014A LHSI Pp. 2A Recirc.	2	F05013	103	8	2	a	No	2	FAI	Z FOSO13 D3 B Z D NO NC FAI Q.R.NT	е п -	7	7
HOV-0013A LHSI Pp. ZA Recirc.	2	F05013	D3	B	2	Q	0	0	FAI	2 FOSO13 D3 B 2 D NO NO FAI Q.R.HT	1	13	13 14
HOV-0014B LHSI Pp. 2B Recirc.	2	F05014	a	- A	2	a	MO)	FAI	2 F05014 E3 B 2 D NO NC FAI Q.R.HT	1	122	12 14
HOV-0013B LHSI Pp. 2B Recirc.	2	F05014	2	10	2	0	0	9	FAI	2 FOSO14 E3 B 2 D NO NO FAI Q.R.NT	1	77	12 14
MOV-0014C LHSI Pp. 2C Recirc.	2	FOSUIS	103	2	2	Q	0	NG.	FAI	2 FOSOLS D3 B 2 D RO RC FAI Q.R.ET	1	133	13 14
MOV-0013C LHSI Pp. 2C Recirc.	2	FOSOIS	[03]	100	2	D	MO	NO	FAI	2 FOSO15 D3 B 2 D MO NO FAI Q.R.HT 13 14	1	13	14

	-		-	_	-	-	_				-	-	1
MOV-0018A LHST Pp. 2A Disch.	2	F05013	5	4	00	15	9	2	FAI	2 FOSO13 C4 A 8 GT NO NO FAI Q.R.MT	1	25 25	7
										11			T
MOY-0018B LHSI Pp. ZB Disch.	2	F05014	- M	4	00	5	B	90	FAI	2 F05014 D4 A 8 GT NO NO FAI Q.R.NT		15 15	7
										11	1		1
HOY-0018C LHSI Pp. 2C Disch.	2	F05015	2	4	00	5	- N	NO	FAI	2 FOSO15 D4 A 8 GT NO NO FAI Q.R.HT	1	रा डा	4
										5	1	1	

Unit 2 IST Valve List Safety Injection - SI

	0	1	1	1			
20	U	1	1	1	1	1	1
	RR/C	RR43	1	EE43	1	EE43	1
NORM. FAIL TEST	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RE/C C O	CV(PRS)	13	CV(PRS) FR43	5	CV(PRS) RR43	177
FAIL	POS.	1		1		1	
HORM.	POS.	NC.		NC.)	
	ACT	SA		SA		SA	
	TYPE	CK SA FC		8		8	
	SIZE	00		80		00	
-	CAT	AC		AC	7	- Z	-
	CC	150		8		D&	
	PEID	2 F05013 D5 AC 8		2 F05014 D4 AC 8 CK SA NC		2 F05015 D4 XC 8 CK SA RC	
_	8	2	-	2	-	2	
		Check		Check		Check	
	VALVE FUNCTION	A Disch.		B Disch.		2c Disch.	
	VALVI			Pp.		Pp.	
		LHSI		LHSI		LHSI	
	VALVE ID	XSI-0030A LHSI Pp. 2A Disch. Check		XSI-0030B LHSI Pp. 2B Disch. Check		XSI-0030C LHSI Pp. 2C Disch. Check	

MOV-0011A HHSI Pp. 2A Recirc.	2	F05013	*	B	2	_ 0	<u> </u>	NG.	FAI	2 F05013 G4 B 2 D MO NC FAI Q.R.MT		- 12 14	74
MOV-0012A HHSI Pp. 2A Recirc.	2	F05013	8	B	2	9	NO.	2	FAI	2 F05013 G4 B 2 D NO NO FAI G.R.NT	-1	14 14	7
MOV-0011B HHSI Pp. 2B Recirc.	2	F05014	H3	8	2	6	N N)	FAI	2 F05014 H3 B 2 D NO NC FAI Q.R.HT		- 12 14	2
MOV-0012P HHSI Pp. 2B Recirc.	2	F05014	H3	B	2	a	NO.	10	FAI	2 F05014 H3 B 2 D NO NO FAI G.R.NT	1	- m	13
MOV-0011C HHSI Pp. 2C Recirc.	2	F05015	8	0	2	a	MO)	FAI	2 F05015 G4 B 2 D NO NC FAI Q.R.HT	- 15 15	12	15
NOV-0012C HHSI Pp. 2C Recirc.	2	F05015	63	В	2	D	- H	180	FAI	2 F05015 G3 B 2 D MO WO FAI Q.R.MT 13 13		13	13

