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PG&E Letter DCL-05-023

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Power Plants (DCPP) Units 1 and 2
Inservice Testing (IST) Program – Third Ten-Year Interval and IST Relief Requests

Dear Commissioners and Staff:

Pursuant to 10 CFR 50.55a(f)(5)(i), the DCPP IST Program has been revised and is provided as the "Third Ten-Year Interval, Revision 0," in Enclosure 1. The IST Program incorporates the 2001 Edition with the 2002 and 2003 Addenda of the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code) with 10 CFR 50.55a(b) approved Code Cases as applicable. Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," approval of NUREG-1482, "Guidelines for Inservice Testing Programs at Nuclear Power Plants," regulatory positions are incorporated in the revised IST Program. The third ten-year Interval will begin January 1, 2006, and June 1, 2006, for Units 1 and 2, respectively.

Included in this submittal are two IST Requests for Relief from Code Requirements that were approved for use during the second ten-year interval. Enclosure 2 provides Relief Request No. P-RR1 (Table 1.1, pages 2 through 4) that was previously approved as P-RR4 by NRC letter dated February 25, 1998. Enclosure 3 provides Relief Request No. P-RR2 (Table 1.1, pages 5 and 6) that was previously approved as No. P-RR5 by NRC letter dated December 30, 1998.

Sincerely,

Donna Jacobs

ddm/469
Enclosures
cc: David L. Proulx, NRC Senior Resident Inspector
Gregory M. Rueger
cc/enc: Paul R. Fox, American Nuclear Insurers
Bruce S. Mallett, NRC Regional Administrator, Region IV
Girija S. Shukla, NRC Project Manager

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Enclosure 1
PG&E Letter DCL-05-023

INSERVICE TESTING (IST) PROGRAM
THIRD TEN-YEAR INTERVAL, REVISION 0
DIABLO CANYON POWER PLANTS UNIT 1 AND 2

Pacific Gas and Electric Company
77 Beale Street
San Francisco, California
94177

Revision 0
January 7, 2005

INSERVICE TESTING PROGRAM

THIRD TEN-YEAR INTERVAL

DIABLO CANYON POWER PLANT

UNITS 1 AND 2

Pacific Gas and Electric Company
P.O. Box 56
Avila Beach, California
93424

USNRC DOCKET NOS. 50-275/50-323

FACILITY OPERATING LICENSE NOS. DPR-80/82

COMMERCIAL OPERATION DATES: MAY 7, 1985/MARCH 13, 1986

Prepared by: _____ 12/23/2004
John Hjalmarson IST Coordinator 01/07/2005

Reviewed by: _____ 12/23/2004

Approved: PSRC Date _____ 1/14/2005

Approved by: _____
Jim Becker, Station Director

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77 Beale Street
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INSERVICE TESTING PROGRAM PLAN
THIRD TEN-YEAR INTERVAL

INTRODUCTION

This volume describes the Inservice Testing (IST) Program Plan for Diablo Canyon Power Plant's safety-related components (pumps and valves) which are classified ASME Code Class 1, Class 2, and Class 3.

This IST Program Plan complies with the requirements of 10 CFR Part 50.55a(a), Part 50.55a(b) (2), and Part 50.55a(f), effective (LATER), as follows:

10CFR50.55a(f) (1) - For a pressurized water-cooled nuclear facilities (PWR) whose construction permit was issued prior to January 1, 1971 (Unit 1's was issued April 23, 1968 and Unit 2's was issued December 9, 1970), pumps and valves must meet the requirements of paragraphs (f) (4) and (5).

10CFR50.55a(f) (4) - Throughout the service life of a PWR, ASME Code Class 1, 2, or 3 pumps and valves must meet the ASME OM Code and Addenda that are incorporated by reference in paragraph (b) of this section, to the extent practical within the limitations of design, geometry and materials of construction of such components.

10CFR50.55a(b) (2) - ...references to Section XI of the ASME B&PV Code refer to Section XI, and include the 1970 Edition through the 1976 Winter Addenda, and the 1977 Edition (Division I) through the 2001 Addenda and editions through the 2002 and 2003 Addenda.

10CFR50.55a(f) (4) (ii) - Inservice tests conducted during successive 120-month intervals must comply with the requirements of the latest edition and addenda of the Code incorporated by reference in paragraph (b) of this section 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed in paragraph (b).

10CFR50.55a(f) (4) (iv) - IST of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in paragraph (b), subject to the limitations and modifications listed in paragraph (b), and subject to Commission approval. Portions of editions or addenda may be used provided that all related requirement of the respective additions or addenda are met.

10CFR50.55a(f) (5) (i) - The IST program for a PWR must be revised, as necessary, to meet the requirements of paragraph (f) (4).

10 CFR Part 50.55a incorporated by reference the 2001 Edition and the 2002 and 2003 Addenda of the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code).

The initial testing interval for Unit 1 began May 7, 1985, and for Unit 2 began March 13, 1986, when the respective Units were placed into commercial operation.

The second ten-year interval began January 1, 1996 for Unit 1 and June 1, 1996 for Unit 2.

The third ten-year interval will begin on January 1, 2006 for Unit 1 and June 1, 2006 for Unit 2.

(2)

Where conformance with certain Code requirements is impractical, requests for relief, in accordance with 10CFR50.55a(a) (3) and 10CFR50.55a(f) (5), are included in each section with supporting information and proposed alternatives. Preservice tests, where required, have been completed. All preservice test data is available for review at the plant site.

ASME SECTION XI CODE BOUNDARY DRAWINGS

The ASME Code Classification Boundary Drawings, PG&E Number 102028 (Unit 1) and 104628 (Unit 2), are located in Section 2.0 of the Inservice Inspection (ISI) Program Plan. Regulatory Guide 1.26[1] was used as the governing document in setting up the Inservice Inspection and Testing Program (ISIT) boundary. The drawings show the Code Class 1, 2, and 3 systems and components subject to inservice inspection and testing requirements. Systems and components are identified by Code Class and are color coded as applicable to indicate exemptions from various code requirements[2]. These drawings are extracted from the piping schematics (P&ID's) for the plant that are contained in Section 3.2 of the FSAR. All ASME Code Class 1, 2, and 3 components subject to inservice testing are shown on the drawings. To emphasize the Section XI Code Boundaries, P&ID pages containing lines other than ASME Code Piping have been omitted and non-ASME lines have been ghosted on the pages included. An explanation of the color coding system is provided at the end of the drawings.

[1] Regulatory Guide 1.26, "Quality Classifications and Standards for Water-Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants.

[2] As allowed by Paragraphs IWB-1220, IWC-1220, IWC-1230, and Table IWD-2500-1 of Section XI.

INSERVICE TESTING OF PUMPS AND VALVES

The pump and valve testing program demonstrates the operational readiness of Code Class 1, 2, and 3 pumps and valves which are required to perform a specific function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition or in mitigating the consequences of an accident. This program is presented in the attached Tables.

Table 1.0 (Pump IST Program) includes the pump name and number, the Code Class, applicable surveillance test procedure and test parameters, i.e., speed, differential pressure, discharge pressure, flow rate, pump bearings vibration, applicable relief request numbers, and remarks.

Table 1.1 contains all of the pump requests for relief from Code requirements.

Table 2.0 (Valve IST Program) includes the system name and number, valve number, description, P&ID coordinates, Code class, Code category, size, valve type (ball, butterfly, check, diaphragm, gate, globe, plug, or relief valve), actuator type (air operated, electric motor, electrohydraulic, manual, or solenoid-operated), normal valve position, test requirements, the test frequency, applicable stroke time and direction, relief request number (or cold shutdown or refueling outage justification numbers), procedure number, and remarks.

Table 2.1 contains all valve cold shutdown justifications per OM Code, ISTC-3521(c), and ISTC-3522(b).

Table 2.2 contains all valve refueling outage justifications per OM Code, ISTC-3521(e), ISTC-3522(c), and ISTC-5221(c)(3).

Table 2.3 contains all of the valve requests for relief from Code requirements.

HOT STANDBY AS THE SAFE SHUTDOWN CONDITION

OM Code, ISTA 1100(a) defines the scope of the IST Program to include pumps and valves that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition or in mitigating the consequences of an accident. Safe shutdown at Diablo Canyon Power Plant is defined as HOT STANDBY. DCPP SSER 7, page 3-3 and SSER 22, pages 93-95 indicate that DCPP is considered to be a Class 2 plant wherein a single suction line from RCS Hot Leg is considered acceptable since the plant has a safety related Auxiliary Feedwater system enabling decay heat removal for extended periods at Hot Standby. Technical Specification Bases B 3.3.4 states, "safe shutdown condition is defined as MODE 3. With the unit in MODE 3, Auxiliary Feedwater (AFW) System and the Steam Generator (SG) safety valves can be used to remove core decay heat and meet all safety requirements." Hence, DCPP is considered to be a Hot Standby plant.

The attached sheets identify the pumps that are subject to the testing requirements of OM Code Subsection ISTB, and the requests for relief from code requirements.

LEGEND:

CODE CLASS
ASME Code Class taken from DWG 102028 Revision 58 (104628 Rev. 47 for Unit 2), "ASME CODE BOUNDARIES FOR INSERVICE INSPECTION AND TESTING PROGRAM."

TEST FREQUENCY NOTATION

Notation	Frequency
Q	At least once per 92 days
A	At least once per 366 days
2Y	At least once per 731 days
NA	Not applicable

TEST PARAMETER NOTATION

Notation	Parameter
N	Pump Speed (if variable speed)
Dp	Pump Differential Pressure
Q	Flow Rate
V	Pump Vibration
P	Pump Discharge Pressure

PUMP NAME AND NUMBER	P&ID COORD	CODE CLASS	GROUP ISTB-2000 DEFINITION	RELIEF REQUEST	REMARKS
Safety Injection Pump 1	57-E	2	B		
Safety Injection Pump 2	57-D	2	B		
Centrifugal Charging Pump 1	43D-C (44B-B)	2	A		
Centrifugal Charging Pump 2	43D-D (44B-A)	2	A		
Residual Heat Removal Pump 1	36-D (35-D)	2	A		
Residual Heat Removal Pump 2	36-B (35-B)	2	A		
Containment Spray Pump 1	36-D	2	B		
Containment Spray Pump 2	36-A	2	B		
Auxiliary Feed Pump 2 (Mtr)	43-D	3	A		
Auxiliary Feed Pump 3 (Mtr)	43-D	3	A		
Auxiliary Feed Pump 1 (Turb)	43-C	3	B		
Auxiliary Saltwater Pump 1	31B-A	3	A	RR2	
Auxiliary Saltwater Pump 2	31B-C	3	A	RR2	
Component Cooling Water Pump 1	50-D	3	A	RR1	
Component Cooling Water Pump 2	52-D	3	A	RR1	
Component Cooling Water Pump 3	54-D	3	A	RR1	
Boric Acid Transfer Pump 1	53B-E (57B-B)	2	A		
Boric Acid Transfer Pump 2	53B-D (57B-A)	2	A		
MU Water Transfer Pump 01	73-D	3	A		
MU Water Transfer Pump 02	76-D	3	A		

ROUTINE QUARTERLY PUMP TESTS (GROUPS A & B)

PUMP NAME AND NUMBER	GROUP	TEST PROCEDURE	PARAMETERS AND FREQUENCY N	Dp	P	Q	V	RELIEF REQUEST	REMARKS
Safety Injection Pump 1	B	P-SIP	NA	Q	NA	Q	NA		*Dp ≥ 1455 psid
Safety Injection Pump 2	B	P-SIP	NA	Q	NA	Q	NA		*Dp ≥ 1455 psid
Centrifugal Charging Pump 1	A	P-CCP	NA	Q	NA	Q	Q		*Dp ≥ 2400 psid
Centrifugal Charging Pump 2	A	P-CCP	NA	Q	NA	Q	Q		*Dp ≥ 2400 psid
Residual Heat Removal Pump 1	A	P-RHR	NA	Q	NA	Q	Q		*Dp ≥ 165 psid
Residual Heat Removal Pump 2	A	P-RHR	NA	Q	NA	Q	Q		*Dp ≥ 165 psid
Containment Spray Pump 1	B	P-CSP	NA	Q	NA	Q	NA		*Dp ≥ 205 psid
Containment Spray Pump 2	B	P-CSP	NA	Q	NA	Q	NA		*Dp ≥ 205 psid
Auxiliary Feed Pump 2 (Mtr)	A	P-AFW	NA	Q	NA	Q	Q		
Auxiliary Feed Pump 3 (Mtr)	A	P-AFW	NA	Q	NA	Q	Q		
Auxiliary Feed Pump 1 (Turb)	B	P-AFW	Q	Q	NA	Q	NA		
Auxiliary Saltwater Pump 1	A	P-ASW	NA	Q	NA	Q	Q	P-RR2	
Auxiliary Saltwater Pump 2	A	P-ASW	NA	Q	NA	Q	Q	P-RR2	
Component Cooling Water Pump 1	A	P-CCW	NA	Q	NA	Q	Q	P-RR1	
Component Cooling Water Pump 2	A	P-CCW	NA	Q	NA	Q	Q	P-RR1	
Component Cooling Water Pump 3	A	P-CCW	NA	Q	NA	Q	Q	P-RR1	
Boric Acid Transfer Pump 1	A	P-BAT	NA	Q	NA	Q	Q		
Boric Acid Transfer Pump 2	A	P-BAT	NA	Q	NA	Q	Q		
MU Water Transfer Pump 01	A	P-MUW	NA	Q	NA	Q	Q		
MU Water Transfer Pump 02	A	P-MUW	NA	Q	NA	Q	Q		

*Per Tech Spec Bases

COMPREHENSIVE PUMP TESTS (GROUPS A & B)
PUMP NAME AND NUMBER

	GROUP	TEST	PARAMETERS AND FREQUENCY					RELIEF	REMARKS
		PROCEDURE	N	Dp	P	Q	V	REQUEST	
Safety Injection Pump 1	B	P-SIP-A	NA	2Y	NA	2Y	2Y		
Safety Injection Pump 2	B	P-SIP-A	NA	2Y	NA	2Y	2Y		
Centrifugal Charging Pump 1	A	P-CCP-A	NA	2Y	NA	2Y	2Y		
Centrifugal Charging Pump 2	A	P-CCP-A	NA	2Y	NA	2Y	2Y		
Residual Heat Removal Pump 1	A	P-RHR-A	NA	2Y	NA	2Y	2Y		
Residual Heat Removal Pump 2	A	P-RHR-A	NA	2Y	NA	2Y	2Y		
Containment Spray Pump 1	B	P-CSP-A	NA	2Y	NA	2Y	2Y		
Containment Spray Pump 2	B	P-CSP-A	NA	2Y	NA	2Y	2Y		
Auxiliary Feed Pump 2 (Mtr)	A	P-AFW-A	NA	2Y	NA	2Y	2Y		
Auxiliary Feed Pump 3 (Mtr)	A	P-AFW-A	NA	2Y	NA	2Y	2Y		
Auxiliary Feed Pump 1 (Turb)	B	P-AFW-A	2Y	2Y	NA	2Y	2Y		
Auxiliary Saltwater Pump 1	A	P-ASW-A	NA	2Y	NA	2Y	2Y	P-RR2	
Auxiliary Saltwater Pump 2	A	P-ASW-A	NA	2Y	NA	2Y	2Y	P-RR2	
Component Cooling Water Pump 1	A	P-CCW-A	NA	2Y	NA	2Y	2Y	P-RR1	
Component Cooling Water Pump 2	A	P-CCW-A	NA	2Y	NA	2Y	2Y	P-RR1	
Component Cooling Water Pump 3	A	P-CCW-A	NA	2Y	NA	2Y	2Y	P-RR1	
Boric Acid Transfer Pump 1	A	P-BAT-A	NA	2Y	NA	2Y	2Y		
Boric Acid Transfer Pump 2	A	P-BAT-A	NA	2Y	NA	2Y	2Y		
MU Water Transfer Pump 01	A	P-MUW-A	NA	2Y	NA	2Y	2Y		
MU Water Transfer Pump 02	A	P-MUW-A	NA	2Y	NA	2Y	2Y		

RELIEF REQUEST	COMPONENT	RELIEF REQUEST APPROVAL STATUS
P-RR1	Component Cooling Water Pumps	
P-RR2	Auxiliary Saltwater Pumps	

NO. P-RR1

System: Component Cooling Water

Pumps:	**Pump Type**	**Code Class:**	**Group:**
Component Cooling Water Pump 1-1	Centrifugal	3	A
Component Cooling Water Pump 1-2	Centrifugal	3	A
Component Cooling Water Pump 1-3	Centrifugal	3	A
Component Cooling Water Pump 2-1	Centrifugal	3	A
Component Cooling Water Pump 2-2	Centrifugal	3	A
Component Cooling Water Pump 2-3	Centrifugal	3	A

Functions:

The component cooling water (CCW) system removes heat from safety-related and nonsafety-related system components during normal operation and plant shutdown and transfers it to the ultimate heat sink via the auxiliary saltwater (ASW) system. The CCW pumps (CCWPs) are horizontally mounted centrifugal pumps.

The CCW system provides for safe shutdown and cooldown of the reactor by removing heat from safety-related and nonsafety-related system components after normal reactor shutdown, and from vital system components after an accident leading to an emergency shutdown.

Test Requirement

ASME OM Code, subsection ISTB-5121(b) and ISTB-5123(b). The resistance of the system, shall be varied until flow rate equals the reference point.

Basis For Relief

A variable flow measurement for the CCWP test is required because it is impractical to establish a fixed reference value(s). Relief is requested per 10CFR50.55a(f) (5) (iii). Diablo Canyon Power Plant (DCPP) had previously received relief for these pumps in the first and second 10 year plans.

NO. P-RR1(cont.)