Unit 2 IST Valve List Safety Injection - SI

- 41	WAT UP STREET	t	PETD	_ 5	CAT	6178	4444	-	HORM.	FAIL	CT DEID GC CAT CIZE TYPE ACT DOC DOC DEDUIDEMENT DO/C C O	2/48	ST	.]0
MOV-0004A HHSI	MOV-0004A HHSI Pp. 2A Disch.	2	F05013	_ 2	4	9	15	MO	30	FAI	2 FOSO13 FS A 6 GT NO FAI Q.R.HT		2	15 15
											13	1		
VY-0004B HHSI	MOV-0004B HHSI Pp. 2B Disch.	2	F05014	G.	4	9	15	MO	NO	FAI	2 FOSO14 G4 A 6 GT NO NO FAI Q.R.HT	1	15	15 15
											17	1		
V-0004C HHSI	MOY-0004C HHSI Pp. 2C Disch.	2	F05015	F4	4	9	15	MO	1	FAI	2 FOSOIS F4 A 6 GT NO NO FAI Q.R.HT	1	7	T IT
											13	1		1

1	1	1		1	
4	4-	_4	4.	_4_	
RR43	-	PR43	1	RR43	
CV(PRS) RR43	13	CV(PRS) PR43	15	CV(PRS) RR43	173
-					
MC		NC.		JIC.	
SA		SA		SA	
8		8		8	
9		9		٥	
AC		- BC		N V	
F6		8		-2-	
2 F05013 F6 AC 6 CK SA RC		2 F05014 G4 AC 6 CK SA NC		2 F05015 F5 AC 6 CK SA NC	
2	-	2	-	2	
Check		Check		Check	
2A Disch.		2B Disch.		2C Disch.	
Pp.		Pp.		Pp.	
HHSI		HHSI		HHSI	
XSI-0005A HHSI Pp. 2A Disch. Check		XSI-0005B HHSI Pp. 2B Disch. Check		XSI-0005C HHSI Pp. 2C Disch. Check	

MOV-0008A HHSI Pp. 2A Hot Leg Inj.	2 F05013 F7 B 6 GT HO RC FAI Q.R.HT	F7 B	9	19	MO	NC.	FAI	Q.R.HT	1	- 12 13
HOV-0008B HHSI Pp. 2B Hot Leg Ini.	2 F05014 G7 B 6 GT NO NC FAI Q.R.HT	C7 B	9	5	0	2	FAI	Q.R.HT	1	- 12 13
MOV-COORC HHSI Pp. 2C Hot Leg Inj.	2 FOSO15 F7 B 6 GT NO NC FAI Q.R.NT	F7 B	9	15	MO	MC	FAI	Q.R.HT		- 12 12

Unit 2 IST Valve List Safety Injection - SI

-				_						_	HOPH.	FAIL	NORM. FAIL TEST		ST]
VALVE ID	VALVE	VALVE FUNCTION		7	PEID	3	CAT	SIZE	TIPE	ACT	POS.	POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C O	RR/C	U	0
006A	MOV-0006A THSI Pp. 2A Cold Leg Ini.	Cold Le	g Ini.	2	F05013	E7	B	9	15	MO	NO	FAI	2 F05013 E7 B 6 GT NO NO FAI Q.R.NT	- 12 13	12	13
1 8900	MOV-0006B HHSI Pp. 2B Cold Leg ini.	Cold Le	g ini.	2	F05014	12	0	9	15	NO.	NO	FAI	2 F05014 F7 B 6 GT NO NO FAI Q.R.HT	- 12 13	77	===
10000	NOV-0006C HHSI Pp. 2C Cold Leg Inj.	Cold Le	g Ini.	2	F05015	E7	m	9	15	MO	NO	FAI	2 F05015 E7 B 6 GT MO NO FAI Q.R.NT 11 12	1	7	12

	1	1	1		1
RR32	1	RR32	1	RR32	- - - - - - - - - -
CV(RR)	LT(PIV)	1 F05014 G7 AC 6 CK SA FC CV(RR)	LT(PIV)	CV(RR)	LT(PIV)
		MC		MC	
SA		SA		SA	
8		8		8	
9		9		9	
AC		AC		AC	
14		67		12	
1 F05013 F7 AC 6 CK SA 5C		F05014		1 F05015 F7 AC 6 CK SA NC	
三吉		3		3	
XSI-0009A HHSI Pp. 2A Hot Leg OB Check		XSI-0009B HHSI Pp. 2B Hot Leg OB Check		XSI-0009C HHSI Pp. 2C Hot Leg OB Check	
ZA Hot		ZB Hot		2C Hot	
Pp.		Pp.		Pp.	
HEI		HHSI		HEI	
xs1-0009A		XSI-0009B		XSI-0009C	

-4-				4	
RR2, 29		PR2.29		PR2.29	
CV(CS) RR2, 29	LT(PIV)	CV(CS) RR2.29	LT(PIV)	CV(CS) RR2.29	LT(PIV)
		1			
SA NC		SA NC		SA NC	
8		8		8	
1 F05013 F8 AC 8 CK SA NC	-	1 F05014 G8 AC 8 CK SA NC		1 F05015 F8 AC 8 CK SA MC	
5013 F8	+	5014 68	-	5015 F8	
1 20		1 10	-	1 20	
XSI-0010A HHSI Pp. 2A Hot Leg IB Check		XSI-0010B HHSI Pp. 2B Hot Leg IB Check		XSI-0010C HHSI Pp. 2C Hot Leg IB Check	
HSI Pp. 2A H		HSI Pp. 2B H		HSI Pp. 2C H	
XSI-0010A H		XSI-0010B B		XSI-0010C B	

Unit 2 IST Valve List Safety Injection - SI

VALVE ID VA	VALVE FUNCTION		13	PEID	_8	CATIS	IZE	TEE	- d	ORF.	FOS. POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C 0	RR/C	2	.0
HHSI PP	XSI-0007A HHSI Pp. 2A Cold Leg OB Check	og OB Check	===	1 F05013 E7 AC 6 CK SA NC	E7	AC	9	8	SA	J.	1	CV(RR)	ER32		1
							7	1	-			LT(PIV)	1		1
B HHSI PP	XSI-0007B HHSI Pp. 2B Cold Leg 0B Check	og OB Check	==	1 F05014 F7 AC 6 CK SA RC	F7	- V	9	8	SA	D.	1	CV(RR)	ER32		
							-	7				LT(PIV)	1		
C HHSI PP	XSI-0007C HHSI Pp. 2C Cold Leg OB Check	og OB Check	==	1 F05015 E7 AC 6 CK SA NC	E7	VC.	9	8	SA	NC.	1	CV(RR)	ER32	1	
												LT(PIV)	1	1	-

S	FV-3983 SIS Accum. NZ Supply OB Isol.	. W2	Supply	08	sol.	2	F05016	62	4	-	GE	AO	N.C	22	2 F05016 G2 A 1 GL AO NC FC Q.R.NT		30
															11		
- 8	SI-0058 SIS Accum. #2 Supply IB Check	. 82	Supply	118		7	F05016		- DV	-	8	SA	2	1	2 F05016 GZ AC 1 CK SA NC CV(RR)	8	- -
												-					

Unit 2 IST Valve List Safety Injection - SI

CL Prid GC CAT SIZE IIPE ACTIPOS. POS. REQUIREMENT RECOL
1 F05016 F6 AC 12 CK SA SC
1 F05016 D7 AC 12 CK SA NC
1 F05016 B7 AC 12 CK SA BC

XSI-0038A SI Cold Leg 1 IB Check	-	F05016	F7	AC	12	R	SA	MC	1	CV(CSDI)	1 F05016 F7 AC 12 CK SA NC CV(CSDI) RR2.39
							-			LT(PIV)	
XSI-0038B SI Cold Leg 2 IB Check		F05016	D7	AC	77	8	SA	NC.	1	CA(CSDI)	1 F05016 D7 AC 12 CK SA BC CV(CSDI) RR2.39 -
							7			LT(PIV)	
XSI-0038C SI Cold Leg 3 IB Check	-	F05016	B7	AC	77	B	SA	2	1	CA(CSDI)	1 F05016 B7 AC 12 CK SA BC CV(CSDI) [RR2.39
				-						LT(PIV)	

Unit 2 IST Valve List Safety Injection - 51

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41 44	VALVE PIECTION	_ +	PSID		ATISI	ZE TYP	E ACT	POS.	PAIL POS.	CL. PRID GC CAT SIZE TIPE ACT POS. POS. REQUIREMENT RE/C C 0	RR/C	0 3
2070	TALLE IN STE Teet Line IR Isol.		F05016	- 14			AO	BC	77	1 F05016 F7 A .75 GL A0 HC FC Q.R.HT	1	- 8
2000	1000 0000 0000 0000							-			1	_
V-2071	TV-2071 CTC Tect Line OR Isol.		F05016			75 GL	- AO) i	22	1 F05016 F7 A .75 GL AO BC FC Q.R.WI(BI) RR7 2	RR7	2
3316											1	- <u> </u> - <u> </u> -

Unit 2 IST Valve List Steam Generator Sludge Lancing - SL

		-		_					HOEM.	FAIL	BORN. FAIL TEST		ST
VALVE ID	VALVE FUNCTION	מ	PEID	20	CAT	SIZE	TIPE	ACT	POS.	POS.	CL PAID GC CAT SIZE TIPE ACT POS. POS. REQUIRENENT RE/C C 0	RR/C	0
-0005	SL-0902 Hi Pressure OB Isol.	2	2 F05057 BC A 2 GT H BC	Br	A	2	19	22	MC	1	Q(RA)	5	
											17	1	1
\$000	SL-0004 Hi Pressure IB Isol.	2	2 F05057 B6 A 2 GT H BC	B6	4	2	53	*	NC.	1	Q(BA)	5	1
											11	1	Ī