The CCW system has varying heat loads, and therefore varying flow requirements. A full flow test line with a single throttle valve for the purpose of testing was not incorporated in the initial design of the system. For some plant conditions, a reference flow condition cannot be established without adversely affecting the system flow balance and Technical Specification (TS) operability requirements. Thus, these pumps must be tested in a manner that the CCW system remains properly flow balanced during and after the testing and each supplied load remains fully operable per TS to maintain the required level of plant safety during power operation. During refueling outages, CCW flow demand varies greatly due to reactor coolant system cooldown, clearing of components for maintenance, and spent fuel pool heat exchanger cooling water demand. Past experience at DCPP has shown that CCW flow during refueling outages is usually greater than flow during power operations and it is not practical to reduce flow in order to perform the CCWP IST. At a minimum, perturbation of multiple systems is required to establish a flow point due to the multiple flow paths of the CCW system. This abnormal configuration would have to be maintained for the length of time required to take vibration data and pump hydraulic data. In addition, the requirement for the Operators to manipulate valves required to adjust CCW flow to the reference point is adverse to ALARA.

Alternative Test

Perform inservice tests on CCWPs using the following. A reference pump curve (flow rate vs. pump head) has been developed for each of the six CCWPs.

The following elements will be performed in developing the pump curves for testing the CCWPs. Existing data from previously performed inservice tests may be used in developing the curves. If a pump is replaced or repaired in such a way that inservice test parameters would require new reference values, then a preservice test performed per ISTB-5100 would be used to develop the new reference pump curve and reference vibration values.

1. Pump reference curves will be developed when the pumps are known to be operating satisfactorily.
2. Instrumentation used to develop pump curves is at least as accurate (accuracy and range) as required by ASME OM Code Table ISTB-3400-1
3. Pump curves will be constructed using a minimum of five points.
4. Points used to construct the curves are beyond the flat portion (low flow rates) of the pump curve in a range, which includes the design bases flow rate.
5. Acceptance criteria for flow rate and differential pressure will be established by taking the more conservative of curves based on the limits of Table ISTB-5100-1, or the operability criteria in TS or Safety Analysis Report.
6. Vibration levels will be measured over the range of pump conditions, and appropriate vibration acceptance criteria based on ISTB-5100-1, will be assigned for regions of the pump curve.
7. A new reference curve will be prepared by performing a preservice test procedure in accordance with ISTB-5110, or the previous curve will be validated, if the pump curve is affected by replacement, repair, or routine service.
8. The comprehensive pump test will be performed at a flow that is ±20% of design flow. Design flow for a CCW pump is 9200 gpm. The group A test will be performed at a flow rate that is at least 80% of design flow.

NO. P-RR1(cont.)

References

DCPP Final Safety Analysis Report Update Docket Numbers 50-275 and 50-323; Section 9.2.2 Component Cooling Water System.

DCPP Units 1 and 2 Technical Specification Bases for SR 3.6.6.3.

DCPP Supplemental Safety Evaluation Number 31, "Appendix A, Safety Evaluation Pump and Valve Inservice Testing Program," paragraph 2.3.3, "Relief Request (3)."

NO. P-RR2

System: Auxiliary Saltwater

Pumps:	**Pump Type**	**Code Class:**	**Group:**
Auxiliary Saltwater Pump 1-1	Vertical Line Shaft	3	A
Auxiliary Saltwater Pump 1-2	Vertical Line Shaft	3	A
Auxiliary Saltwater Pump 2-1	Vertical Line Shaft	3	A
Auxiliary Saltwater Pump 2-2	Vertical Line Shaft	3	A

Functions:

The auxiliary saltwater (ASW) system supplies cooling water from the ultimate heat sink, the Pacific Ocean, to the component cooling water (CCW) heat exchangers. The CCW system, in turn, removes heat from nuclear primary plant equipment and components during normal plant operation, plant cooldowns, refueling and accident conditions, including a loss of coolant accident.

Each DCPP unit is provided with two redundant ASW trains. Each of these trains consist of a full capacity ASW pump (ASWP) and associated piping to supply the tube side of one of the CCW heat exchangers with cooling water. Each pump may also be cross-connected so as to supply the opposite train heat exchanger.

Test Requirement

ASME OM Code, subsection ISTB-5221(b) and ISTB-5223(b). The resistance of the system, shall be varied until flow rate equals the reference point.

Basis For Relief

Adjustment to a specific reference value for the ASWP test is not practical because the pump flow rate varies based on tide level (suction pressure) and heat exchanger differential pressure (system resistance), which cannot be readily controlled. The CCW heat exchanger outlet throttle valves are the only valves which can be adjusted to set ASWP flow at the desired test flow. These valves are sealed in a throttled position which ensures the train can perform its required safety function under worst case conditions. A CCW heat exchanger is considered inoperable after its outlet valve is adjusted until a flow verification test is performed. The flow verification test requires that the system alignment with the most system resistance i.e., ASW pump #1 to CCW heat exchanger #2 (or ASW pump #2 to CCW heat exchanger #1) be used. This realignment, test and subsequent data analysis takes several hours, during which time the CCW heat exchanger is inoperable. Diablo Canyon Technical Specifications require that the second vital CCW heat exchanger be placed in service whenever ultimate heat sink temperature is greater than 64°F. In order to meet the Technical Specification LCO, ASW pump tests performed when ultimate heat sink temperatures are above 64°F must be performed with two CCW heat exchangers in service and result in test flows of up to 14,000 gpm. When the test is run with only one CCW heat exchanger in service (normal test alignment), reference pump flow is between 11,500 and 12,500 gpm. Relief is requested per 10CFR50.55a(f) (5) (iii).

NO. P-RR2(cont.)

Alternative Test

Perform inservice tests on ASWPs using the following. A reference pump curve (flow rate vs. pump head) has been developed for each of the four ASWPs.

The following elements will be performed in developing the pump curves for testing the ASWPs:

1. Pump reference curves will be developed when the pumps are known to be operating satisfactorily.
2. Instrumentation used to develop pump curves is at least as accurate (accuracy and range) as required by ISTB-3500-1.
3. These pump curves will be constructed using a minimum of five points.
4. Points used to construct the curves are beyond the flat portion (low flow rates) of the pump curve in a range which includes the design bases flow rate.
5. Acceptance criteria for flow rate and differential pressure will be established by taking the more conservative of curves based on the limits of Table ISTB-5200-1, or the operability criteria in TS or Safety Analysis Report.
6. Vibration levels will be measured over the range of pump conditions, and appropriate vibration acceptance criteria based on Table ISTB-5200-1, will be assigned for regions of the pump curve.
7. A new reference curve will be prepared, or the previous curve will be validated, if the pump curve is affected by replacement, repair, or routine service.
8. The comprehensive pump test will be performed at a flow rate that is ±20% of design flow. The group A test will be performed at a flow that is at least 80% of design flow. Design flow for the ASW pumps is 11,000 gpm.

References

DCPP Final Safety Analysis Report Update Docket Numbers 50-275 and 50-323; Section 9.2.2 Component Cooling Water System.

DCPP Units 1 and 2 Technical Specification 3.7.8.

The attached sheets identify the system valves that are subject to the testing requirements of ASME OM Code Subsection ISTC, and the requests for relief from code requirements.

LEGEND:

VALVE CLASS (VLV CLS)

ASME code class taken from DWG 102028 Revision 58 (104628 Rev. 47 for Unit 2) "ASME CODE BOUNDARIES FOR INSERVICE INSPECTION AND TESTING PROGRAM."

NOTE: TS indicates a non ASME code class valve that is required to be tested by Technical Specification.
ISTC indicates a non ASME code class valve that is required to be tested in accordance with ASME OM Code, Subsection ISTC.

VALVE CATEGORY (VLV CAT)

ISTC-1300 VALVE CATEGORIES
and ISTC-5110 for Power Operated Relief Valves (category 'P')

VALVE SIZE (VLV SIZ)

ASME SIZE IN INCHES

VALVE TYPE (VLV TYP) NOTATION

NOTATION	TYPE
BA	Ball Valve
BV	Butterfly Valve
CK	Check Valve
DI	Diaphragm Valve
GA	Gate Valve
GL	Globe Valve
PL	Plug Valve
RV	Relief Valve

LEGEND: (Continued)

ACTUATOR TYPE (ACT TYP) NOTATION

NOTATION	TYPE
A	Air Operated
E	Electric Motor
H	Electrohydraulic
M	Manual
N	None
S	Solenoid Operated

NORMAL POSITION (NRM POS) NOTATION

NOTATION	POSITION
O	Open
C	Closed
LO	Locked, Sealed, or De-energized (Breaker Open) Open
LC	Locked, Sealed, or De-energized (Breaker Open) Closed
V	Variable

LEGEND: (Continued)

TEST REQUIREMENT (TEST REQ) NOTATION

NOTATION	REQUIREMENT
CM	Check Valve Condition Monitoring Test
EC	Exercise of Check Valve - Full Stroke
EP	Exercise of Check Valve or Valve - Partial Stroke
EF	Exercise of Valve - Full Stroke
EM	Manual Exercise of Check Valve/Disassembly Inspection
EN	Nonintrusive Exercise of Check Valve
LT	Valve Leak Test
PI	Position Indication Test
RT	Test Per ASME OM Code Mandatory Appendix I for Pressure Relief Devices

NOTE: Valve Fail Safe testing is required by ISTC-3560. Valves with Fail Safe actuators are tested by the full stroke tests of the valves. A specific Test Requirement was not created for Fail Safe tests.

TEST FREQUENCY (TEST FRQ) NOTATION

NOTATION	FREQUENCY
Q	At least once per 92 days.
CS	At least each cold shutdown but not more frequently than once per 92 days. (This notation identifies valves that cannot be exercised during plant operation. A statement of the technical justification for not full stroke exercising these valves during plant operation is included in Table 2.1).
R	At least once per each refueling interval. (This notation identifies valves that cannot be exercised during plant operation nor full stroke exercised during cold shutdown. A statement of the technical justification for not full stroke exercising these valves during plant operation and whether they will be part stroked or not tested at all during cold shutdown is included in Table 2.2).
2Y	At least once per 731 days.
T	Per ASME OM Code Mandatory Appendix I for Pressure Relief Devices
RR	Tested on a rotational basis during refueling outages.
J	Per 10CFR50 Appendix J, Option B.
S	At least once per 184 days
CMP	Per ASME OM Code Mandatory Appendix II for Check Valve Condition Monitoring Program

LEGEND: (Continued)

STROKE TIME (STR TIM)

For power operated valves, the maximum allowed stroke time is given in seconds followed by a "c" for closing, or an "o" for opening, or an "o/c" for both opening and closing. For manual valves and check valves, this column denotes that the valve has a safety function in the "c" closed position, in the "o" open position, or in both the "o/c" open and closed position.

RELIEF REQUEST (REL REQ)

Numbers in this column refer to either a cold shutdown justification (CS), a refueling outage justification (RO), or a relief request (RR). These justifications and relief requests are found in TABLES 2.1, 2.2, and 2.3 respectively.

PROCEDURE NUMBER (PROC NO.)

Identifies procedure used to meet test requirement. If valve is stroked routinely during normal operations, then NORM OP.

REMARKS

The numbers in the remarks column refer to the list of remarks on the last page of TABLE 2.0.

DRAWING REFERENCE NUMBERS

UNIT 1: 1020--series
UNIT 2: 1080--series

UNIT 2 SPECIFIC INFORMATION INDICATED BY PARENTHESES

FEEDWATER SYSTEM P& ID NO. 1020 03

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FW-348	AUX FP-1 SUCT CK FROM CST	42-C	3	C	8	CK	N	C	CM	CMP	o/c		V-18	
FW-349	AUX FP-1 SUCT CK FROM RWS	41-C	3	C	8	CK	N	C	CM	CMP	o/c		V-18	
FW-350	AUX FP-2 SUCT CK FROM CST	42-D	3	C	6	CK	N	C	CM	CMP	o/c		V-18E	
FW-352	AUX FP-3 SUCT CK FROM CST	42-D	3	C	6	CK	N	C	CM	CMP	o/c		V-18E	
FW-353	AUX FP-2&3 SUCT CK FROM RWS	41-D	3	C	8	CK	N	C	CM	CMP	o/c		V-18	
FW-354	AUX FP-1 RECIRC CK	43-C	3	C	1.5	CK	N	C	CM	CMP	o/c		V-18E	
FW-355	AUX FP-2 RECIRC CK	43-D	3	C	1.5	CK	N	C	CM	CMP	o/c		V-18E	
FW-356	AUX FP-3 RECIRC CK	44-D	3	C	1.5	CK	N	C	CM	CMP	o/c		V-18E	
FW-361	AUX FP-1 DISCH CK	44-C	3	C	6	CK	N	C	CM	CMP	o/c		V-18	
FW-362	AUX FP-2 DISCH CK	44-D	3	C	4	CK	N	C	CM	CMP	o/c		V-18E	
FW-363	AUX FP-3 DISCH CK	44-D	3	C	4	CK	N	C	CM	CMP	o/c		V-18E	
FW-367	SG-2 FW CK	47-A	2	A,C	16	CK	N	O	EC	CS	c	CS1	V-3P3	
									EC	CS	o			#1
									LT	2Y	c		V-26	#2-ADMIN Tested R
FW-368	SG-1 FW CK	47-A	2	A,C	16	CK	N	O	EC	CS	c	CS1	V-3P3	
									EC	CS	o			#1
									LT	2Y	c		V-26	#2-ADMIN Tested R

FEEDWATER SYSTEM P& ID NO. 1020 03

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FW-369	AUX FP-1 TO SG-1 CK	47-C	2	C	3	CK	N	C	EC	CS	o/c	CS2	P-AFW	
FW-370	AUX FP-2 TO SG-1 CK	47-D	2	C	3	CK	N	C	EC	CS	o/c	CS2	P-AFW	
FW-371	AUX FP-1 TO SG-2 CK	47-C	2	C	3	CK	N	C	EC	CS	o/c	CS2	P-AFW	
FW-372	AUX FP-2 TO SG-2 CK	47-D	2	C	3	CK	N	C	EC	CS	o/c	CS2	P-AFW	
FW-373	AUX FP-1 TO SG-3 CK	47-B	2	C	3	CK	N	C	EC	CS	o/c	CS2	P-AFW	
FW-374	AUX FP-3 TO SG-3 CK	47-C	2	C	3	CK	N	C	EC	CS	o/c	CS2	P-AFW	
FW-375	AUX FP-1 TO SG-4 CK	47-B	2	C	3	CK	N	C	EC	CS	o/c	CS2	P-AFW	
FW-376	AUX FP-3 TO SG-4 CK	47-C	2	C	3	CK	N	C	EC	CS	o/c	CS2	P-AFW	
FW-377	SG-1 AUX FW 1ST CK	49-B	2	C	3	CK	N	C	CM	CMP	o/c		V-18F	
FW-378	SG-2 AUX FW 1ST CK	48-B	2	C	3	CK	N	C	CM	CMP	o/c		V-18F	
FW-379	SG-3 AUX FW 1ST CK	48-B	2	C	3	CK	N	C	CM	CMP	o/c		V-18F	
FW-380	SG-4 AUX FW 1ST CK	48-B	2	C	3	CK	N	C	CM	CMP	o/c		V-18F	

FEEDWATER SYSTEM P& ID NO. 1020 03

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FW-531	SG-3 FW CK	47-A	2	A,C	16	CK	N	O	EC	CS	c	CS1	V-3P3	
									EC	CS	o			#1
									LT	2Y	c		V-26	#2-ADMIN Tested R
FW-532	SG-4 FW CK	47-A	2	A,C	16	CK	N	O	EC	CS	c	CS1	V-3P3	
									EC	CS	o			#1
									LT	2Y	c		V-26	#2-ADMIN Tested R
FCV-436	RWS SUP AUX FP-1	41-C	3	B	8	BV	M	C	EF	Q*	o/c		V-3P4	*Per Tech Spec
FCV-437	RWS SUP AUX FP-2 & 3	41-D	3	B	8	BV	M	C	EF	Q*	o/c		V-3P4	*Per Tech Spec
FCV-438	SG-1 FW ISO	48-A	2	B	16	GA	E	O	PI	2Y	NA		V-2U1C	
									EF	CS	60c	CS1	V-3P2	
FCV-439	SG-2 FW ISO	47-A	2	B	16	GA	E	O	PI	2Y	NA		V-2U2C	
									EF	CS	60c	CS1	V-3P2	
FCV-440	SG-3 FW ISO	47-A	2	B	16	GA	E	O	PI	2Y	NA		V-2U3C	
									EF	CS	60c	CS1	V-3P2	
FCV-441	SG-4 FW ISO	48-A	2	B	16	GA	E	O	PI	2Y	NA		V-2U4C	
									EF	CS	60c	CS1	V-3P2	
LCV-106	AUX FP-1 TO SG-1 REG	47-C	2	B	3	GL	E	O	PI	2Y	NA		V-2U1D	
									EF	Q	20o/c		V-3P5	
LCV-107	AUX FP-1 TO SG-2 REG	47-C	2	B	3	GL	E	O	PI	2Y	NA		V-2U2D	
									EF	Q	20o/c		V-3P5	
LCV-108	AUX FP-1 TO SG-3 REG	47-B	2	B	3	GL	E	O	PI	2Y	NA		V-2U3D	
									EF	Q	20o/c		V-3P5	
LCV-109	AUX FP-1 TO SG-4 REG	47-B	2	B	3	GL	E	O	PI	2Y	NA		V-2U4D	
									EF	Q	20o/c		V-3P5	
LCV-110	AUX FP-2 TO SG-1 REG	47-D	2	B	2	GL	H	O	PI	2Y	NA		V-2U1D	
									EF	Q	40o/c		V-3P6A	
LCV-111	AUX FP-2 TO SG-2 REG	47-D	2	B	2	GL	H	O	PI	2Y	NA		V-2U2D	
									EF	Q	40o/c		V-3P6A	

FEEDWATER SYSTEM P& ID NO. 1020 03

VALVE NUMBER	VALVE DESCRIPTION	P&ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
LCV-113	AUX FP-3 TO SG-4 REG	47-C	2	B	2	GL	H	O	PI	2Y	NA		V-2U4D	
									EF	Q	40o/c		V-3P6B	
LCV-115	AUX FP-3 TO SG-3 REG	47-C	2	B	2	GL	H	O	PI	2Y	NA		V-2U3D	
									EF	Q	40o/c		V-3P6B	
FCV-510	SG-1 FW REG	33A-E (38-C)	TS	B	12	GL	A	O	EF	CS*	7c		V-3P1	*Per Tech Spec
									PI	2Y	NA		V-2U1C	
FCV-520	SG-2 FW REG	33A-D (38-D)	TS	B	12	GL	A	O	EF	CS*	7c		V-3P1	*Per Tech Spec
									PI	2Y	NA		V-2U2C	
FCV-530	SG-3 FW REG	33A-A (38-E)	TS	B	12	GL	A	O	EF	CS*	7c		V-3P1	*Per Tech Spec
									PI	2Y	NA		V-2U3C	
FCV-540	SG-4 FW REG	33A-C (38-D)	TS	B	12	GL	A	O	EF	CS*	7c		V-3P1	*Per Tech Spec
									PI	2Y	NA		V-2U4C	
FCV-1510	SG-1 FW REG BYPASS	33A-D (37-B)	TS	B	6	GL	A	C	EF	CS*	7c		V-3P1	*Per Tech Spec
									PI	2Y	NA		V-2U1C	
FCV-1520	SG-2 FW REG BYPASS	33A-C (38-D)	TS	B	6	GL	A	C	EF	CS*	7c		V-3P1	*Per Tech Spec
									PI	2Y	NA		V-2U2C	
FCV-1530	SG-3 FW REG BYPASS	33A-A (38-E)	TS	B	6	GL	A	C	EF	CS*	7c		V-3P1	*Per Tech Spec
									PI	2Y	NA		V-2U3C	
FCV-1540	SG-4 FW REG BYPASS	33A-B (38-E)	TS	B	6	GL	A	C	EF	CS*	7c		V-3P1	*Per Tech Spec
									PI	2Y	NA		V-2U4C	
RV-536	AUX FP-1 SUCT RELIEF	42-C (42-D)	3	C	1x1.5	RV	N	C	RT	T	NA		M-77	100#
RV-537	AUX FP-2&3 SUCT RELIEF	41-D	3	C	1x1.5	RV	N	C	RT	T	NA		M-77	100#

TURBINE STEAM SYSTEM P& ID NO. 1020 04

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
MS-1015	SG-1 10% STM DUMP ISO VALVE	31-A	2	B	8	GA	M	O	EF	2Y	NA		V-3R1	
MS-1068	SG-1 MS LINE CK	31-A	ISTC	C	28	CK	N	O	EM	RR	o/c	RO1	V-18	
MS-2015	SG-2 10% STM DUMP ISO VALVE	30-C	2	B	8	GA	M	O	EF	2Y	NA		V-3R1	
MS-2066	SG-2 MS LINE CK	31-B	ISTC	C	28	CK	N	O	EM	RR	o/c	RO1	V-18	
MS-3015	SG-3 10% STM DUMP ISO VALVE	31-D	2	B	8	GA	M	O	EF	2Y	NA		V-3R1	
MS-3062	SG-3 MS LINE CK	31-D	ISTC	C	28	CK	N	O	EM	RR	o/c	RO1	V-18	
MS-4015	SG-4 10% STM DUMP ISO VALVE	31-E	2	B	8	GA	M	O	EF	2Y	NA		V-3R1	
MS-4062	SG-4 MS LINE CK	31-E	ISTC	C	28	CK	N	O	EM	RR	o/c	RO1	V-18	
MS-5166	SG-2 STM TO AUX FP-1 CK	30-B	2	C	4	CK	N	C	EM	RR	o/c	RO2	V-18	
MS-5167	SG-3 STM TO AUX FP-1 CK	31-C	2	C	4	CK	N	C	EM	RR	o/c	RO2	V-18	
FCV-22	SG-4 MSIV BYPASS	31-E	2	B	3	GL	A	C	PI	2Y	NA		V-2U4A	
									EF	Q	5c		V-3R4	
FCV-23	SG-3 MSIV BYPASS	31-C	2	B	3	GL	A	C	PI	2Y	NA		V-2U3A	
									EF	Q	5c		V-3R4	
FCV-24	SG-2 MSIV BYPASS	31-B	2	B	3	GL	A	C	PI	2Y	NA		V-2U2A	
									EF	Q	5c		V-3R4	
FCV-25	SG-1 MSIV BYPASS	31-A	2	B	3	GL	A	C	PI	2Y	NA		V-2U1A	
									EF	Q	5c		V-3R4	

TURBINE STEAM SYSTEM P& ID NO. 1020 04

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-37	SG-2 STM TO AUX FP-1	30-B	2	B	4	GA	E	O	PI	2Y	NA		V-2U2E	
									EF	Q	30o/c		V-3R6	
FCV-38	SG-3 STM TO AUX FP-1	31-C	2	B	4	GA	E	O	PI	2Y	NA		V-2U3E	
									EF	Q	30o/c		V-3R6	
FCV-41	SG-1 MSIV	31-A	2	B	28	CK	A	O	PI	2Y	NA		V-2U1A	
									EF	CS	5c	CS3	V-3R2	
									EF	CS	o	CS3	V-3R2	
FCV-42	SG-2 MSIV	31-B	2	B	28	CK	A	O	PI	2Y	NA		V-2U2A	
									EF	CS	5c	CS3	V-3R2	
									EF	CS	o	CS3	V-3R2	
FCV-43	SG-3 MSIV	31-D	2	B	28	CK	A	O	PI	2Y	NA		V-2U3A	
									EF	CS	5c	CS3	V-3R2	
									EF	CS	o	CS3	V-3R2	
FCV-44	SG-4 MSIV	31-E	2	B	28	CK	A	O	PI	2Y	NA		V-2U4A	
									EF	CS	5c	CS3	V-3R2	
									EF	CS	o	CS3	V-3R2	
FCV-95	AUX FP-1 STM SUP	31-B	2	B	4	GA	E	C	PI	2Y	NA		V-2U5B	
									EF	Q	30o		V-3R5	
FCV-151	SG-1 BD ISOL OC	72-C	2	B	3	GA	A	O	PI	2Y	NA		V-2J4	
									EF	Q	10c		V-3S2	
FCV-154	SG-2 BD ISOL OC	72-C (72-D)	2	B	3	GA	A	O	PI	2Y	NA		V-2J4	
									EF	Q	10c		V-3S2	

TURBINE STEAM SYSTEM P& ID NO. 1020 04

VALVE NUMBER	VALVE DESCRIPTION	P&ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-157	SG-3 BD ISOL OC	72-D	2	B	3	GA	A	O	PI	2Y	NA		V-2J4	
									EF	Q	10c		V-3S2	
FCV-160	SG-4 BD ISOL OC	72-E	2	B	3	GA	A	O	PI	2Y	NA		V-2J4	
									EF	Q	10c		V-3S2	
FCV-244	SG-4 SAMPLE ISOL OC	72-E	2	B	.75	GL	A	O	PI	2Y	NA		V-2J4	
									EF	Q	10c		V-3S2	
FCV-246	SG-3 SAMPLE ISOL OC	72-D	2	B	.75	GL	A	O	PI	2Y	NA		V-2J4	
									EF	Q	10c		V-3S2	
FCV-248	SG-2 SAMPLE ISOL OC	72-C	2	B	.75	GL	A	O	PI	2Y	NA		V-2J4	
									EF	Q	10c		V-3S2	
FCV-250	SG-1 SAMPLE ISOL OC	72-C	2	B	.75	GL	A	O	PI	2Y	NA		V-2J4	
									EF	Q	10c		V-3S2	
FCV-760	SG-1 BD ISOL IC	71-C (70-C)	2	B	3	GL	A	O	PI	2Y	NA		V-2N1	
									EF	Q	5c		V-3R3	
FCV-761	SG-2 BD ISOL IC	71-C (70-D)	2	B	3	GL	A	O	PI	2Y	NA		V-2N1	
									EF	Q	5c		V-3R3	
FCV-762	SG-3 BD ISOL IC	71-D (70-D)	2	B	3	GL	A	O	PI	2Y	NA		V-2N1	
									EF	Q	5c		V-3R3	
FCV-763	SG-4 BD ISOL IC	71-E (70-E)	2	B	3	GL	A	O	PI	2Y	NA		V-2N1	
									EF	Q	5c		V-3R3	
PCV-19	SG-1 10% ATM DUMP	30-A	2	B, P	8	GL	A	C	PI	R	NA		V-2U1B	
									EF	R	20o/40c		V-3R1	
									LT	R	NA		V-3R1	APPX I TABLE I-8220-1

TURBINE STEAM SYSTEM P& ID NO. 1020 04

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
PCV-20	SG-2 10% ATM DUMP	30-C	2	B, P	8	GL	A	C	PI	R	NA		V-2U2B	
									EF	R	20o/40c		V-3R1	
									LT	R	NA		V-3R1	APPX I TABLE I-8220-1
PCV-21	SG-3 10% ATM DUMP	31-D	2	B, P	8	GL	A	C	PI	R	NA		V-2U3B	
									EF	R	20o/40c		V-3R1	
									LT	R	NA		V-3R1	APPX I TABLE I-8220-1
PCV-22	SG-4 10% ATM DUMP	31-E	2	B, P	8	GL	A	C	PI	R	NA		V-2U4B	
									EF	R	20o/40c		V-3R1	
									LT	R	NA		V-3R1	APPX I TABLE I-8220-1
RV-3	SG-1 SAFETY	30-A	2	C	6	RV	N	C	RT	T	NA		M-77	1065#
RV-4	SG-1 SAFETY	31-A	2	C	6	RV	N	C	RT	T	NA		M-77	1078#
RV-5	SG-1 SAFETY	31-A	2	C	6	RV	N	C	RT	T	NA		M-77	1090#
RV-6	SG-1 SAFETY	31-A	2	C	6	RV	N	C	RT	T	NA		M-77	1103#
RV-7	SG-2 SAFETY	30-C	2	C	6	RV	N	C	RT	T	NA		M-77	1065#
RV-8	SG-2 SAFETY	31-C	2	C	6	RV	N	C	RT	T	NA		M-77	1078#
RV-9	SG-2 SAFETY	31-C	2	C	6	RV	N	C	RT	T	NA		M-77	1090#
RV-10	SG-2 SAFETY	31-C	2	C	6	RV	N	C	RT	T	NA		M-77	1103#

TURBINE STEAM SYSTEM P& ID NO. 1020 04

VALVE NUMBER	VALVE DESCRIPTION	P&ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
RV-11	SG-3 SAFETY	31-D	2	C	6	RV	N	C	RT	T	NA		M-77	1065#
RV-12	SG-3 SAFETY	31-D	2	C	6	RV	N	C	RT	T	NA		M-77	1078#
RV-13	SG-3 SAFETY	32-D	2	C	6	RV	N	C	RT	T	NA		M-77	1090#
RV-14	SG-3 SAFETY	31-D	2	C	6	RV	N	C	RT	T	NA		M-77	1103#
RV-58	SG-4 SAFETY	31-E	2	C	6	RV	N	C	RT	T	NA		M-77	1065#
RV-59	SG-4 SAFETY	31-E	2	C	6	RV	N	C	RT	T	NA		M-77	1078#
RV-60	SG-4 SAFETY	32-E	2	C	6	RV	N	C	RT	T	NA		M-77	1090#
RV-61	SG-4 SAFETY	31-E	2	C	6	RV	N	C	RT	T	NA		M-77	1103#
RV-222	SG-1 SAFETY	31-A	2	C	6	RV	N	C	RT	T	NA		M-77	1115#
RV-223	SG-2 SAFETY	31-C	2	C	6	RV	N	C	RT	T	NA		M-77	1115#
RV-224	SG-3 SAFETY	31-D	2	C	6	RV	N	C	RT	T	NA		M-77	1115#
RV-225	SG-4 SAFETY	31-E	2	C	6	RV	N	C	RT	T	NA		M-77	1115#

AUXILIARY STEAM SYSTEM P& ID NO. 1020 06

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
AXS-208	AXS STM SUP TO CONT ISO IC	43-E	2	A	2	CK	N	C	LT	J	c		V-670	Tested R
									EC	R	o	RO3	V-670	
									EC	R	c	RO3	V-670	
AXS-26	AUX STM SUP TO CONT ISO OC	43-D	2	A	2	GA	M	LC	LT	J	c		V-670	PASSIVE Tested R

REACTOR COOLANT SYSTEM P& ID NO. 1020 07

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
RCS-508	RV & STM LK OFF HDR TO PRT	44-E	3	C	4	CK	N	C	CM	CMP	o/c		V-18	RV function
RCS-512	MISC EQUIP DR TANK ISOL OC	48-A	2	A	3/4	GL	M	LC	LT	J	c		V-671	PASSIVE
PCV-455C	PZR PORV	40-C	1	B, P	2	GL	A	C	PI	R	NA		V-2T1	
									EF	R	2.9o		V-3J2	
									LT	R	NA		V-2T1	APP I TAB I-8220-1
PCV-456	PZR PORV	40-B	1	B, P	2	GL	A	C	PI	R	NA		V-2T1	
									EF	R	2.9o		V-3J2	
									LT	R	NA		V-2T1	APP I TAB I-8220-1
PCV-474	PZR PORV	40-C	1	B, P	2	GL	A	C	PI	R	NA		V-2T1	
									EF	R	2.9o		V-3J2	
									LT	R	NA		V-2T1	APP I TAB I-8220-1
8000A	PZR PORV ISOL	41-C	1	B	3	GA	E	O	PI	2Y	NA		V-2T1	
									EF	Q	20c		V-3J1A	
8000B	PZR PORV ISOL	41-C	1	B	3	GA	E	O	PI	2Y	NA		V-2T1	
									EF	Q	20c		V-3J1B	
8000C	PZR PORV ISOL	40-B	1	B	3	GA	E	O	PI	2Y	NA		V-2T1	
									EF	Q	20c		V-3J1C	
8010A	PZR SAFETY	43-D	1	A,C	6	RV	N	C	RT	T	NA		M-77	2485#
8010B	PZR SAFETY	42-D	1	A,C	6	RV	N	C	RT	T	NA		M-77	2485#
8010C	PZR SAFETY	42-D	1	A,C	6	RV	N	C	RT	T	NA		M-77	2485#
8028	RV DISC HDR TO PRT ISOL IC	47-C	2	A,C	4	CK	N	C	LT	J	c		V-671	
									CM	CMP	o/c		V-18	RV function
8029	PRI WTR TO PRT ISOL OC	48-D	2	A	3	BA	A	O	PI	2Y	NA		V-2J7	
									LT	J	c		V-652A	Tested R
									EF	Q	10c		V-3S7	

REACTOR COOLANT SYSTEM P& ID NO. 1020 07

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8034A	PRT TO GA ISOL IC	48-E	2	A	3/8	GL	A	O	PI	2Y	NA		V-2O4	
									LT	J	c		V-676B	
									EF	Q	10c		V-3S8	
8034B	PRT TO GA ISOL OC	48-E	2	A	3/8	GL	A	C	PI	2Y	NA		V-2J7	
									LT	J	c		V-676B	
									EF	Q	10c		V-3S8	
8045	N2 TO PRT ISOL OC	48-E	2	A	3/4	DI	A	O	PI	2Y	NA		V-2J7	
									LT	J	c		V-652B	Tested R
									EF	Q	10c		V-3S8	
8046	PRI WTR TO PRT ISOL IC	48-D	2	A,C	3	CK	N	C	LT	J	c		V-652A	
									EC	R	c	RO3	V-652A	
									EC	R	o	RO3		#1
8047	N2 TO PRT ISOL IC	48-E	2	A,C	3/4	CK	N	C	LT	J	c		V-652B	Tested R
									EC	R	o	RO3		#1
									EC	R	c	RO3		
8078A	REACTOR VESSEL HEAD VENT	75-A	2	B	1	GL	S	LC	PI	2Y	NA		V-2T2	Tested R
									EF	R	2o	RO4	V-2T2	
8078B	REACTOR VESSEL HEAD VENT	75-B (75-A)	2	B	1	GL	S	LC	PI	2Y	NA		V-2T2	Tested R
									EF	R	2o	RO4	V-2T2	
8078C	REACTOR VESSEL HEAD VENT	75-B (75-A)	2	B	1	GL	S	LC	PI	2Y	NA		V-2T2	Tested R
									EF	R	2o	RO4	V-2T2	
8078D	REACTOR VESSEL HEAD VENT	75-A	2	B	1	GL	S	LC	PI	2Y	NA		V-2T2	Tested R
									EF	R	2o	RO4	V-2T2	

CHEMICAL AND VOLUME CONTROL SYSTEM P& ID NO. 1020 08

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-110A	BA SUP TO BLENDER	41C-C	2	B	2	GL	A	C	PI	2Y	NA		V-2K	
		(40B-B)							EF	Q	10o		V-3E1	#3 - Hosgri
LCV-112B	VCT OUT ISOL	46B-C	ISTC	B	4	GA	E	O	PI	2Y	NA		V-2I1	
		(43B-D)							EF	CS	10c	CS4	V-3K12	
LCV-112C	VCT OUT ISOL	47B-C	ISTC	B	4	GA	E	O	PI	2Y	NA		V-2I1	
		(43B-D)							EF	CS	10c	CS4	V-3K12	
8100	RCP SEAL WTR RETRN ISOL OC	38C-A	2	A	4	GA	E	O	PI	2Y	NA		V-2I1	
		(39-E)							LT	J	c		V-645	Tested R
									EF	CS	10c	CS5	V-3K2	RR1
8104	EMERG BORATE	44C-C	2	B	2	GL	E	C	PI	2Y	NA		V-2K	
		(41B-B)							EF	Q	10o		V-3E5	
8105	CENT CHG PP RECIRC	43B-E	ISTC	B	2	GL	E	O	PI	2Y	NA		V-2I1	
		(41B-A)							EF	CS	10c	CS6	V-3K9	
8106	CENT CHG PP RECIRC	43B-E	2	B	2	GL	E	O	PI	2Y	NA		V-2I1	
		(41B-A)							EF	CS	10c	CS6	V-3K9	
8107	CHG LINE ISOL OC	49D-B	2	B	3	GA	E	O	PI	2Y	NA		V-2I1	
		(47B-C)							EF	CS	14c	CS7	V-3K13	
8108	CHG LINE ISOL	48D-B	2	B	3	GA	E	O	PI	2Y	NA		V-2I1	
		(46B-C)							EF	CS	14c	CS7	V-3K13	
8109	RCP SEAL WTR RETRN ISOL IC	37C-A	2	A,C	3/4	CK	N	O	LT	J	c		V-645	Tested R
		(38-D)							EC	R	o/c	RO5	V-645	