SL-0012	SL-0012 Low Pressure OB Isol.	2	2 F05057 E5 A 6 GT H BC	13	4	9	15	=	ac.	1	Q(EA)	5	
											17	1	1
\$100-7	SL-0014 Low Pressure OB Isol.	2	2 F05057 E6 A 6 GT H HC	93	V	9	15		NC.		Q(BA)	8	- -
							_				5	1	

27	Chem.	Clng.	Ret.	SL-0027 Chem. Clng. Ret. IB Isol.	2	2 F05057 G6 A 6 GT H BC	95	4	9	15	22	D.	1	Q(BA)	5		
														177	1	1	
62	Chem.	Clng.	Ret.	SL-0029 Chem. Clng. Ret. OB Isol.	120	2 F05057 G5 A 6 GT H BC	CS	V	9	15	25	3C	1	Q(BA)	5	1	
					 									5	1	1	1

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Unit ? IST Valve List Liquid Was: Processing - WL

			_		_					HORM.	FRIL	NORM. FAIL TEST		ST
VALVE ID	VALVE FUNCTION		Ct	PEID	100	CATIS	SIZE	TYPE	ACT	POS.	POS.	CL PGID GC CAT SIZE TYPE ACT'POS. POS. REQUIREMENT RR/C C O	RR/C	2
-4919	FV-4919 RCDT #2 Supply/Vent OB Isol.	OB Isol.	2	F05022	199	- V	7	75	3	NO	5	2 F05022 G6 A 1 GL AV NO FC Q.R.HT	1	3
												13	1	
-4920	FV-4920 RCDT #2 Supply/Vent IB Isol.	IB Isol.	2	F05022	199	V		19	SO	MC	2	2 F05022 G6 A 1 GL SO NC FC Q.R.MT(RT) RR7	RR7	2
												17	1	

or		8	
		1	
-			
2 F05022 E3 A 3 GT NO NO FAI Q.R.HT	11	2 F05022 F3 A 3 GL AO NO FC Q.R.HT	17
FAI		22	
0		NO.	
0		AO	
5		15	
6		6	
E3 A		F3 A	
F05022		F05022	
2		2	
IB Isol.		OB Isol.	
Disch.		Disch.	
Pump		Pump	
RCDT		RCDT	
HOV-0312 RCDT Pump Disch. IB Isol.		FV-4913 RCDT Pump Disch. OB Isol.	

Unit 2 IST Valve List Containment - XC

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VALVE ID	VALVE FUNCTION	_ 5	PEID	100	CAT	SIZE	TYPE	ACT	NORM.	FAIL POS.	CL PEID GC CAT SIZE TYPE ACT POS. POS. REQUIREMENT RR/C C O	RR/C	CO
-1025	FV-1025 PAL Air Supply Isol.	2	F05060	45	V	·s.	13	So	0	2	2 F05060 G4 A .5 GL SO NO FC Q.R.NT(NT) RR7	RR7	2
					7						5	1	
-1026	FV-1026 PAL Air Supply Isol.	7	F05060	5	-4	3.	GL	So	NO	2	2 F05060 G4 A .5 GL SO NO FC Q.R.HT(NT) RR7	RR7	2
											13	1	
-1027	FW-1027 PAL Auto Leak Rate Monit Isol.	7	F05060	5	4	.5	GL	So	0	5	2 FOSO60 C4 A .5 GL SO NO FC Q.R.MI(NI) RR7	RR7	2
											11	1	1
-1028	FV-1028 PAL Auto Leak Rate Monit Isol.	2	F05060	8	4	.5	79	So	NO	2	2 F05060 C4 A .5 GL S0 NO FC Q.R.NT(NT) RR7	RR7	2
											ורד	1	

3.1 Requests for Relief from ASME Boiler and Pressure Vessel Code Section XI Requirements and Clarifications of Valve Testing Methods

RR1

Test Requirement

The stroke time of all power-operated valves shall be measured, and check valves shall be exercised for operability at least once every three (3) months.

Basis for Relief

This valve is a stop check valve with a motor operator. The motor operator may be safely stroked at power; however, the stop chack valve can only be exercised (full-stroke) by directing Auxiliary Feedwater Flow into the Steam Generators. The initiation of Auxiliary Feedwater during power operation would result in urwanted thermal shock to the secondary portions of the Steam Generators. An introduction of cold water would also cause unwanted power transients.

Alternate Testing

The valve motor operator will be stroked and timed at least once every three (3) months as required; however, after leaving cold shutdown and prior to entering Mode 2 (Startup) Auxiliary Feedwater will be directed through the valve using one pump flow rate. Verification of flow through the valve will provide assurance that the valve has opened sufficiently to perform its function (full-stroke).

RR2

Test Requirement

IWV-3417(b) and IWV-3523 state that when corrective action is required as a result of tests made during cold shutdown, the condition shall be corrected before startup. A retest showing acceptable operation shall be run following any corrective action before returning valve to service.