CHEMICAL AND VOLUME CONTROL SYSTEM P& ID NO. 1020 08

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8112	RCP SEAL WTR RETRN ISOL IC	37C-A	2	A	4	GA	E	O	PI	2Y	NA		V-2I1	
		(38-E)							LT	J	c		V-645	Tested R
									EF	CS	10c	CS5	V-3K2	RR1
8145	PZR AUX SPRAY	43-B	1	B	2	GL	A	C	PI	2Y	NA		V-2S	
		(43-D)							EF	CS	10o	CS8	V-3K8	
8146	NORMAL CHG	43-B	2	B	2	GL	A	O	PI	2Y	NA		V-2S	
		(43-D)							EF	CS	20o	CS9	V-3K5	
8147	ALTERNATE CHG	42-B	2	B	2	GL	A	C	PI	2Y	NA		V-2S	
		(42-D)							EF	CS	20o	CS9	V-3K5	
8148	PZR AUX SPRAY BYP	43-B	1	B	2	GL	A	C	PI	2Y	NA		V-2S	
		(43-D)							EF	CS	10o	CS8	V-3K8	
8149A	LTDN ORF RO-27 ISOL IC	43-C	2	A	2	GL	A	C	PI	2Y	NA		V-2Y	
									LT	J	c		V-635	
									EF	CS	10c	CS10	V-3K7A	

CHEMICAL AND VOLUME CONTROL SYSTEM P& ID NO. 1020 08

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8149B	LTDN ORF RO-27 ISOL IC	43-C	2	A	2	GL	A	O	PI	2Y	NA		V-2Y	
									LT	J	c		V-635	
									EF	CS	10c	CS10	V-3K7A	
8149C	LTDN ORF RO-27 ISOL IC	43-C	2	A	2	GL	A	C	PI	2Y	NA		V-2Y	
									LT	J	c		V-635	
									EF	CS	10c	CS10	V-3K7A	
8152	LTDN LINE ISOL OC	44-C	2	A	2	GL	A	O	PI	2Y	NA		V-2J8	
									LT	J	c		V-635	
									EF	CS	10c	CS11	V-3K7B	
8367A	RCP-1 SEAL INJ 2ND CK IC	34-D	1	C	2	CK	N	O	EC	R	o	RO6		#1
		(31-C)							EC	R	c	RO6	V-18N	
8367B	RCP-2 SEAL INJ 2ND CK IC	34A-D	1	C	2	CK	N	O	EC	R	o	RO6		#1
		(33-C)							EC	R	c	RO6	V-18N	
8367C	RCP-3 SEAL INJ 2ND CK IC	34B-D	1	C	2	CK	N	O	EC	R	o	RO6		#1
		(35-C)							EC	R	c	RO6	V-18N	
8367D	RCP-4 SEAL INJ 2ND CK IC	34C-D	1	C	2	CK	N	O	EC	R	o	RO6		#1
		(37-C)							EC	R	c	RO6	V-18N	
8368A	RCP-1 SEAL INJ 1ST CK IC	31-D	2	A,C	2	CK	N	O	LT	J	c		V-641	Tested R
		(31-B)							EC	R	c	RO3	V-641	
									EC	R	o	RO3		#1
8368B	RCP-2 SEAL INJ 1ST CK IC	31A-D	2	A,C	2	CK	N	O	LT	J	c		V-641	Tested R
		(33-B)							EC	R	c	RO3	V-641	
									EC	R	o	RO3		#1
8368C	RCP-3 SEAL INJ 1ST CK IC	31B-D	2	A,C	2	CK	N	O	LT	J	c		V-641	Tested R
		(35-B)							EC	R	c	RO3	V-641	
									EC	R	o	RO3		#1
8368D	RCP-4 SEAL INJ 1ST CK IC	31C-D	2	A,C	2	CK	N	O	LT	J	c		V-641	Tested R
		(37-B)							EC	R	c	RO3	V-641	
									EC	R	o	RO3		#1

CHEMICAL AND VOLUME CONTROL SYSTEM P& ID NO. 1020 08

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8372A	RCP-1 SEAL INJ 3RD CK IC	33-D	1	C	2	CK	N	O	EC	R	o	RO6		#1
		(31-C)							EC	R	c	RO6	V-18N	
8372B	RCP-2 SEAL INJ 3RD CK IC	33A-D	1	C	2	CK	N	O	EC	R	o	RO6		#1
		(33-C)							EC	R	c	RO6	V-18N	
8372C	RCP-3 SEAL INJ 3RD CK IC	33B-D	1	C	2	CK	N	O	EC	R	o	RO6		#1
		(35-C)							EC	R	c	RO6	V-18N	
8372D	RCP-4 SEAL INJ 3RD CK IC	33C-D	1	C	2	CK	N	O	EC	R	o	RO6		#1
		(37-C)							EC	R	c	RO6	V-18N	
8377	PZR AUX SPRAY CK	42-A	1	C	2	CK	N	C	EC	R	o	RO7	V-3K8	
		(42-E)							EC	R	c	RO7	V-18P	
8378A	CHG TO LOOP 3 COLD LEG CK	41-B	1	C	3	CK	N	O	EC	R	o	RO8	V-3K5	
		(41-E)							EC	R	c	RO8	V-18P	
8378B	CHG TO LOOP 4 COLD LEG CK	41-A	1	C	3	CK	N	O	EC	R	o	RO8	V-3K5	
		(41-E)							EC	R	c	RO8	V-18P	
8378C	CHG LINE CK	43-D	2	C	3	CK	N	O	EC	R	o	RO8	V-3K5	
		(43-B)							EC	R	c	RO8	V-18P	
8379A	CHG TO LOOP 3 COLD LEG CK	41-B	1	C	3	CK	N	O	EC	R	o	RO8	V-3K5	
		(41-E)							EC	R	c	RO8	V-18P	
8379B	CHG TO LOOP 4 COLD LEG CK	41-A	1	C	3	CK	N	O	EC	R	o	RO8	V-3K5	
		(41-E)							EC	R	c	RO8	V-18P	
8440	VCT OUTLET CK	48B-C	2	C	4	CK	N	O	EC	R	c	RO9	M-86G	
		(43B-C)							EC	R	o	RO9	P-CCP	#1
8445	EMER BORATE REV FLO CK	41C-C	2	C	2	CK	N	C	EC	R	o	RO10	V-3E5	
		(41B-B)							EC	R	c	RO10	V-18Q	
8475	RECIP CHG PP-3 DISCH CK	45D-B	2	C	2	CK	N	O	EC	R	o	RO11	P-PDP	Tested Q
		(45B-C)							EC	R	c	RO11	V-25	

CHEMICAL AND VOLUME CONTROL SYSTEM P& ID NO. 1020 08

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8478A	CENT CHG PP-1 DISCH CK	44D-C (45B-B)	2	C	4	CK	N	C	CM	CMP	o/c		V-18I	
8478B	CENT CHG PP-2 DISCH CK	44D-D (45B-A)	2	C	4	CK	N	C	CM	CMP	o/c		V-18I	
8479A	CENT CHG PP-1 RECIRC CK	44D-C (44B-B)	2	C	2	CK	N	C	CM	CMP	o/c		V-18I	
8479B	CENT CHG PP-2 RECIRC CK	44D-D (45B-A)	2	C	2	CK	N	C	CM	CMP	o/c		V-18I	
8483	CHG FLO TO CL 3 BYPAS CK	42-B (42-E)	1	C	3/4	CK	N	C	EC	R	o	RO12	V-18D	RV function
									EC	R	c	RO12	V-18P	
8487A	BA TRANSFER PP-2 (PP-1) DISCH CK	52B-D (57B-B)	2	C	2	CK	N	O	EC	R	o	RO13	P-BAT	Tested Q
									EC	R	c	RO13	V-18R	
8487B	BA TRANSFER PP-1 (PP-2) DISCH CK	52B-E (57B-A)	2	C	2	CK	N	O	EC	R	o	RO13	P-BAT	Tested Q
									EC	R	c	RO13	V-18R	
RV-8116	PDP RV TO VCT1	44D-A (44B-D)	2	C	3/4x1	RV	N	C	RT	T	o		M-77	2720#
RV-8117	LETDOWN RV TO PRT	44-C	2	C	2	RV	N	C	RT	T	o		M-77	600#
RV-8121	RCP SEAL WTR RETURN HDR RV	33B-A (37-E)	2	C	2	RV	N	C	RT	T	o		M-77	150#
RV-8123	SEAL WTR HX1 INLT RV TO VCT	43B-D (41B-D)	NA	C	2	RV	N	C	RT	T	o		M-77	150#
RV-8125	CHG PPS SUC HDR REL TO PZR	40D-B (43B-B)	2	C	3/4	RV	N	C	RT	T	o		M-77	220#

SAFETY INJECTION SYSTEM P& ID NO. 1020 09

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
SI-161	FI-927 ISOL OC	42-E	2	A	3/4	GL	M	LC	LT	J	c		V-651B	PASSIVE
8801A	CHG INJ TO RCS	43-D	2	B	4	GA	E	C	PI	2Y	NA		V-2J6	
									EF	Q	10o		V-3E9	
8801B	CHG INJ TO RCS	43-C	2	B	4	GA	E	C	PI	2Y	NA		V-2J6	
									EF	Q	10o		V-3E9	
8802A	SI PP-1 DISCH ISOL OC	54-E	2	B	4	GA	E	LC	PI	2Y	NA		V-2J6	
									EF	CS	20o	CS12	V-3L1	
8802B	SI PP-2 DISCH ISOL OC	54-D	2	B	4	GA	E	LC	PI	2Y	NA		V-2J6	
									EF	CS	20o	CS12	V-3L1	
8803A	CHG INJ TO RCS	45-C (45-B)	2	B	4	GA	E	C	PI	2Y	NA		V-2C	
									EF	Q	10o		V-3E11	
8803B	CHG INJ TO RCS	45-B	2	B	4	GA	E	C	PI	2Y	NA		V-2C	
									EF	Q	10o		V-3E11	
8804A	CHG PP SUCT FROM RHR	48-B	2	B	8	GA	E	C	PI	2Y	NA		V-2V1	
									EF	R	20o	RO14	V-3L16	
8804B	SI PP SUCT FROM RHR	58-C	2	B	8	GA	E	C	PI	2Y	NA		V-2V1	
									EF	R	20o	RO14	V-3L16	
8805A	RWST TO CHG PP SUCT	48-C	2	B	8	GA	E	C	PI	2Y	NA		V-2Z	
									EF	CS	11o	CS13	V-3K11	

SAFETY INJECTION SYSTEM P& ID NO. 1020 09

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8805B	RWST TO CHARG PP SUCT	48-C	2	B	8	GA	E	C	PI	2Y	NA		V-2Z	
									EF	CS	11o	CS13	V-3K11	
8807A	SI PP1 SUC TO CCP SUC XTIE	48-A	2	B	4	GA	E	C	PI	2Y	NA		V-2H	
									EF	Q	20o		V-3L3	
8807B	SI PP1 SUC TO CCP SUC XTIE	48-A	2	B	4	GA	E	C	PI	2Y	NA		V-2H	
									EF	Q	20o		V-3L3	
8808A	ACCUM-1 DISCH ISOL	31-D	2	B	10	GA	E	LO	PI	2Y	NA		V-2P1	
									EF	CS	30o	CS14	V-3L4	
8808B	ACCUM-2 DISCH ISOL	33-D	2	B	10	GA	E	LO	PI	2Y	NA		V-2P1	
									EF	CS	30o	CS14	V-3L4	
8808C	ACCUM-3 DISCH ISOL	35-D	2	B	10	GA	E	LO	PI	2Y	NA		V-2P1	
									EF	CS	30o	CS14	V-3L4	
8808D	ACCUM-4 DISCH ISOL	37-D	2	B	10	GA	E	LO	PI	2Y	NA		V-2P1	
									EF	CS	30o	CS14	V-3L4	
8809A	RHR TO CLD LEGS-1&2 ISOL OC	54-C	2	B	8	GA	E	LO	PI	2Y	NA		V-2J3	
									EF	CS	20c	CS15	V-3L5	
8809B	RHR TO CLD LEGS-3&4 ISOL OC	54-B	2	B	8	GA	E	LO	PI	2Y	NA		V-2J3	
									EF	CS	20c	CS15	V-3L5	
8818A	RHR TO COLD LEG-1 CK	52-C	1	A,C	6	CK	N	C	LT	R*	c		V-5A2	*Per Tech Spec
									CM	CMP	o/c		V-18B	
8818B	RHR TO COLD LEG-2 CK	52-B	1	A,C	6	CK	N	C	LT	R*	c		V-5A2	*Per Tech Spec
									CM	CMP	o/c		V-18B	

SAFETY INJECTION SYSTEM P& ID NO. 1020 09

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8818C	RHR TO COLD LEG-3 CK	51-B	1	A,C	6	CK	N	C	LT	R*	c		V-5A2	*Per Tech Spec
									CM	CMP	o/c		V-18B	
8818D	RHR TO COLD LEG-4 CK	51-A	1	A,C	6	CK	N	C	LT	R*	c		V-5A2	*Per Tech Spec
									CM	CMP	o/c		V-18B	
8819A	SI TO COLD LEG-1 CK	52-C	1	A,C	2	CK	N	C	LT	R*	c		V-5A1	*Per Tech Spec
									EC	R	c	RO15	V-5A1	
									EC	R	o	RO15	V-18D	
8819B	SI TO COLD LEG-2 CK	51-B	1	A,C	2	CK	N	C	LT	R*	c		V-5A1	*Per Tech Spec
									EC	R	c	RO15	V-5A1	
									EC	R	o	RO15	V-18D	
8819C	SI TO COLD LEG-3 CK	50-B	1	A,C	2	CK	N	C	LT	R*	c		V-5A1	*Per Tech Spec
									EC	R	c	RO15	V-5A1	
									EC	R	o	RO15	V-18D	
8819D	SI TO COLD LEG-4 CK	50-B	1	A,C	2	CK	N	C	LT	R*	c		V-5A1	*Per Tech Spec
									EC	R	c	RO15	V-5A1	
									EC	R	o	RO15	V-18D	
8820	CHG INJ 2ND OFF CK	41-D	1	C	3	CK	N	C	EC	R	c	RO16	V-5D	
									EC	R	o	RO16	V-18D	
8821A	SI PP-1 DISCH ISOL	55-E	2	B	4	GA	E	O	PI	2Y	NA		V-2J6	
									EF	Q	20c		V-3L2A	
8821B	SI PP-2 DISCH ISOL	55-D	2	B	4	GA	E	O	PI	2Y	NA		V-2J6	
									EF	Q	20c		V-3L2B	
8835	SI COLD INJECT ISOL OC	54-C	2	B	4	GA	E	LO	PI	2Y	NA		V-2J6	
									EF	CS	20c	CS16	V-3L6	

SAFETY INJECTION SYSTEM P& ID NO. 1020 09

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8871	SI TEST LINE ISOL IC	38-C	2	A	3/4	GL	A	C	PI	2Y	NA		V-2O1	
									LT	J	c		V-651B	
									EF	Q	10c		V-3S5	
8875A	SI ACCUM 1 NIT FILL & VENT	31-E	2	B	1	GL	A	C	PI	2Y	NA		V-2P2	Passive
8875B	SI ACCUM 2 NIT FILL & VENT	33-E	2	B	1	GL	A	C	PI	2Y	NA		V-2P2	Passive
8875C	SI ACCUM 3 NIT FILL & VENT	35-E	2	B	1	GL	A	C	PI	2Y	NA		V-2P2	Passive
8875D	SI ACCUM 4 NIT FILL & VENT	37-E	2	B	1	GL	A	C	PI	2Y	NA		V-2P2	Passive
8876A	SI ACCUM 1 DRAIN	30-D	2	B	1	GL	A	C	PI	2Y	NA		V-2P2	Passive
8876B	SI ACCUM 2 DRAIN	32-D	2	B	1	GL	A	C	PI	2Y	NA		V-2P2	Passive
8876C	SI ACCUM 3 DRAIN	34-D	2	B	1	GL	A	C	PI	2Y	NA		V-2P2	Passive
8876D	SI ACCUM 4 DRAIN	37-D	2	B	1	GL	A	C	PI	2Y	NA		V-2P2	Passive
8880	N2 SUP TO ACCUM ISOL OC	39-E	2	A	1	GL	A	0	PI	2Y	NA		V-2J7	
									LT	J	c		V-651A	Tested R
									EF	Q	10c		V-3S5	
8883	SI PP-1 TO TST LINE ISO OC	54-E	2	A	3/4	GL	A	C	PI	2Y	NA		V-2J7	
									LT	J	c		V-651B	
									EF	Q	10c		V-3S5	
8900A	CHG INJ LOOP-1 CK	40-E	1	C	1.5	CK	N	C	EC	R	o	RO16	V-18D	
									EC	R	c	RO16	V-5D	
8900B	CHG INJ LOOP-2 CK	40-B	1	C	1.5	CK	N	C	EC	R	o	RO16	V-18D	
									EC	R	c	RO16	V-5D	
8900C	CHG INJ LOOP-3 CK	40-C	1	C	1.5	CK	N	C	EC	R	o	RO16	V-18D	
									EC	R	c	RO16	V-5D	
8900D	CHG INJ LOOP-4 CK	40-D	1	C	1.5	CK	N	C	EC	R	o	RO16	V-18D	
									EC	R	c	RO16	V-5D	

SAFETY INJECTION SYSTEM P& ID NO. 1020 09

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8905A	SI TO HOT LEG-1 CK	52-E	1	A,C	2	CK	N	C	EC	R	o	RO15	V-18D	
									EC	R	c	RO15	V-5C	
									LT	R*	c		V-5C	*Per Tech Spec
8905B	SI TO HOT LEG-2 CK	52-E	1	A,C	2	CK	N	C	EC	R	o	RO15	V-18D	
									EC	R	c	RO15	V-5C	
									LT	R*	c		V-5C	*Per Tech Spec
8905C	SI TO HOT LEG-3 CK	51-D	1	A,C	2	CK	N	C	EC	R	o	RO15	V-18D	
									EC	R	c	RO15	V-5C	
									LT	R*	c		V-5C	*Per Tech Spec
8905D	SI TO HOT LEG-4 CK	51-D	1	A,C	2	CK	N	C	EC	R	o	RO15	V-18D	
									EC	R	c	RO15	V-5C	
									LT	R*	c		V-5C	*Per Tech Spec
8916	N2 SUP TO ACCUM CK IC	38-E	2	A,C	1	CK	N	C	LT	J	c		V-651A	Tested R
									EC	R	c	RO3	V-651A	
									EC	R	o	RO3		#1
8919A	SI PP-1 TO RWST CK	57-E	2	C	3/4	CK	N	C	EC	R	o	RO17	P-SIP	Tested Q
									EC	R	c	RO17	V-24	
8919B	SI PP-2 TO RWST CK	57-D	2	C	3/4	CK	N	C	EC	R	o	RO17	P-SIP	Tested Q
									EC	R	c	RO17	V-24	
8922A	SI PP-1 DISCH CK	56-E	2	C	4	CK	N	C	EC	R	o	RO18	V-18D	
									EC	R	c	RO18	P-SIP	Tested Q
8922B	SI PP-2 DISCH CK	56-D	2	C	4	CK	N	C	EC	R	o	RO18	V-18D	
									EC	R	c	RO18	P-SIP	Tested Q
8923A	SI PP-1 SUCT	58-E	2	B	6	GA	E	O	PI	2Y	NA		V-2H	
									EF	Q	30c		V-3L10A	
8923B	SI PP-2 SUCT	58-D	2	B	6	GA	E	O	PI	2Y	NA		V-2H	
									EF	Q	30c		V-3L10B	
8924	RWST TO CHG PP CK	48-C	2	C	8	CK	N	C	EC	R	o	RO19	V-18D	
									EC	R	c	RO19	M-86G	

SAFETY INJECTION SYSTEM P& ID NO. 1020 09

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8948A	LOOP-1 COLD INJ CK	30-C	1	A,C	10	CK	N	C	LT	R*	c		V-5A2	*Per Tech Spec
									CM	CMP	o/c		V-18A	
8948B	LOOP-2 COLD INJ CK	30-B	1	A,C	10	CK	N	C	LT	R*	c		V-5A2	*Per Tech Spec
									CM	CMP	o/c		V-18A	
8948C	LOOP-3 COLD INJ CK	30-B	1	A,C	10	CK	N	C	LT	R*	c		V-5A2	*Per Tech Spec
									CM	CMP	o/c		V-18A	
8948D	LOOP-4 COLD INJ CK	30-A	1	A,C	10	CK	N	C	LT	R*	c		V-5A2	*Per Tech Spec
									CM	CMP	o/c		V-18A	
8949A	SI TO HOT LEG-1 CK	50-E	1	A,C	6	CK	N	C	EC	R	o	RO20	V-18D	
									EC	R	c	RO20	V-5C	
									LT	R*	c		V-5C	*Per Tech Spec
8949B	SI TO HOT LEG-2 CK	50-E	1	A,C	6	CK	N	C	EC	R	o	RO20	V-18D	
									EC	R	c	RO20	V-5C	
									LT	R*	c		V-5C	*Per Tech Spec
8949C	SI TO HOT LEG-3 CK	50-D	1	A,C	6	CK	N	C	EC	R	o	RO20	V-18D	
									EC	R	c	RO20	V-5C	
									LT	R*	c		V-5C	*Per Tech Spec
8949D	SI TO HOT LEG-4 CK	50-D	1	A,C	6	CK	N	C	EC	R	o	RO20	V-18D	
									EC	R	c	RO20	V-5C	
									LT	R*	c		V-5C	*Per Tech Spec
8956A	ACCUM-1 DISCH CK	31-C	1	A,C	10	CK	N	C	LT	R*	c		V-5A1	*Per Tech Spec
									CM	CMP	o/c		V-18A	
8956B	ACCUM-2 DISCH CK	31-B	1	A,C	10	CK	N	C	LT	R*	c		V-5A1	*Per Tech Spec
									CM	CMP	o/c		V-18A	
8956C	ACCUM-3 DISCH CK	31-B	1	A,C	10	CK	N	C	LT	R*	c		V-5A1	*Per Tech Spec
									CM	CMP	o/c		V-18A	
8956D	ACCUM-4 DISCH CK	31-A	1	A,C	10	CK	N	C	LT	R*	c		V-5A1	*Per Tech Spec
									CM	CMP	o/c		V-18A	

SAFETY INJECTION SYSTEM P& ID NO. 1020 09

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8961	SI TEST LINE ISOL OC	39-C	2	A	3/4	GL	A	C	PI	2Y	NA		V-2J7	
									LT	J	c		V-651B	
									EF	Q	10c		V-3S5	
8974A	SI RECIRC TO RWST	58-D	ISTC.	B	2	GL	E	LO	PI	2Y	NA		V-2V2	
									EF	CS	10c	CS17	V-3L15	
8974B	SI RECIRC TO RWST	57-D	2	B	2	GL	E	LO	PI	2Y	NA		V-2V2	
									EF	CS	10c	CS17	V-3L15	
8976	RWST TO SI PP ISOL	59-D	2	B	8	GA	E	LO	PI	2Y	NA		V-2J6	
									EF	CS	20c	CS18	V-3L13	
8977	RWST TO SI PP CK	59-D	2	C	8	CK	N	C	EC	R	o	RO21	V-15	
									EC	R	c	RO21	M-86A1	
8980	RWST TO RHR PPS ISOL OC	59-B	2	B	12	GA	E	LO	PI	2Y	NA		V-2J3	
									EF	CS	25c	CS19	V-3L14	
8981	RWST TO RHR PP CK	59-B	2	C	12	CK	N	C	EC	R	o	RO22	V-4C	
									EC	R	c	RO22	V-4D	
8982A	CONT RCRC SMP TO RHRP1 ISO	52-A	2	B	14	GA	E	LC	PI	2Y	NA		V-2O6	
									EF	R	25o	RO23	V-3L17	
8982B	CONT RCRC SMP TO RHRP2 ISO	53-A	2	B	14	GA	E	LC	PI	2Y	NA		V-2O6	
									EF	R	25o	RO23	V-3L17	
RV-8851	SI TO CL RELIEF TO PRT	55-D	2	C	3/4	RV	N	C	RT	T	o		M-77	1750#
RV-8853A	SI PP1 DISCH TO PRT RV	55-E	2	C	3/4x1	RV	N	C	RT	T	o		M-77	1750#
RV-8853B	SI PP2 DISCH TO PRT RV	54-D	2	C	3/4x1	RV	N	C	RT	T	o		M-77	1750#
RV-8855A	ACCUM 1 PRES RV	31-E	2	C	1	RV	N	C	RT	T	o		M-77	700#
RV-8855B	ACCUM 2 PRES RV	33-E	2	C	1	RV	N	C	RT	T	o		M-77	700#
RV-8855C	ACCUM 3 PRES RV	36-E	2	C	1	RV	N	C	RT	T	o		M-77	700#

SAFETY INJECTION SYSTEM P& ID NO. 1020 09

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
RV-8855D	ACCUM 4 PRES RV	38-E	2	C	1	RV	N	C	RT	T	o		M-77	700#
RV-8856A	RHR PP1 DISCH TO PRT RV	54-B	2	C	2X3	RV	N	C	RT	T	o		M-77	606#
RV-8856B	RHR PP2 DISCH TO PRT RV	54-B	2	C	2X3	RV	N	C	RT	T	o		M-77	606#
RV-8858	RWST TO SI PP SUCT RV	58-D	2	C	3/4	RV	N	C	RT	T	o		M-77	220#

RESIDUAL HEAT REMOVAL SYSTEM P& ID NO. 1020 10

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-641A	RHR PP-1 RECIRC	34-E	2	B	2	GL	E	C	PI	2Y	NA		V-2D	
									EF	Q	10o/c		V-3M1A	
FCV-641B	RHR PP-2 RECIRC	34-B	2	B	2	GL	E	C	PI	2Y	NA		V-2D	
									EF	Q	10o/c		V-3M1B	
HCV-637	RHR HX-2 OUTLET	31-B (31-C)	2	B	8	BA	A	O	EF	Q	30o		V-3M2B	
									PI	2Y	NA		V-2J3	
HCV-638	RHR HX-1 OUTLET	31-D	2	B	8	BA	A	O	EF	Q	30o		V-3M2A	
									PI	2Y	NA		V-2J3	
8700A	RHR PP-1 SUCT OC	37-D (36-D)	2	B	14	GA	E	O	PI	2Y	NA		V-2D2	
									EF	Q	120c		V-3M4A	
8700B	RHR PP-2 SUCT OC	37-B (36-B)	2	B	14	GA	E	O	PI	2Y	NA		V-2D2	
									EF	Q	120c		V-3M4B	
8701	RCS LOOP-4 TO RHR IC	38-D	1	A	14	GA	E	LC	PI	2Y	NA		V-2D3	
									LT	R*	c		V-7C	*Per Tech Spec
									EF	CS	160o/c	CS20	V-3M5	
8702	RCS LOOP-4 TO RHR	39-D (38-D)	1	A	14	GA	E	LC	PI	2Y	NA		V-2D3	
									LT	R*	c		V-7C	*Per Tech Spec
									EF	CS	160o/c	CS20	V-3M5	
8703	RHR TO HOT LEGS-1, 2 IC	38-A	2	A	12	GA	E	LC	PI	2Y	NA		V-2M3	
									EF	CS	85o	CS21	V-3M6	
									LT	R*	c		V-5C	*Per Tech Spec

RESIDUAL HEAT REMOVAL SYSTEM P& ID NO. 1020 10

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8716A	RHR TRAIN XTIE OC	30-D	2	B	8	GA	E	O	PI	2Y	NA		V-2J3	
									EF	CS	20o/c	CS22	V-3M7	
8716B	RHR TRAIN XTIE OC	30-C	2	B	8	GA	E	O	PI	2Y	NA		V-2J3	
									EF	CS	20o/c	CS22	V-3M7	
8730A	RHR PP-1 DISCH CK	35-D	2	C	8	CK	N	C	CM	CMP	o/c		P-RHR-A	
8730B	RHR PP-2 DISCH CK	35-B (35-C)	2	C	8	CK	N	C	CM	CMP	o/c		P-RHR-A	
8740A	RHR TO HOT LEG-1 CK	39-B	1	A/C	8	CK	N	C	CM	CMP	o/c		V-18C	
									LT	R*	c		V-5C	*Per Tech Spec
8740B	RHR TO HOT LEG-2 CK	39-A	1	A/C	8	CK	N	C	CM	CMP	o/c		V-18C	
									LT	R*	c		V-5C	*Per Tech Spec
8742A	RHR HT EX-1 DISCH CK	32-D	2	C	8	CK	N	C	EC	CS	o	CS23	V-4B	
									EC	CS	c	CS23	P-RHR	Tested Q
8742B	RHR HT EX-2 DISCH CK	32-B (32-C)	2	C	8	CK	N	C	EC	CS	o	CS23	V-4B	
									EC	CS	c	CS23	P-RHR	Tested Q
RV-8707	RHR PPS SUCT FROM HL4 RV	38-D (37-D)	2	C	3x4	RV	N	C	RT	T	o		M-77	455#
RV-8708	RHR TO HL1&2 TO PRT RV	38-B (37-B)	2	C	3/4x1	RV	N	C	RT	T	o		M-77	606#

NUCLEAR STEAM SUPPLY SAMPLING SYSTEM P& ID NO. 1020 11

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
9354A	PZR STM SAMPLE ISOL IC	21-A	2	A	3/8	GL	A	O	PI	2Y	NA		V-2O3	
									LT	J	c		V-676A	
									EF	Q	10c		V-3S1	
9354B	PZR STM SAMPLE ISOL OC	22-A	2	A	3/8	GL	A	O	PI	2Y	NA		V-2J1	
									LT	J	c		V-676A	
									EF	Q	10c		V-3S1	
9355A	PZR LIQUID SAMPLE ISOL IC	21-B	2	A	3/8	GL	A	O	PI	2Y	NA		V-2O3	
									LT	J	c		V-659A	
									EF	Q	10c		V-3S1	
9355B	PZR LIQUID SAMPLE ISOL OC	22-B	2	A	3/8	GL	A	O	PI	2Y	NA		V-2J1	
									LT	J	c		V-659A	
									EF	Q	10c		V-3S1	
9356A	HOT LEG SAMPLE ISOL IC	21-B	2	A	3/8	GL	A	O	PI	2Y	NA		V-2O3	
									LT	J	c		V-659B	
									EF	Q	10c		V-3S1	

NUCLEAR STEAM SUPPLY SAMPLING SYSTEM P& ID NO. 1020 11

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
9356B	HOT LEG SAMPLE ISOL OC	22-B	2	A	3/8	GL	A	O	PI	2Y	NA		V-2J1	
									LT	J	c		V-659B	
									EF	Q	10c		V-3S1	
9357A	ACCUM SAMPLE ISOL IC	21-C	2	A	3/8	GL	A	O	PI	2Y	NA		V-2O3	
									LT	J	c		V-659C	
									EF	Q	10c		V-3S1	
9357B	ACCUM SAMPLE ISOL OC	22-C	2	A	3/8	GL	A	O	PI	2Y	NA		V-2J1	
									LT	J	c		V-659C	
									EF	Q	10c		V-3S1	

CONTAINMENT SPRAY SYSTEM P& ID NO. 1020 12

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
CS-31	CS PP-1 TO MEDT ISOL OC	33-D	2	A	.75	GL	M	LC	LT	J	c		V-631	PASSIVE Tested R
CS-32	CS PP-2 TO MEDT ISOL OC	33-B	2	A	.75	GL	M	LC	LT	J	c		V-630	PASSIVE Tested R
8992	CS ADD TK STOP	37-B	2	B	3	GA	E	LO	PI	2Y	NA		V-2G	PASSIVE
8994A	NaOH CS EDUCTOR ISOL	36-B	2	B	3	GA	E	C	PI	2Y	NA		V-2G	
									EF	CS	10o	CS24	V-3I2	
8994B	NaOH CS EDUCTOR ISOL	37-B	2	B	3	GA	E	C	PI	2Y	NA		V-2G	
									EF	CS	10o	CS24	V-3I2	
8998A	CS ADD TK OUT CK	35-C	2	A,C	3	CK	N	C	EC	R	o	RO24	V-3I1	
									LT	2Y	c		V-21	
									EC	R	c	RO24	V-21	
8998B	CS ADD TK OUT CK	35-B	2	A,C	3	CK	N	C	EC	R	o	RO24	V-3I1	
									LT	2Y	c		V-21	
									EC	R	c	RO24	V-21	
9001A	CS PP-1 ISOL	34-D	2	A	8	GA	E	C	PI	2Y	NA		V-2B	
									LT	J	c		V-631	Tested R
									EF	Q	10o		V-3I3A	
9001B	CS PP-2 ISOL	34-A	2	A	8	GA	E	C	PI	2Y	NA		V-2B	
									LT	J	c		V-630	Tested R
									EF	Q	10o		V-3I3B	

CONTAINMENT SPRAY SYSTEM P& ID NO. 1020 12

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
9002A	CS PP-1 DISCH CK	33-D	2	C	8	CK	N	C	CM	CMP	o/c		CSP-A	
9002B	CS PP-2 DISCH CK	33-A	2	C	8	CK	N	C	CM	CMP	o/c		CSP-A	
9003A	RHR HX-1 TO CS-A HDR	33-D	2	B	8	GA	E	C	PI	2Y	NA		V-2B2	
									EF	R	15o	RO14	V-3I4	
9003B	RHR HX-2 TO CS-B HDR	33-B	2	B	8	GA	E	C	PI	2Y	NA		V-2B2	
									EF	R	15o	RO14	V-3I4	
9011A	CS HDR-A ISOL CK IC	32-D	2	A,C	8	CK	N	C	LT	J	c		V-631	Tested R
									CM	CMP	o/c		M-86H	
9011B	CS HDR-B ISOL CK IC	32-A	2	A,C	8	CK	N	C	LT	J	c		V-630	Tested R
									CM	CMP	o/c		M-86H	
RV-930	CS ADD TK1 VAC BREAK	37-D	2	C	1.5	RV	N	C	RT	T	o		M-77	-1.5# vac
RV-931	CS ADD TK2 VAC BREAK	37-C	2	C	1.5	RV	N	C	RT	T	o		M-77	-1.5# vac
RV-8987	CS ADD TK1 TO AUX BLDG SMP	38-C	2	C	3/4x1	RV	N	C	RT	T	o		M-77	10#
RV-9007A	CS HDR A OC RV	32-D	2	C	3/4	RV	N	C	RT	T	o		M-77	260#
RV-9007B	CS HDR B OC RV	32-B	2	C	3/4	RV	N	C	RT	T	o		M-77	260#

COMPONENT COOLING WATER SYSTEM P& ID NO. 1020 14

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
CCW-4	SUCT X-TIE VLV BETWEEN HDRS B&C	50-C	3	B	20	BV	M	LO	EF	2Y	NA		V-3H15	
CCW-5	SUCT X-TIE VLV BETWEEN HDRS A&C	52-C	3	B	20	BV	M	LO	EF	2Y	NA		V-3H15	
CCW-16	CCW PP 2 DISCH TO HEADER B	53-D	3	B	20	BV	M	LO	EF	2Y	NA		P-CCW	Tested Q
CCW-17	CCW PP 3 DISCH TO HEADER B	54-D (55-D)	3	B	20	BV	M	LO	EF	2Y	NA		P-CCW	Tested Q
CCW-18	CCW PP 1 DISCH TO HEADER A	51-E	3	B	20	BV	M	LO	EF	2Y	NA		P-CCW	Tested Q
CCW-19	CCW PP 2 DISCH TO HEADER A	53-E	3	B	20	BV	M	LO	EF	2Y	NA		P-CCW	Tested Q
CCW-23	CCW HEADER A TO C ISOLATION VALVE	58-E	3	B	24	BV	M	LO	EF	2Y	NA		P-CCW	Tested Q
CCW-24	CCW HEADER B TO C ISOLATION VALVE	58-D	3	B	24	BV	M	LO	EF	2Y	NA		P-CCW	Tested Q