Basis for Relief

The plant Technical Specifications provide the requirements and plant conditions necessary for plant startup (i.e. mode changes).

Alternate Testing

The test requirement will be satisfied before the valve is required to be operable in accordance with the plant Technical Specifications.

RR3

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

This check valve is normally closed during normal power operation and can only be exercised (full-stroke) by directing Auxiliary Feedwater flow into the Steam Generators. The initiation of Auxiliary Feedwater during normal power operation would result in unwanted thermal shock and power transients. Flow from the Main Feedwater System cannot be used to exercise this check valve during normal power operation since thermal shock to the Auxiliary Feedwater nozzles would occur by injecting the cooler, stagnant water in the connecting piping and no flow instrumentation is available in this configuration to verify valve full-stroke.

Alternate Testing

After leaving cold shutdown and prior to entering Mode 2 (Startup), Auxiliary Feedwater will be directed through the valve using one pump flow rate. Verification of flow through the valve will provide assurance that the valve has opened sufficiently to perform its function (full-stroke).

C4

Test Requirement

Exercise valves for operability at least once every three (3) months.

Testing Method

This valve is a normally closed containment isolation valve and is passive. The operability testing (full or partial stroke) during either power operation or cold shutdown provides no added assurance of an increase in safety. This valve will be verified closed and leak-tight each refueling outage during performance of LLRT activities in accordance with 10CFR50 Appendix J.

C5

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Testing Method

This valve is a normally closed containment isolation check valve and is passive. The operability testing (full or partial stroke) during either power operation or cold shutdown provides no added assurance of an increase in safety. This valve will be verified closed and leak-tight each refueling outage during performance of LLRT activities in accordance with 10CFR50 appendix J.

RR6

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

Operability testing (full or partial stroke) of this normally closed check valve is impractical due to plant design.

Alternate Testing

This valve will be required to be partially disassembled every refueling outage and the valve internals will be inspected to ensure no degradation has occurred.

RR7

Test Requirement

IWV-3413(b) requires that the stroke time of all power-operated valves shall be measured to the nearest second for stroke times of 10 seconds or less. IWV-3417 requires that on any one test of power-operated valves, an increase in stroke time of 50% or more from the previous test for valves with stroke times of 10 seconds or less, the test frequency shall be increased to once each month until corrective action is taken.

Basis for Relief

These solenoid-operated valves have very short stroke times and are classified as "rapid-acting" valves. Accurate measurement of stroke time is not practical. In addition, stroke times may vary significantly due to system pressure and/or temperature changes from one test to another.

Alternate Testing

These valves will be required to be full stroked and timed to the nearest second quarterly. Acceptance of the test will be based only on the stroke time limit (not to exceed 2 seconds) and not on the "50%" criteria of IWV-3417.

RR8

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

Due to plant design, it is not practical to verify by any positive means, either directly or indirectly, the operability of these normally open check valves per the requirements of IWV-3522(a).

Alternate Testing

Valve closure will be verified during LLRT activities performed each refueling outage in accordance with 10CFR50 Appendix J.

RR9

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

Operability testing (full or partial stroke) of these normally closed check valves is impractical during power operation or cold shutdown. Stroking these valves with flow would require the spraying of containment which is impractical and may cause equipment damage.

Alternate Testing

The check valves will be verified operable by disassembly of one check valve each refueling outage on a rotating basis for inspection to ensure no degradation has occurred. If the check valve selected during any refueling outage shows signs of unacceptable degradation, all other applicable check valves will be disassembled and inspected during that refueling outage.

RR10

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

These normally open valves supply clean, cool water for the RCP seals providing lubrication, cooling and pressurization of the pump seals. Failure of these valves in the closed position during stroking could significantly reduce seal life and possibly cause a plant outage.

Alternate Testing

These valves will be required to be exercised (full stroke) each cold shutdown not to exceed once every three months.

RR11

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves would cause a loss of system function (loss of charging pump normal suction from VCT). Utilizing other suction sources (RWST or Boric Acid Transfer System) would affect reactivity control possibly requiring a plant shutdown. Valves have no partial stroke provisions.

Alternate Testing

These valves will be required to be tested for operability (full stroke) each cold shutdown not to exceed once every three (3) months.

RR12

Test Requirement

Exercise valves and check valves for operability at least once every three (3) months.

Basis for Relief

Exercising of these normally closed valves and check valves at power would connect the suction of the Charging Pumps to the RWST resulting in concentrated boric acid injection into the RCS, causing a resultant power change which is undesired.

Alternate Testing

These valves and check valves will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR13

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

This valve normally is throttled to control charging flow by a flow controller. The valve cannot be full stroked at power without isolating charging flow to the RCS which could cause a loss of normal pressurizer level control possibly causing a plant shutdown.

Alternate Testing

This valve will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR14

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

This normally open valve supplies charging water to the RCS. Isolation of charging during normal power operation could cause a loss of normal pressurizer level control possibly causing a plant shutdown.

Alternate Testing

This valve will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR15

Test Requirement

Exercise valves and check valves for operability at least once every three (3) months.

Basis for Relief

Exercising of this normally closed valve and check valve would require introduction of cold (\leq 140 F) spray water into the pressurizer at power creating an undesired transient.

Alternate Testing

This valve and check valve will be required to be exercised for operability (full stroke) at each cold shutdown not to exceed once every three (3) months.

RR16

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

Exercising of this normally closed check valve at power would result in injection of concentrated boric acid into the RCS via the operating charging pump(s) creating an undesired power transient and possible plant shutdown.

Alternate Testing

This check valve will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR17

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

This valve is normally open during power operations and cannot be full stroke tested without isolating Feedwater from the Steam Generators. Isolation of Feedwater would cause an undesirable power transient and possible turbine and reactor trip.

Alternate Testing

This valve will be required to be partial-stroke tested at least once every three (3) months and full-stroke tested each cold shutdown not to exceed once every three (3) months.

RR18

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

This valve is normally throttled open during power operations to maintain Steam Generator level by controlling feedwater flow. This valve cannot be tested without isolating Feedwater from the Steam Generators causing undesirable power transients and possible turbine and reactor trip.

Alternate Testing

This valve will be exercised (partial stroke) during the course of normal plant operations by automatically stroking to maintain programmed Steam Generator level. Abnormal valve operations will be detected by Steam Generator level abnormalities. This valve will also be exercised (full stroke) each cold shutdown, not to exceed once every three (3) months.

RR19

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

This valve is normally closed above approximately 20% power and controls Feedwater flow to the Steam Generators below 20% power during start-up. This valve cannot be tested without isolating or perturbing Feedwater flow to the Steam Generators causing undesirable power transients and possible turbine and reactor trip.

Alternate Testing

This valve will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR20

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

These 48 inch Containment Purge Valves are required by the Technical Specifications to be sealed closed during normal power operation.

Alternate Testing

These valves will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR21

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

These 18 inch Containment Purge Valves are allowed by the Technical Specifications to be opened only for essential operational and personnel protection reasons minimizing the total time open during normal power operation. Failure of these valves during operation in the open position would cause a less of primary containment integrity and necessitate a plant shutdown.

Alternate Testing

These valves will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR22

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

This valve supplies Instrument Air to containment to operate various valves. Isolation of Instrument Air (and if valve fails closed and cannot be reopened) would cause a plant shutdown.

Alternate Testing

This valve will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR23

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing of these normally closed valves during power operation would result in undesirable power transients and could cause a plant shutdown if valves fail to close. Closing the manual block valve upstream would require personnel entry into the Isolation Valve Cubicle area, which also contains the Main Steam Safety Valves in close proximity (approximately eight feet) to the manual block valve. Egress from this area requires personnel to pass by the Main Steam Safety Valves. Inadvertent operation of a Main Steam Safety Valve would result in significant steam release to the immediate area from the safety valve discharge drip lines causing possible personnel injury.

Alternate Testing

This valve will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR24

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these normally open valves at power is not practical and will cause a plant shutdown.

Alternate Testing

These valves will be required to be partial-stroke exercised quarterly and full-stroke exercised each cold shutdown not to exceed once every three (3) months.

C25

Test Requirement

IWV-3421 requires that Category A valves shall be leak tested except valves which function in the course of plant operation in a manner which demonstrates functionally adequate leak tightness need not be leak tested.

Testing Method

The leak tightness of these valves is demonstrated to be functionally adequate during normal plant operation. RCS is monitored for leakage per Technical Specification 3.4.6.2.

RR26

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

These valves are line-pressure-actuated valves and therefore require their block valves to be open to allow reactor pressure to stroke the valve. This is not feasible at power to stroke these valves as an unwanted RCS pressure and pressurizer level transient would occur possibly tripping the reactor. Acceptable maximum RCS pressure has been determined to be between 300 and 400 psig, with initial pressurizer water level at 25%, to allow for full stroking of these valves without causing an uncontrollable transient.

Alternate Testing

RR27

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

These valves cannot be stroked at a RCS pressure greater than or equal to 350 psig due to an RCS pressure interlock.

Alternate Testing

These valves will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR28

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

These valves cannot be exercised (full stroke) at power as the RHR Pumps have no provision for full flow testing except during cold shutdown conditions.

Alternate Testing

These valves will be required to be exercised (partial stroke) at least once every three (3) months using RHR Pump recirculation flow, and exercised (full stroke) each cold shutdown not to exceed once every three (3) months with the RHR Pumps aligned for normal shutdown cooling flows.

RR29

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

These valves cannot be tested for operability (full stroke) at power because the RHR and LHSI pumps cannot overcome RCS pressure to allow flow through these check valves.