COMPONENT COOLING WATER SYSTEM P& ID NO. 1020 14

VALVE NUMBER	VALVE DESCRIPTION	P & ID COOR D	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
CCW-581	CCW FCV-749 BYPASS CK IC	71-B	2	A,C	3/4	CK	N	C	LT	J	c		V-620	Tested R
									EC	R	o	RO5	V-620	RV function
									EC	R	c	RO5	V-620	
CCW-585	CCW TO RCP & RX VSL SUPPORT CK IC	72-E	2	A,C	10	CK	N	O	LT	J	c		V-619	Tested R
									EC	R	c	RO3	V-619	
									EC	R	o	RO3		#1
CCW-601	CCW PP-1 HDR-A CK	51-E	3	C	20	CK	N	O	CM	CMP	o/c		V-CCW-CK	PEP
CCW-602	CCW PP-2 HDR-A CK	53-E	3	C	20	CK	N	O	CM	CMP	o/c		V-CCW-CK	PEP
CCW-603	CCW PP-3 HDR-A CK	54-E (55-E)	3	C	20	CK	N	O	CM	CMP	o/c		V-CCW-CK	PEP
CCW-607	CCW PP-1 HDR-B CK	51-D	3	C	20	CK	N	O	CM	CMP	o/c		V-CCW-CK	PEP
CCW-608	CCW PP-2 HDR-B CK	53-D	3	C	20	CK	N	O	CM	CMP	o/c		V-CCW-CK	PEP
CCW-609	CCW PP-3 HDR-B CK	54-D (55-D)	3	C	20	CK	N	O	CM	CMP	o/c		V-CCW-CK	PEP
CCW-670	CCW FCV-750 BYPASS CK IC	73-B	2	A,C	3/4	CK	N	C	LT	J	c		V-621	Tested R
									EC	R	o	RO5	V-621	RV function
									EC	R	c	RO5	V-621	
CCW-695	CCW TO EXCS LTDN HX CK OC	98-D	2	A,C	4	CK	N	O	LT	J	c		V-623	Tested R
									EC	R	c	RO3	V-623	
									EC	R	o	RO3		#1
FCV-355	CCW HDR-C ISOL	58-D (59-D)	3	B	20	BV	E	O	PI	2Y	NA		V-2F	
									EF	CS	20c	CS25	V-3H3	RR1
FCV-356	CCW TO RCP & RX VSL SUPPORT ISOL OC	72-E	2	A	10	BV	E	O	PI	2Y	NA		V-2J2	
									LT	J	c		V-619	Tested R
									EF	CS	25c	CS25	V-3H4	RR1
FCV-357	RCP THM BAR CCW RTN ISO OC	73-B	2	A	6	GL	E	O	PI	2Y	NA		V-2J2	
									LT	J	c		V-621	Tested R
									EF	CS	30c	CS25	V-3H5	RR1

COMPONENT COOLING WATER SYSTEM P& ID NO. 1020 14

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-361	CCW FRM XCS LTDN HX ISO OC	98-B	2	A	4	BV	A	C	PI	2Y	NA		V-2J2	
									LT	J	c		V-623	Tested R
									EF	Q	10c		V-3S6	
FCV-363	RCP'S CLR CCW RTN ISOL OC	72-B	2	A	6	BV	E	O	PI	2Y	NA		V-2J2	
									LT	J	c		V-620	Tested R
									EF	CS	25c	CS25	V-3H6	RR1
FCV-364	RHR HX-2 CCW RETURN	60-C	3	B	12	BV	A	C	PI	2Y	NA		V-2H	
									EF	Q	10o		V-3H7	
FCV-365	RHR HX-1 CCW RETURN	104-C	3	B	12	BV	A	C	PI	2Y	NA		V-2H	
									EF	Q	10o		V-3H7	
FCV-430	CCW HX-1 OUT ISOL	57-E (58-E)	3	B	30	BV	E	O	PI	2Y	NA		V-2F	
									EF	Q	30o		V-3H8	
FCV-431	CCW HX-2 OUT ISOL	57-D (58-D)	3	B	30	BV	E	O	PI	2Y	NA		V-2F	
									EF	Q	30o		V-3H8	
FCV-749	RCP'S CLR CCW RTN ISOL IC	72-B	2	A	6	BV	E	O	PI	2Y	NA		V-2O2	
									LT	J	c		V-620	Tested R
									EF	CS	20c	CS25	V-3H10	RR1
FCV-750	RCP THM BAR CCW RTN ISO IC	73-B	2	A	6	GL	E	O	PI	2Y	NA		V-2O2	
									LT	J	c		V-621	Tested R
									EF	CS	30c	CS25	V-3H9	RR1
LCV-69	MU WTR TO CCW HDR-A	55-B	3	B	3	GL	A	C	EF	Q	20o		V-3H11	
LCV-70	MU WTR TO CCW HDR-B	55-B	3	B	3	GL	A	C	EF	Q	20o		V-3H11	
RCV-16	CCW SURGE TK VENT	56-C	3	B	3	BA	A	O	PI	2Y	NA		V-2F	
									EF	Q	10c		V-3H12	

COMPONENT COOLING WATER SYSTEM P& ID NO. 1020 14

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
RV-41	RCP3 THRML BARRIER CCW RTN	72-C	3	C	3/4x1	RV	N	C	RT	T	o		M-77	2485#
RV-42	RCP4 THRML BARRIER CCW RTN	73-C	3	C	3/4x1	RV	N	C	RT	T	o		M-77	2485#
RV-43	RCP2 THRML BARRIER CCW RTN	70-C	3	C	3/4x1	RV	N	C	RT	T	o		M-77	2485#
RV-44	RCP1 THRML BARRIER CCW RTN	74-C	3	C	3/4x1	RV	N	C	RT	T	o		M-77	2485#
RV-45	CCW SURGE TANK RV	57-C	3	C	3x4	RV	N	C	RT	T	o		M-77	30#
RV-46	FCV-365 BYPASS RV	103-C	3	C	3/4x1	RV	N	C	RT	T	o		M-77	70#
RV-47	CCW RTN FROM RHR HX2 RV	61-C	3	C	3/4x1	RV	N	C	RT	T	o		M-77	70#
RV-51	RCP'S LO CLG RTN TO CCW RV	72-C	3	C	3	RV	N	C	RT	T	o		M-77	150#
RV-52	CCW RTN XCES LTDN HX RV	98-C	2	C	3	RV	N	C	RT	T	o		M-77	150#

MAKEUP WATER SYSTEM P& ID NO. 1020 16

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
MU-963	AFW PP RECIRC TO CST CK	71-C (78-C)	3	C	2	CK	N	C	CM	CMP	o/c		V-18	
MU-965	CST TO MU H20 XFR PPS CK	70-D (78-D)	3	C	4	CK	N	C	CM	CMP	o/c		V-18	
MU-966	MU WATER PP RECIRC CK	73-D	3	C	4	CK	N	O	CM	CMP	o/c		V-18	
MU-968	MU H20 XFR PP-01 DISCH CK	74-D	3	C	4	CK	N	C	CM	CMP	o/c		P-MUW-A1	
MU-969	MU WATER PP RECIRC CK	76-D	3	C	4	CK	N	O	CM	CMP	o/c		V-18	
MU-970	MU H20 XFR PP-02 DISCH CK	75-D	3	C	4	CK	N	C	CM	CMP	o/c		P-MUW-A2	
MU-971	MU H20 TO MISC SOURCES CK	72-E (78-E)	3	C	4	CK	N	C	EC EC	R R	o c	RO25 RO25	V-3U2 V-3U3	
MU-1555	CST H20 MIXING PP DISCH CK	71-C (78-D)	3	C	3	CK	N	O	EC EC	Q Q	c o		V-3U1 V-3U1	
MU-1557	RAW WATER SUPPLY HDR ISOL	57A-D	3	B	8	BV	M	LC	EF	2Y	NA		P-MUW-A	

SALTWATER SYSTEM P& ID NO. 1020 17

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
SW-34	ASW PP-1 DISCH VAC RELIEF	32B-D	3	C	3	CK	N	C	EC	2Y	o/c		V-18M	VAC Breaker
SW-170	ASW PP-1 DISCH VAC RELIEF	32B-D	3	C	3	CK	N	C	EC	2Y	o/c		V-18M	VAC Breaker
SW-200	ASW PP-1 DISCH CK	32B-A	3	C	24	CK	N	O	EC	Q	o/c		P-ASW	
SW-201	ASW PP-2 DISCH CK	32B-C	3	C	24	CK	N	O	EC	Q	o/c		P-ASW	
SW-301	ASW PP-2 DISCH VAC RELIEF	31B-D	3	C	3	CK	N	C	EC	2Y	o/c		V-18M	VAC Breaker
SW-303	ASW PP-2 DISCH VAC RELIEF	31B-D	3	C	3	CK	N	C	EC	2Y	o/c		V-18M	VAC Breaker
FCV-495	ASW PP-2 CROSS TIE	33B-B	3	B	24	BV	E,M	O	PI	2Y	NA		V-2A1	
									EF	Q	30 o/c		V-3F1	
									EF	2Y	NA		V-2A1	Manual Stroke
FCV-496	ASW PP-1 CROSS TIE	33B-B	3	B	24	BV	E,M	O	PI	2Y	NA		V-2A1	
									EF	Q	30 o/c		V-3F2	
									EF	2Y	NA		V-2A1	Manual Stroke
FCV-601	ASW UNIT CROSS TIE	33B-B	3	B	24	BV	E	C	PI	2Y	NA		V-2A2	
									EF	Q	30 o		V-3F3	
									EF	2Y	NA		V-2A2	Manual Stroke
FCV-602	CCW HX-1 SW INLET	35B-A	3	B	24	BV	A	O	PI	2Y	NA		V-2F	
									EF	Q	60o		V-3F4	UNIT 1
									(EF	Q	120o		V-3F4	UNIT 2)
FCV-603	CCW HX-2 SW INLET	35B-C	3	B	24	BV	A	O	PI	2Y	NA		V-2F	
									EF	Q	60o		V-3F5	UNIT 1
									(EF	Q	90o		V-3F5	UNIT 2)

FIRE PROTECTION SYSTEM P& ID NO. 1020 18

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FP-180	CONT FIREWATER ISOL IC	73-B	2	A,C	4	CK	N	C	LT	J	c		V-679	
(FP-867)		(73-D)							EC	R	c	RO26	V-679	
									EC	R	o	RO26	M-63H	
FCV-633	CONT FIREWATER ISOL OC	72-B	2	A	3	GL	A	O	PI	2Y	NA		V-2J7	
		(72-E)							LT	J	NA		V-679	
									EF	Q	10c		V-3S4	
FP-306	FIREWATER SUPPLY TO AUX FEED PPS	37-C	3	B	8	BV	M	C	EF	Q*	NA		V-3P4	*Per Tech Specs
FP-307	FIREWATER SUPPLY TO AUX FEED PPS	37-C	3	B	8	BV	M	C	EF	Q*	NA		V-3P4	*Per Tech Specs

LIQUID RADWASTE SYSTEM P& ID NO. 1020 19

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
LWS-60	N2 TO RCDT ISOL IC	38-C	2	A,C	3/4	CK	N	C	LT	J	c		V-652D	Tested R
									EC	R	c	RO3	V-652D	
									EC	R	o	RO3		#1
FCV-253	RCDT PP DISCH ISOL IC	38-A	2	A	2.5	BA	A	O	PI	2Y	NA		V-2O5	
									LT	J	c		V-650	
									EF	Q	10c		V-3S3	
FCV-254	RCDT PP DISCH ISOL OC	39-A	2	A	2.5	BA	A	O	PI	2Y	NA		V-2J5	
									LT	J	c		V-650	
									EF	Q	10c		V-3S3	
FCV-255	RCDT VENT ISOL IC	38-B	2	A	3/4	BA	A	O	PI	2Y	NA		V-2O5	
									LT	J	c		V-651C	
									EF	Q	10c		V-3S3	
FCV-256	RCDT VENT ISOL OC	39-B	2	A	3/4	BA	A	O	PI	2Y	NA		V-2J5	
									LT	J	c		V-651C	
									EF	Q	10c		V-3S3	
FCV-257	RCDT GAS ANAL ISOL OC	39-B	2	A	1/2	BA	A	C	PI	2Y	NA		V-2J5	
									LT	J	c		V-651D	
									EF	Q	10c		V-3S3	

LIQUID RADWASTE SYSTEM P& ID NO. 1020 19

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-258	RCDT GAS ANAL ISOL IC	38-B	2	A	1/2	BA	A	O	PI	2Y	NA		V-2O5	
									LT	J	c		V-651D	
									EF	Q	10c		V-3S3	
FCV-260	N2 TO RCDT ISOL OC	38-C	2	A	3/4	BA	A	O	PI	2Y	NA		V-2J5	
									LT	J	c		V-652D	Tested R
									EF	Q	10c		V-3S3	
FCV-500	CONT SUMP DISCH ISOL IC	38-D	2	A	2	BA	A	O	PI	2Y	NA		V-2O5	
									LT	J	c		V-649	
									EF	Q	10c		V-3S3	
FCV-501	CONT SUMP DISCH ISOL OC	39-D	2	A	2	BA	A	O	PI	2Y	NA		V-2J5	
									LT	J	c		V-649	
									EF	Q	10c		V-3S3	
FCV-696	RX CAV SUMP SMPL SUP ISO IC	38-B	2	A	3/8	GL	S	C	PI	2Y	NA		V-682A	
									LT	J	c		V-682A	Tested R
									EF	CS	10o	CS26	V-3T5	
FCV-697	RX CAV SUMP SMPL SUP ISO OC	39-B	2	A	3/8	GL	S	C	PI	2Y	NA		V-682A	
									LT	J	c		V-682A	Tested R
									EF	CS	10o	CS26	V-3T5	

LIQUID RADWASTE SYSTEM P& ID NO. 1020 19

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
8767	REFUEL WTR PURIF ISOL OC	39-C	2	A	4	DI	M	LC	LT	J	c		V-646	PASSIVE
8787	REFUEL WTR PURIF ISOL OC	39-D	2	A	4	DI	M	LC	LT	J	c		V-646	PASSIVE
8795	REFUEL WTR PURIF ISOL IC	38-C	2	A	4	DI	M	LC	LT	J	c		V-646	PASSIVE
8796	REFUEL WTR PURIF ISOL IC	38-D	2	A	4	DI	M	LC	LT	J	c		V-646	PASSIVE

VENTILATION AND AIR CONDITIONING SYSTEM P& ID NO. 1020 23

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
VAC-1	CHP SUP FAN-1 ISOL OC	34-A	2	A	4	GA	M	LC	LT	J	c		V-683	PASSIVE Tested R
VAC-2	CHP SUP FAN-2 ISOL OC	34-A	2	A	4	GA	M	LC	LT	J	c		V-683	PASSIVE Tested R
VAC-21	CONT AIR SMPL RTN ISOL IC	44-B	2	A,C	2	CK	N	O	LT	J	c		V-668	
									CM	CMP	o/c		V-18	
VAC-116	CONT AIR SMPL POST LOCA RTN ISOL IC	44-C	2	A,C	3/8	CK	N	C	LT	J	c		V-682B	Tested R
									EC	R	c	RO3	V-682B	
									EC	R	o	RO3		#1
VAC-200	CHP SUP ISOL IC CK	35-A	2	A,C	4	CK	N	C	LT	J	c		V-683	Tested R
									CM	CMP	o/c		V-18	
VAC-201	CHP SUP ISOL IC CK	35-A	2	A,C	4	CK	N	C	LT	J	c		V-683	Tested R
									CM	CMP	o/c		V-18	
VAC-252	CONT H2 SAMPLE RTN CK IC	44-D	2	A,C	3/8	CK	N	C	LT	J	c		V-678	Tested R
									EC	R	o/c	RO27	V-678	
VAC-253	CONT H2 SAMPLE RTN CK IC	44-E (44-D)	2	A,C	3/8	CK	N	C	LT	J	c		V-678	Tested R
									EC	R	o/c	RO27	V-678	
FCV-235	CONT H2 SAMPLE SUP ISOL IC	44-C	2	A	3/8	GL	S	LC	PI	2Y	NA		V-678	
									LT	J	c		V-678	Tested R
									EF	CS	10o	CS26	V-3T3	

VENTILATION AND AIR CONDITIONING SYSTEM P& ID NO. 1020 23

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-236	CONT H2 SAMPLE SUP ISOL OC	46-C	2	A	3/8	GL	S	LC	PI	2Y	NA		V-678	
									LT	J	c		V-678	Tested R
									EF	CS	10o	CS26	V-3T3	
FCV-237	CONT H2 SAMPLE RTN ISOL OC	46-D	2	A	3/8	GL	S	LC	PI	2Y	NA		V-678	
									LT	J	c		V-678	Tested R
									EF	CS	10o	CS26	V-3T3	
FCV-238	CONT H2 SAMPLE SUP ISOL IC	44-D	2	A	3/8	GL	S	LC	PI	2Y	NA		V-678	
									LT	J	c		V-678	Tested R
									EF	CS	10o	CS26	V-3T3	
FCV-239	CONT H2 SAMPLE SUP ISOL OC	46-D	2	A	3/8	GL	S	LC	PI	2Y	NA		V-678	
									LT	J	c		V-678	Tested R
									EF	CS	10o	CS26	V-3T3	
FCV-240	CONT H2 SAMPLE RTN ISOL OC	46-E (46-D)	2	A	3/8	GL	S	LC	PI	2Y	NA		V-678	
									LT	J	c		V-678	Tested R
									EF	CS	10o	CS26	V-3T3	

VENTILATION AND AIR CONDITIONING SYSTEM P& ID NO. 1020 23

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-658	CHP EXH SYS #2 DISCH ISO IC	35-B	2	A	4	GA	E	LC	PI	2Y	NA		V-2X	
									LT	J	c		V-681	Tested R
									EF	CS	15o	CS26	V-3T3	
FCV-659	CHP EXH SYS #1 DISCH ISO IC	35-B	2	A	4	GA	E	LC	PI	2Y	NA		V-2X	
									LT	J	c		V-657	Tested R
									EF	CS	15o	CS26	V-3T3	
FCV-660	CONT PURGE SUP ISOL IC	35-C	2	A	48	BV	A	C	PI	2Y	NA		V-2Q	
									LT	2Y*	c		V-661	*Per Tech Spec
									EF	CS	2c	CS27	V-3T7	
FCV-661	CONT PURGE SUP ISOL OC	34-C	2	A	48	BV	A	C	PI	2Y	NA		V-2E1	
									LT	2Y*	c		V-661	*Per Tech Spec
									EF	CS	2c	CS27	V-3T7	
FCV-662	CONT EXCESS PRES/VAC RLF ISOL IC	35-B	2	A	12	BV	A	C	PI	2Y	NA		V-2Q	
									LT	2Y*	c		V-663	*Per Tech Spec
									EF	Q	5c		V-3T6	

VENTILATION AND AIR CONDITIONING SYSTEM P& ID NO. 1020 23

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-663	CONT XCESS PRES RLF ISO OC	31-B	2	A	12	BV	A	C	PI	2Y	NA		V-2E3	
									LT	2Y*	c		V-663	*Per Tech Spec
									EF	Q	5c		V-3T6	
FCV-664	CONT VAC RLF OC	32-C	2	A	12	BV	A	C	PI	2Y	NA		V-2E3	
									LT	2Y*	c		V-663	*Per Tech Spec
									EF	Q	5c		V-3T6	
FCV-668	CHP EXH SYS #2 DISCH ISO OC	34-B	2	A	4	GA	E	LC	PI	2Y	NA		V-2X	
									LT	J	c		V-681	Tested R
									EF	CS	15o	CS26	V-3T3	
FCV-669	CHP EXH SYS #1 DISCH ISO OC	34-B	2	A	4	GA	E	LC	PI	2Y	NA		V-2X	
									LT	J	c		V-657	Tested R
									EF	CS	15o	CS26	V-3T3	
FCV-678	CONT AIR SAMPLE SUP ISOL IC	44-A	2	A	1	BA	A	O	PI	2Y	NA		V-2O3	
									LT	J	c		V-668	Tested R
									EF	Q	10c		V-3T1	

VENTILATION AND AIR CONDITIONING SYSTEM P& ID NO. 1020 23

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
FCV-679	AIR SAMPLE SUP ISOL OC	46-A	2	A	1	BA	A	O	PI	2Y	NA		V-2J1	
									LT	J	c		V-668	Tested R
									EF	Q	10c		V-3T1	
FCV-681	AIR SAMPLE RETURN ISOL OC	46-B	2	A	1	BA	A	O	PI	2Y	NA		V-2J1	
									LT	J	c		V-668	Tested R
									EF	Q	10c		V-3T1	
FCV-698	AIR SAMPLE POST LOCA SUP ISOL OC	44-B	2	A	3/8	GL	S	C	PI	2Y	NA		V-682B	Tested R
									LT	R	c		V-682B	Tested R
									EF	Q	10o/c		V-3T4	
FCV-699	AIR SAMPLE POST LOCA SUP ISOL OC	46-B	2	A	3/8	GL	S	C	PI	2Y	NA		V-682B	Tested R
									LT	J	c		V-682B	Tested R
									EF	Q	10o/c		V-3T4	
FCV-700	AIR SAMPLE POST LOCA SUP ISOL OC	46-C	2	A	3/8	GL	S	C	PI	2Y	NA		V-682B	Tested R
									LT	J	c		V-682B	Tested R
									EF	Q	10o/c		V-3T4	
RCV-11	PURGE EXHAUST ISOL IC	35-C	2	A	48	BV	A	C	PI	2Y	NA		V-2Q	
									LT	2Y*	c		V-662	*Per Tech Spec
									EF	CS	2c	CS27	V-3T7	
RCV-12	PURGE EXHAUST ISOL OC	34-C	2	A	48	BV	A	C	PI	2Y	NA		V-2E2	
									LT	2Y*	c		V-662	*Per Tech Spec
									EF	CS	2c	CS27	V-3T7	

COMPRESSED AIR SYSTEMS P& ID NO. 1020 25

VALVE NUMBER	VALVE DESCRIPTION	P & ID COORD	VLV CLS	VLV CAT	VLV SIZ	VLV TYP	ACT TYP	NRM POS	TST REQ	TST FRQ	STR TIM	REL REQ	PROC NO.	REMARKS
AIR-S-114	CONT SERV AIR SUP ISOL IC	41-D	2	A,C	3	CK	N	C	LT	J	c		V-656	Tested R
									EC	R	c	RO3	V-656	
		(45-B)							EP	R	o	RO3	V-656	
AIR-S-200	CONT SERV AIR SUP ISOL OC	42-D	2	A	3	BA	M	LC	LT	J	c		V-656	PASSIVE
		(43-B)												Tested R
AIR-I-585	CONT NORM INST AIR SUP	42-C	2	A	1.5	DI	M	LC	LT	J	c		V-654	PASSIVE
	ISOL BYPASS OC	(43-C)												Tested R
AIR-I-587	CONT NRM INST AIR SUP CK IC	42-D	2	A,C	2	CK	N	O	LT	J	c		V-654	Tested R
		(44-B)							EC	R	c	RO3	V-654	
									EP	R	o	RO3	V-654	
FCV-584	CNT NRM INST AIR SUP ISO OC	42-C	2	A	2	BA	A	O	PI	2Y	NA		V-2J7	
		(44-C)							LT	J	c		V-654	Tested R
									EF	Q	10c		V-3S4	

REMARKS

#1 The open safety function of check valves listed below are verified during normal operations at the frequencies noted per ISTC-3550.

Valve #	Valve Description	Procedure #	Frequency
FW-367	Main Feedwater to SG#2 Check	STP R-2B2	Daily
FW-368	Main Feedwater to SG#1 Check	STP R-2B2	Daily
FW-531	Main Feedwater to SG#3 Check	STP R-2B2	Daily
FW-532	Main Feedwater to SG#4 Check	STP R-2B2	Daily
RCS-8046	Primary Water to PRT	OP A-4B:I	Refueling Outage
RCS-8047	Nitrogen to PRT	OP A-4B:I	Refueling Outage
CVCS-8440	VCT Outlet Check Valve	STP P-CCP	Quarterly
CVCS-8367A-D	RCP Seal Injection Inlet Check	STP M-54	Monthly
CVCS-8368A-D	RCP Seal Injection Inlet Check	STP M-54	Monthly
CVCS-8372A-D	RCP Seal Injection Inlet Check	STP M-54	Monthly
SI-8916	Nitrogen Supply to the Accumulators	OP B-3B:I	Refueling Outage
CCW-585	CCW to Reactor Coolant Pumps and Rx Vessel Support Cooler (IC)	OP F-2:I OP A-6:I	Refueling Outage
CCW-695	CCW to Excess Letdown HX (OC)	OP L-1 & OP B-1A:IV	Refueling Outage
LWS-60	Nitrogen to RCDT Check Valve (IC)	OP G-1:VI	Refueling Outage
VAC-116	Containment Air Post Accident Sample Return Check Valve (IC)	STP G-14	Refueling Outage

#2 The leak tests for valves FW-367, 368, 531, and 532, are not required by Code as these valves do not have a safety related function to prevent back leakage. The leak test and the categorization as "A,C" is based on a corrective action in NCR DC1-91-TN-N002.

#3 FCV-110A does not have an active safety function. The safety related boration flow path is through 8104 and the redundant flow path is from the RWST. However, in the Appendix R and Hosgri evaluations credit was taken for this valve to open or fail open so this valve is being administratively included in the IST program as a conservative measure since it may be considered a licensing commitment.

NO. V-CS1

Valves:	FW-367	Steam Generator #2 Main Feedwater Check
	FW-368	Steam Generator #1 Main Feedwater Check
	FW-531	Steam Generator #3 Main Feedwater Check
	FW-532	Steam Generator #4 Main Feedwater Check
Category:	A/C	**Code Class:** 2
Valves:	FCV-438	Steam Generator #1 Feedwater Isolation Valve
	FCV-439	Steam Generator #2 Feedwater Isolation Valve
	FCV-440	Steam Generator #3 Feedwater Isolation Valve
	FCV-441	Steam Generator #4 Feedwater Isolation Valve
Category:	B	**Code Class:** 2

Function:

The check valves have an active function to close to prevent backflow so that AFW pump discharge flow will be directed to the steam generators as required when the AFW system is actuated.

The isolation valves have an active safety function to close to terminate continued feedwater flow to the steam generators or to a faulted feedwater line inside containment as assumed in the plant accident analysis.

Basis:

These Main Feedwater Check Valves and Feedwater Isolation Valves cannot be exercised during power operation because closing these valves would require securing feed flow to a steam generator which would result in a reactor trip.

Part stroking is not considered practical because of the risk of full closure. The risk is recognized in DCPP's Technical Specification Bases Document for Technical Specifications Surveillance Requirements 3.7.3.1 and 3.7.3.2, which states "These surveillances are normally performed upon returning the unit to operation following a refueling outage. These valves should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power."

Justification:

Cold shutdown frequency testing is per ISTC- 3522(b) and ISTC-3521(c).

NO. V-CS2

Valves:	FW-369	Aux Feedwater Pump #1 to Steam Generator #1 Check Valve
	FW-370	Aux Feedwater Pump #2 to Steam Generator #1 Check Valve
	FW-371	Aux Feedwater Pump #1 to Steam Generator #2 Check Valve
	FW-372	Aux Feedwater Pump #2 to Steam Generator #2 Check Valve
	FW-373	Aux Feedwater Pump #1 to Steam Generator #3 Check Valve
	FW-374	Aux Feedwater Pump #3 to Steam Generator #3 Check Valve
	FW-375	Aux Feedwater Pump #1 to Steam Generator #4 Check Valve
	FW-376	Aux Feedwater Pump #3 to Steam Generator #4 Check Valve
Category:	C	**Code Class:** 2

Function:

These valves have an active safety function in the open direction to permit the flow of water from the AFW pump discharge lines to the steam generators. Second off check valves FW-369, FW-370, FW-371, FW-372, FW-373, FW-374, FW-375, and FW-376 also have a safety function to close to prevent the backflow of feedwater through an idle AFW pump.

Basis:

These Auxiliary Feedwater Supply Check Valves cannot be full stroke exercised during power operation because the only available flow path is into the steam generators which could result in thermal shock to the associated piping and fittings. These valves will be full stroke exercised during a shutdown to, or a startup from, a cold shutdown condition.

Justification:

Cold shutdown frequency testing is per ISTC-3522(b).

NO. V-CS3

Valves:	FCV-41	Steam Generator #1 Main Steam Isolation Valve
	FCV-42	Steam Generator #2 Main Steam Isolation Valve
	FCV-43	Steam Generator #3 Main Steam Isolation Valve
	FCV-44	Steam Generator #4 Main Steam Isolation Valve

Category: B **Code Class:** 2

Function:

These valves have an active safety function to automatically close on high steam flow, coincident with either low-low T(avg) or low steam pressure, or on a high-high containment pressure signal.

Basis:

These valves cannot be full stroke exercised during power operation because this would require securing steam from a steam generator which would result in a reactor trip, and most likely a safety injection.

Part stroke testing capability does exist for these valves but is not considered practical, since extremely limited (6° max., 2° nominal) valve motion is allowed due to the valve design which only provides verification that the valve is not frozen in the open position. Additionally, as a result of the valve design, performing partial stroke testing exposes the plant to an inadvertent Reactor Trip and/or Safety Injection should the valve stroke more than 6° (resulting in a flow assisted closure of the valve).

These valves will be full stroke exercised on a cold shutdown frequency.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS4

Valves: LCV-112B Volume Control Tank Outlet Isolation Valve
LCV-112C Volume Control Tank Outlet Isolation Valve

Category: B **Code Class:** N/A

Function:

These valves have an active safety function to close to isolate the volume control tank from the suction of the charging pumps upon the receipt of a safety injection signal.

Basis:

These isolation valves should not be full or part stroke exercised during power operation because failure of either valve in the closed position would result in a loss of reactor system level control or injecting 2000 ppm boric acid solution from the RWST into the reactor coolant system, resulting in a possible plant shutdown. See also NRC SER dated 1/31/94 addressing LA 86 and 87.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS5

Valves:	8100	Reactor Coolant Pump Seal Water Return Isolation Valve, Outside Containment
	8112	Reactor Coolant Pump Seal Water Return Isolation Valve, Inside Containment

Category: A **Code Class:** 2

Function:

These valves have an active safety function to close to isolate the seal water return line containment penetration upon receipt of a Phase A containment isolation signal.

Basis:

These isolation valves cannot be exercised during power operation because this would challenge the relief valve in the RCP seal water return line. If this relief valve failed in the open position, this would result in unnecessary reactor coolant system leakage.

These motor operated valves cannot be part stroke tested because the control system does not allow for part stroke testing.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS6

Valves:	8105	Centrifugal Charging Pumps' Recirculation Isolation Valve
	8106	Centrifugal Charging Pumps' Recirculation Isolation Valve
Category:	B	**Code Class:** 2 (8106), N/A (8105)

Function:

These valves have an active safety function to close to isolate the high pressure safety injection flow path from the CVCS during safety injection system operation following a LOCA.

Basis:

These valves should not be exercised during power operation because failure of either valve in the closed position could result in pump damage if a secondary system accident occurred.

These motor operated valves cannot be part stroke tested because the Bases for Technical Specification Surveillance Requirements 3.5.2.1 and 3.5.2.2 require that these valves be maintained open.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS7

Valves:	8107	Charging Line Isolation Valve
	8108	Charging Line Isolation Valve

Category: B **Code Class:** 2

Function:

These redundant, motor-operated gate valves have an active safety function to close to isolate the normal charging flow path from the high pressure safety injection flow path upon receipt of a safety injection signal.

Basis:

These valves should not be full stroke exercised during power operation because failure of either valve in the closed position could result in loss of reactor coolant system level control, which could result in a plant shutdown. The control scheme for these motor operated valves does not allow for part stroking. Also, failure of either of these valves in a closed position would place the plant in an LCO action statement due to a loss of the boration flow path from the boric acid tanks. See also NRC SER dated 1/31/94 addressing LA 86 and 87.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS8

Valves:	8145	Pressurizer Auxiliary Spray Valve
	8148	Pressurizer Auxiliary Spray Bypass Valve
Category:	B	**Code Class:** 1

Function:

Air operated globe valves 8145 and 8148, have an active safety function to open during plant cooldown to cooldown the pressurizer when normal pressurizer spray is inoperable. This is not an accident mitigation function but a safe shutdown function following a Hosgri earthquake.

Basis:

These valves should not be full stroke exercised during power operation because failure of either valve in the open position could result in a loss of reactor coolant system pressure control which could result in a plant shutdown. The control scheme for these air-operated valves does not allow for part stroking.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS9

Valves:	8146	Normal Charging
	8147	Alternate Charging

Category: B **Code Class:** 2

Function:

These valves have active functions to open to supply normal and alternate charging to Loop 4 or 3 RCS Cold Legs.

Basis:

These valves should not be full stroke exercised during power operation because this would cause a thermal transient to be induced on the charging to RCS Cold Leg nozzle. This is per Westinghouse Infogram (WIG) 90-025. The control scheme for these air-operated valves does not allow for part stroking.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS10

Valves:	8149A	Letdown Orifice Control/Isolation Valve
	8149B	Letdown Orifice Control/Isolation Valve
	8149C	Letdown Orifice Control/Isolation Valve

Category: A **Code Class:** 2

Function:

These air operated globe valves have an active safety function to close to provide containment isolation and to isolate a high energy letdown line break outside containment upstream of the letdown heat exchanger.

Basis:

These valves will not be full stroke exercised during power operation due to the following causes: thermal transients on the regenerative letdown heat exchanger; hydraulic transients on the letdown line; pressure control transients resulting in the lifting of relief valve RV-8117; and charging nozzle temperature transients when charging is isolated during letdown testing. Reference NRC SER dated 1/31/94 addressing LA 86 and 87. The control scheme for these air-operated valves does not allow for part stroking.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS11

Valves: 8152 Letdown Line Isolation Valve, Outside Containment

Category: A **Code Class:** 2

Function:

This air operated globe valve has an active safety function to close to isolate letdown on a high room temperature in the letdown heat exchanger room. This valve also has the safety function of providing containment isolation.

Basis:

This valve should not be full or part stroke exercised during power operation because failure of the valve in the closed position could result in a loss of reactor coolant system level control which could result in a plant shutdown. See also NRC SER dated 1/31/94 addressing LA 86 and 87. The control scheme for this air-operated valve does not allow for part stroking.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS12

Valves: 8802A Safety Injection Pump #1 Discharge Isolation Valve, Outside Containment
8802B Safety Injection Pump #2 Discharge Isolation Valve, Outside Containment

Category: A **Code Class:** 2

Function:

These motor operated gate valves have an active safety function to open to provide a flow path for the safety injection pumps in the Hot Leg recirculation mode.

Basis:

These valves cannot be full or part stroke exercised during power operation because they are required to be closed with power to the valve operators removed by Technical Specification SR 3.5.2.1. If these valves were opened during power operation and an accident were to occur, safety injection flow would go to the hot legs instead of the cold legs. The safety analysis has analyzed for flow going to the cold legs and not the hot legs.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS13

Valves:	8805A	Charging Pump Suction Valve
	8805B	Charging Pump Suction Valve

Category: B **Code Class:** 2

Function:

These motor operated gate valves have an active safety function to open to provide a flow path from the refueling water storage tank to the suction of the charging pumps.

Basis:

These valves should not be full or part stroke exercised at power because opening these valves injects highly oxygenated, 2000 ppm borated water from the RWST into the reactor coolant system. Injecting this water results in a negative reactivity addition to the reactor coolant system which could shut the plant down. See also NRC SER dated 1/31/94 addressing LA 86 and 87.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS14

Valves:	8808A	SI Accumulator 1 Discharge Isolation
	8808B	SI Accumulator 2 Discharge Isolation
	8808C	SI Accumulator 3 Discharge Isolation
	8808D	SI Accumulator 4 Discharge Isolation

Category: B **Code Class:** 2

Function:

These valves are open with power removed from the valve operator during power operations. They are not required to operate during an accident requiring ECCS injection. Valves can be closed to prevent accumulator injection during normal cooldown/depressurization of RCS.