Alternate Testing

These valves will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR30

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

These valves are normally inaccessible during power operation. Exercising and stroke timing these valves will require lifting electrical leads to ensure repeatable stroke times since valve is normally controlled by a controller and not a handswitch.

Alternate Testing

RR31

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

These check valves can only be exercised (full stroke) by simulating LOCA conditions (pumping into the RCS with RCS at zero or very low pressure) in order to get full pump flows.

Alternate Testing

These check valves will be required to be exercised (partial stroke) at least once every three (3) months by running pumps at normal recirculation flows, and exercised (full stroke) each refueling outage by injecting into the RCS with the vessel head off using the appropriate pump(s) at full flow.

RR32

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

These check valves cannot be exercised (full stroke or partial stroke) at power as the HHSI pumps cannot develop discharge pressure greater than normal RCS pressure. These check valves cannot be exercised (full stroke or partial stroke) during cold shutdown as the HHSI pumps would overpressurize the RCS.

Alternate Testing

These valves will be required to be exercised (full stroke) each refueling outage by injecting HHSI flow into the open and vented RCS.

RR33

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

These check valves cannot be exercised (full or partial stroke) at power since the SIS Accumulator pressure is lower than the RCS pressure, cannot be exercised (full or partial stroke) during cold shutdown without the possibility of overpressurizing the RCS, and cannot be exercised (full stroke) during a refueling outage as the high flow rate of a full discharge with the SIS Accumulators at normal pressure may cause internal damage to the core.

Alternate Testing

These check valves will be verified operable by disassembly of one check valve each refueling outage on a rotating basis for inspection to ensure no degradation has occurred. If the check valve selected during any refueling outage shows signs of unacceptable degradation, all other applicable check valves will be disassembled and inspected during that refueling outage.

RR34

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal power operation requires isolating normal letdown in order to prevent thermal shock and possible damage to the Letdown Heat Exchanger. Isolating normal letdown during power operation requires closing either LCV-0465 or LCV-0466 (both inaccessible during normal power operation). Failure of either LCV-0465 or LCV-0468 in the closed position could result in plant shutdown due to loss of normal pressurizer level control.

Alternate Testing

RR35

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal power operation would result in thermal shock and possible damage to the Regenerative Heat Exchanger and Letdown Heat Exchanger. This valve is inaccessible during normal plant operation and failure of this valve in the closed position could result in plant shutdown due to loss of normal pressurizer level control.

Alternate Testing

These valves will be required to be exercised (full stroke) at each cold shutdown not be exceed once every three (3) months.

RR36

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal power operation requires closing of other valves, normally inaccessible, inside reactor containment to protect a portion of the letdown line from overpressurization and lifting of relief valve PSV-3100. Failure of these valves in the closed position or the other valves closed for the test could result in a plant shutdown due to loss of normal pressurizer level control. Also, isolation of letdown during normal power operation would result in thermal shock and possible damage to the Regenerative Heat Exchanger and the Letdown Heat Exchanger.

Alternate Testing

RR37

Test Requirement

Exercise valves and check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal power operation requires alternating between the normal and alternate charging headers. Alternating charging headers at power would cause thermal shock and possible damage to the charging nozzles at the Reactor Coolant System boundary.

Alternate Testing

These valves and check valves will be required to be exercised (full stroke) each cold shutdown not to exceed once every three (3) months.

RR38

Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal power operation requires injecting Main Feedwater through the cooler Auxiliary Feedwater lines into the Steam Generator. Injecting the cooler water in the Auxiliary Feedwater lines followed by the hotter Main Feedwater would cause thermal shock and possible damage to the Auxiliary Feedwater nozzles at the Steam Generator boundary.

Alternate Testing

RR39

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

These check valves cannot be exercised at power (full or partial stroke) since neither the HHSI pumps, LHSI pumps, RHR pumps, nor the SIS Accumulators can overcome RCS pressure. These check valves cannot be exercised (full stroke) during cold shutdown without the possibility of overpressurizing the RCS. These check valves cannot be exercised (full stroke) during a refueling outage as the high flow rate required may cause internal damage to the core.

Alternate Testing

These check valves will be required to be exercised (partial stroke) each cold shutdown not to exceed once every three (3) months using RHR flow, and these check valves will be verified operable (full stroke capable) by disassembly of one check valve each refueling outage on a rotating basis for inspection to ensure no degradation has occurred. If the check valve selected during any refueling outage shows signs of unacceptable degradation, all other applicable check valves will be disassembled and inspected during that refueling outage.

RR40

Test Requirement

The stroke time of all power-operated valves shall be measured.

Basis for Relief

These valves supply air to the Standby Diesel Generator during the starting sequence establishing initial starting compression. Downstream of each redundant valve is a pressure switch that controls the alarm logic. The failure of either valve to open sufficiently within one second of a start signal will result in a Starting Air System Malfunction alarm. Normal testing of the Diesel Generator in accordance with Technical Specification will exercise both of these valves and verify stroke time less than one second by absence of alarms. This testing is performed at least once every 31 days on a staggered test basis.

Alternate Testing

These valves will be required to be verified operable during normal Diesel Generator testing by verifying absence of the Starting Air System Malfunction alarm. No stroke times will be taken.

C41

Test Requirement

Exercise check valves for operability at least once every three (3) months, and category A valves shall be leak tested except valves which function in the course of plant operation in a manner which demonstrates functionally adequate leak tightness need not be leak tested.

Testing Method

These valves are normally closed unless the Residual Heat Removal System experiences an external leak or a net intersystem leakage causing makeup from the RCP Seal Standpipe which would be detectable by a low level alarm on the RCP Seal Standpipe servicing the affected train, and are therefore passive or proven passive by lack of a low level alarm. Leakage, however, is important to the valve's function to prevent diversion of Low Head Safety Injection or Residual Heat Removal System flow. Leakage during normal operation (if intersystem leakage into the Residual Heat Removal System is positive) and during Residual Heat Removal Pump operation (during heatup, cooldown, and pump testing) will be detected by a high level alarm in the corresponding RCP Seal Standpipe. No additional testing will be performed other than normal operations monitoring of the RCP Seal Standpipe alarms.

RR42

Test Requirement

IWV-3300 states that valves with remote position indication shall be observed at least once every 2 years to verify that valve operation is accurately indicated.

Basis for Relief

These valves, AP-FV-2455 and AP-FV-2455A, are solenoid valves for which stem movement cannot be directly observed. These are redundant valves in series and operate simultaneously from a single switch with one set of indicating lights.

Alternate Testing

The valves are stroked and timed during normal inservice testing using the remote indicating lights. Open and closed indication is actuated by the limit switches of each valve wired in series. Therefore remote position indication is based on the slowest valve. Since these redundant valves cannot be exercised separately (unless leads are lifted, temporary 125 VDC power is supplied to the disabled valve to maintain it in the open position and jumpers are placed across the disabled valve's limit switches) the valves will be stroked simultaneously and remote position indication verified by observing system flow is initiated and then secured.

RR43

Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

These check valves can only be exercised (full stroke) by simulating LOCA conditions (pumping into the RCS with RCS at zero or very low pressure) in order to get full pump flows.

Alternate Testing

These check valves will be required to be exercised (partial stroke) at least once every three (3) months, provided RCS pressure is above pump shutoff head, by running pumps at normal recirculation flows, and exercised (full stroke) each refueling outage by injecting into the RCS with the vessel head off using the appropriate pump(s) at full flow.

4.0 DRAWINGS

- 58109 F00016 #2 (F00016)
- 5S199 F00020 #2 (F00020)
- 55149 FG0024 #2 (FG0024)
- 55139 F00063 #2 (F00063)
- 5R1 19 F05001 #2 (F05001)
- 5R149 F05003 #2 (F05003)
- 5R149 F05004 #2 (F05004)
- 5R179 F05005 #2 (F05005)
- 5R179 F05006 #2 (F05006)
- 5R179 F05007 #2 (F05007)
- 5R179 F05009 #2 (F05009)
- 5N129 F05013 #2 (F05013)
- 5N129 F05014 #2 (F05014)
- 5N129 F05015 #2 (F05015)
- 5N129 F05016 #2 (F05016)
- 5R209 F05017 #2 (F05017)
- 5R209 F05018 #2 (F05018)
- 5R209 F05019 #2 (F05019)
- 5R209 F05020 #2 (F05020)
- 5R309 F05022 #2 (F05022)
- 5R219 F05028 #2 (F05028)
- 5Q069 F05030 #2 (F05030)
- 5R279 F05033 #2 (F05033)
- 5S199 F05034 #2 (F05034)

4.0 DRAWINGS (CONT.)

- 5N109 F05037 #2 (F05037)
- 5R289 F05038 #2 (F05038)
- 5R289 F05039 #2 (F05039)
- 5Q119 F05040 #2 (F05040)
- 5Q109 F05041 #2 (F05041)
- 5R279 F05042 #2 (F05042)
- 5Q129 F05044 #2 (F05044)
- 5R349 F05046 #2 (F05046)
- 5Q279 F05047 #2 (F05047)
- 5S209 F05057 #2 (F05057)
- 5C269 F05060 #2 (F05060)
- 5R169 F20000 #2 (F20000)
- 5S209 F20001 #2 (F20001)
- 5V149 V00017 #2 (V00017)
- 5V149 V00018 #2 (V00018)

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- 5V149 V00019 #2 (V00019)
- 5V149 V00021 #2 (V00021)
- 5V119 V10001 #2 (V10001)
- 3V119 V10002 #2 (V10002)
- 5Z329 Z00045 #2 (Z00045)
- 5Z169 Z00046 #2 (Z00046)
- 5Z549 Z47501 #2 (Z47501)
- 14926-8041-00108-BCE (8041-00108)