Basis:

These valves cannot be full or part stroke exercised during power operation because Technical Specification SR 3.5.1.1 and SR 3.5.1.5 require that accumulator discharge isolation valves remain open with power removed.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS15

Valves:	8809A	RHR to Cold Legs 1&2 Isolation Valve
	8809B	RHR to Cold Legs 3&4 Isolation Valve

Category: B **Code Class:** 2

Function:

These motor operated gate valves have an active safety function to close during hot leg recirculation. These valves are exempt from type C leak testing per Appendix J, section III.C.3. They also have a passive safety function to remain open to provide a flow path from the RHR system to the SIS/RCS cold leg injection lines. These valves are normally open with the power to the actuators removed during power operations.

Basis:

These valves cannot be full or part stroke exercised during power operation because they are required to be open with power to the valve operators removed by Technical Specification SR 3.5.2.1.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS16

Valves: 8835 Safety Injection to Cold Legs Isolation Valve

Category: B **Code Class:** 2

Function:

This motor operated gate valve has an active safety function to close when placing the ECCS in the hot leg recirculation mode of safety injection. This valve is exempt from type C leak testing per Appendix J, section III.C.3.

Basis:

This valve cannot be full or part stroke exercised during power operation because it is required to be open with power to the valve operator removed by Technical Specification SR 3.5.2.1. Also, failure of this valve in the closed position would result in the safety injection system being not OPERABLE.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS17

Valves:	8974A	Safety Injection Pumps Recirculation to the Refueling Water Storage Tank Isolation Valve
	8974B	Safety Injection Pumps Recirculation to the Refueling Water Storage Tank Isolation Valve
Category:	B	**Code Class:** 2 (8974B), N/A (8974A)

Function:

These motor operated globe valves have an active safety function to close via an interlock prior to either 8804A or 8804B opening.

Basis:

These valves cannot be full or part stroke exercised during power operation because they are required to be open with power to the valve operators removed by Technical Specification SR 3.5.2.1. Also, the failure of one of these valves in the closed position could result in damage to the safety injection pumps, if an SI signal were to start the pumps during this condition or test, thereby rendering the safety injection system not OPERABLE.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS18

Valves: 8976 RWST to Safety Injection Pumps Suction Isolation Valve

Category: B **Code Class:** 2

Function:

This motor operated gate valve has an active safety function to close to prevent backflow to the refueling water storage tank during the post-LOCA recirculation mode of safety injection.

Basis:

This valve cannot be full or part stroke exercised during power operation because it is required to be open with power to the valve operator removed by Technical Specification SR 3.5.2.1. Also, failure of this valve in the closed position would result in the entire safety injection system being not OPERABLE.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS19

Valves: 8980 RWST to RHR Pumps Suction Isolation Valve

Category: B **Code Class:** 2

Function:

This motor operated gate valve has an active safety function to close to prevent backflow into the refueling water storage tank if the downstream check valve leaks.

Basis:

This valve cannot be full or part stroke exercised during power operation because it is required to be open with power to the valve operator removed by Technical Specification SR 3.5.2.1. Also, failure of this valve in the closed position would result in the RHR portion of the safety injection system being not OPERABLE.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS20

Valves:	8701	RCS Loop 4 to RHR Isolation Valve
	8702	RCS Loop 4 to RHR Isolation Valve

Category: A **Code Class:** 1

Function:

The motor operated double disc gate valves isolate the low pressure Residual Heat Removal System from the High Pressure Reactor Coolant System.

Basis:

These Reactor Coolant System to RHR System Isolation Valves cannot be full or part stroke exercised during power operation because they are required to be closed with power to the valve operators removed by Technical Specification SR 3.5.2.1. Also, failure of this valve to the open position would result in diversion of flow from the analyzed flow paths.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS21

Valves: 8703 RHR to Hot Legs Isolation Valve

Category: A **Code Class:** 2

Function:

This motor operated gate valve has an active safety function to open to provide a flow path for hot leg recirculation after a postulated accident. This valve is an RCS high pressure to low pressure interface boundary and is therefore leak rate tested every refueling outage per Tech Spec SR 3.4.14.1.

Basis:

This valve cannot be full or part stroke exercised during power operation because it is required to be closed with power to the valve operator removed by Technical Specification SR 3.5.2.1. Also, failure of this valve in the open position would result in diversion of flow from the analyzed flow paths.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS22

Valves:	8716A	RHR Train Crosstie Valves
	8716B	RHR Train Crosstie Valves
Category:	B	**Code Class:** 2

Function:

These motor operated gate valves have an active safety function to close to go to the cold leg mode of post-LOCA safety injection. They also have an active safety function to reopen to go to the hot leg mode of post-LOCA safety injection (no stroke time requirement). These valves are exempt from type C leak testing per Appendix J, section III.C.3.

Basis:

These valves cannot be part or full stroke exercised during power operation because closing one of these valves prevents RHR flow to 2 of 4 RCS loops which is not an analyzed condition. NRC IE Information Notice 87-01 and DCPP Technical Specification Bases 3.5.2 require that these valves be maintained in the open position during power operations.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS23

Valves:	8742A	RHR Heat Exchanger #1 Discharge Check Valves
	8742B	RHR Heat Exchanger #2 Discharge Check Valves

Category: C **Code Class:** 2

Function:

These check valves have an active safety function to open to pass RHR flow from the RHR heat exchanger to the RCS. They also have a safety function to close (back flow) to prevent pump to pump interaction.

Basis:

These valves cannot be exercised during power operation because the RHR pumps do not develop sufficient head to overcome reactor coolant system pressure. These valves will be tested for backflow and for opening on a cold shutdown frequency.

Justification:

Cold shutdown frequency testing is per ISTC-3522(b).

NO. V-CS24

Valves:	8994A	NaOH to Containment Spray Eductor Isolation Valve
	8994B	NaOH to Containment Spray Eductor Isolation Valve

Category: B **Code Class:** 2

Function:

These motor operated gate valves have an active safety function to open to provide a flow path during the ECCS injection phase of containment spray and then during the ECCS recirculation phase up until the time that the RWST low-low level is reached.

Basis:

These valves cannot be part or full stroke exercised during power operation because they could introduce NaOH into the RWST and subsequently into the reactor coolant system causing Na_{24} activation problems and possible chemical damage to components in the reactor coolant system. To prevent getting NaOH into the RWST, valve 8992 would have to be closed and the line flushed, which would result in the entire Spray Additive System being not OPERABLE.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS25

Valves:	FCV-355	Component Cooling Water Header C Isolation Valve
Category:	B	**Code Class:** 3
Valves:	FCV-356	CCW to RCP and Reactor Vessel Support Isolation Valve
	FCV-357	RCP Thermal Barrier CCW Return Isolation Valve
	FCV-363	RCP Cooler CCW Return Isolation Valve
	FCV-749	RCP Cooler CCW Return Isolation Valve
	FCV-750	RCP Thermal Barrier CCW Return Isolation Valve
Category:	A	**Code Class:** 2

Function:

FCV-355 has an active safety function to close to isolate the non-vital CCW header C after an accident to assure adequate flow to the two vital CCW loops.

FCV-356, 357, 363, 749, and 750 each have an active safety function to close to provide containment isolation.

Basis:

These valves cannot be exercised during power operation because this could result in damage to the reactor coolant pumps and a possible plant trip.

These motor operated valves cannot be part stroke tested because the control system does not allow for part stroke testing.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS26

Valves:	FCV-696	Reactor Cavity Sump Sample Supply Isolation Valve
	FCV-697	Reactor Cavity Sump Sample Supply Isolation Valve
	FCV-235	Containment H2 Sample Supply Isolation Valve
	FCV-236	Containment H2 Sample Supply Isolation Valve
	FCV-237	Containment H2 Sample Return Isolation Valve
	FCV-238	Containment H2 Sample Supply Isolation Valve
	FCV-239	Containment H2 Sample Supply Isolation Valve
	FCV-240	Containment H2 Sample Supply Isolation Valve
	FCV-658	Containment H2 Purge Exhaust System #2 Suction Iso Valve
	FCV-659	Containment H2 Purge Exhaust System #1 Suction Iso Valve
	FCV-668	Containment H2 Purge Exhaust System #2 Suction Iso Valve
	FCV-669	Containment H2 Purge Exhaust System #1 Suction Iso Valve

Category: A **Code Class:** 2

Function:

These valves have a passive safety function to remain closed to provide containment isolation.

Basis:

These Containment Sample Isolation Valves cannot be part or full stroke exercised during power operation because Technical Specification SR 3.6.3.3 and SR 3.6.3.4 requires these valves to be closed when containment integrity is required, except under strict administrative control. These valves do not receive a containment isolation signal.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-CS27

Valves:	FCV-660	Containment Purge Supply Isolation Valve (IC)
	FCV-661	Containment Purge Supply Isolation Valve (OC)
	RCV-11	Containment Purge Exhaust Isolation Valve (IC)
	RCV-12	Containment Purge Exhaust Isolation Valve (OC)

Category: A **Code Class:** 2

Function:

These valves have an active safety function to provide containment isolation.

Basis:

These valves are required to be leakrate tested every time they are exercised per Technical Specification (Tech Spec) SR 3.6.3.7. These valves are administratively maintained in their isolation (closed) position during power operations. This ensures they will perform their required safety function and eliminates concerns regarding failure of a post-exercising leak test.

These valves will be full stroke exercised on a cold shutdown frequency.

Justification:

Cold shutdown frequency testing is per ISTC-3521(c).

NO. V-RO1

Valves: MS-1068, Steam Generator #1 Main Steam Line Check Valve
MS-2066, Steam Generator #2 Main Steam Line Check Valve
MS-3062, Steam Generator #3 Main Steam Line Check Valve
MS-4062, Steam Generator #4 Main Steam Line Check Valve

Category: C **Code Class:** N/A

Function:

These check valves have an active safety function to close in the event of a steam line break upstream of the main steam isolation valves. This accident mitigation function is to prevent the blowing down of more than one steam generator.

Basis:

These valves cannot be exercised closed because provisions are not provided in the plant design to verify that these valves close on reverse flow. Therefore, each refueling outage, one of these valves will be disassembled, mechanically exercised and examined on a refueling outage rotational frequency such that one valve shall be disassembled and examined each refueling outage; all four valves shall be disassembled and examined at least once every 8 years.

Basis for Check Valve Sample Disassembly Examination Program:

These check valves are of the same manufacturer, model number, size, orientation and service. They also have similar maintenance and modification histories. Since they are the main steam line check valves, they will be full stroke opened by steam flow from the steam generators during power ascension after each refueling outage.

Justification:

Refueling outage frequency testing is per ISTC-5221(c)(3).

NO. V-RO2

Valves: MS-5166, SG-2 Steam to Auxiliary Feedwater Pump #1 Check Valve
MS-5167, SG-3 Steam to Auxiliary Feedwater Pump #1 Check Valve

Category: C **Code Class:** 2

Function:

These check valves function to supply steam to the turbine driven auxiliary feedwater pump. The valves also have a safety function in the closed (reverse-flow) position to prevent an intact steam generator from blowing down to containment through the turbine driven AFW pump steam supply line following a MSLB.

Basis:

Full stroke opening is verified on a cold shutdown basis when full flow pump test of turbine driven auxiliary feedwater pump is performed, but valve reclosure capability cannot be verified.

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation. There are no test connections or taps installed that would allow reverse-flow seating verification for these check valves. Alternatively, the ability of the valve to close following actuation will be verified by disassembly and internal inspection on a rotational basis, one valve each refueling outage not to exceed an eight year interval between disassembly and inspections for each valve. If any degradation is detected that interferes with the valve's operability, then the opposite train valve will also be disassembled and internally inspected during the same outage.

Basis for Check Valve Sample Disassembly Examination Program:

These check valves are of the same manufacturer, size, orientation and service. Unit two valve MS-2-5167 is essentially the same model as MS-1-5166, MS-1-5167 and MS-2-5166, the only difference being that the equalizing line is orientated on the near side instead of the far side when viewing the valve from the side with flow going from the right to left. They also have similar maintenance and modification histories. Since they are the main steam supply to the turbine driven auxiliary feedwater pump, they will be full stroke opened by steam flow when full testing the auxiliary feedwater pump after each refueling outage.

Justification:

Rotational Refueling outage frequency testing is per ISTC-5221(c)(3).

NO. V-RO3

Valves:

AXS-208	Auxiliary Steam Supply to Containment (IC)
8046	Primary Water to PRT Isolation (IC)
8047	Nitrogen to PRT Isolation Check (IC)
8368A	RCP-1 Seal Injection First Check (IC)
8368B	RCP-2 Seal Injection First Check (IC)
8368C	RCP-3 Seal Injection First Check (IC)
8368D	RCP-4 Seal Injection First Check (IC)
8916	Nitrogen Supply to Accumulator Isolation Check (IC)
CCW-585	CCW to RCP & RX Vessel Support Check (IC)
CCW-695	CCW to Excess Letdown HX Check (OC)
LWS-60	Nitrogen to RCDT Isolation Check (IC)
VAC-116	Containment Air Sample Post-LOCA Return Isolation Check (IC)
AIR-I-587	Containment Normal Instrument Air Supply Isolation Check (IC)
AIR-S-114	Containment Service Air Supply Isolation Check (IC)
A, C	**Code Class:** 2

Function:

These check valves serve as containment isolation valves and have the safety function to close to prevent back leakage from containment to system outside of containment. These valves do not have an open safety function.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation. They are located inside containment.

These containment isolation valves can only be verified closed by performing a seat leakage test. Performance of seat leakage test can not be performed during power operation because it would require breaching containment, setting up test equipment inside containment and personnel would be required to enter containment to perform necessary valve alignments and test equipment setup.

It is impracticable to stroke test these valves during cold shutdown because the only test method to verify closure is to perform a seat leakage test. Personnel would be required to enter containment to perform valve alignments and setup of test equipment for the leak test.

Open stroke tests for these valves need not be performed at an interval when it is not practicable to perform the check valve closure test per ISTC-3522(a).

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO4

Valves:	8078A	Reactor Vessel Head Vent Valve
	8078B	Reactor Vessel Head Vent Valve
	8078C	Reactor Vessel Head Vent Valve
	8078D	Reactor Vessel Head Vent Valve

Category: B **Code Class:** 2

Function:

These valves have an active function to open to vent noncondensible gases from the RCS, which might inhibit core cooling during natural circulation. They were installed to provide reactor vessel high point vent capability for beyond-design-bases events per the guidance of NUREG 0737 and are not relied upon to mitigate any design basis accidents as defined and analyzed in the FSAR Chapter 15 Accident Analyses.

Basis:

These Reactor Vessel Head Vent Valves should not be full or part stroke exercised during power operation by NRC direction.

Stroke time testing of the Reactor Vessel Head Vent Valves during Cold Shutdown has resulted in borated water from the valves to drip onto the Reactor Vessel Head. The borated water could cause corrosion damage to the Reactor Vessel Head. During Refueling Outages special test equipment is set up inside the Containment Building to flush the Reactor Vessel Head Vent Valves and piping with demineralized water after the stroke tests are complete. Setting up the special test equipment inside containment is impractical during Cold Shutdown forced outages, because the Reactor Vessel head is inaccessible and there would be significant radiation exposure to personnel.

Justification:

Refueling Outage frequency testing per ISTC-3521 (e).

NO. V-RO5

Valves:	CCW-581,	FCV-749 Bypass Check Valve
	CCW-670,	FCV-750 Bypass Check Valve
	CVCS-8109	8112 Bypass Check Valve
Category:	A,C	**Code Class:** 2

Function:

The Bypass Check Valves have a safety function in the open direction of protecting the containment penetrations from over pressurization from thermal expansion of the liquid trapped between the containment isolation valves after an accident that results in an increase in containment temperature. These valves need to only partially open a small amount to fulfill this function. They also serve as containment isolation valves, so they have a safety function in the closed direction to prevent back leakage.

Basis:

These Bypass Check Valves cannot be exercised during power operation because the test would require clearing the reactor coolant pumps which are required for power operations. The tests also require that test equipment be set up inside the containment building.

These valves cannot be tested during cold shutdown because the test requires setting up test equipment inside containment, clearing reactor coolant pumps, and numerous valve manipulations.

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

Justification:

Refueling outage frequency testing is per ISTC-3522 (c). Seat leakage testing is the only method of verifying closure. Open stroke need only be performed at an interval when it is practicable to perform the closure test.

NO. V-RO6

Valves:	8367A,	RCP-1 Seal Injection 2nd Check Valve
	8367B,	RCP-2 Seal Injection 2nd Check Valve
	8367C,	RCP-3 Seal Injection 2nd Check Valve
	8367D,	RCP-4 Seal Injection 2nd Check Valve
	8372A,	RCP-1 Seal Injection 3rd Check Valve
	8372B,	RCP-2 Seal Injection 3rd Check Valve
	8372C,	RCP-3 Seal Injection 3rd Check Valve
	8372D,	RCP-4 Seal Injection 3rd Check Valve

Category: C **Code Class:** 1

Function:

These valves are the RCS code pressure boundary valves on the RCP seal injection lines. The closing function of these valves to protect the upstream piping from over pressurization is not considered to be a safety function, at least for the purposes of the IST program, because the upstream piping is designed for, and normally subjected to, pressure higher than RCS pressure. Hence the ability of these valves to close is not a required safety function. RCP seal cooling is considered to be a safety function because a failed seal is considered to be a small break LOCA. For a Main Steam Line Break inside containment, CCW flow to the RCP thermal barrier is isolated. Seal injection is then the only means of providing seal cooling and preventing seal failure. These valves must open to pass seal injection flow. Summary, these check valves have a safety function to open, but do not have a safety function to close.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

These check valves are required to be open during normal operation since this position provides normal seal flow to the RCP's. Therefore they cannot be stroked tested in the closed direction during operation of the plant.

These check valves cannot be stroke tested closed during cold shutdown operation because the test would require clearing the reactor coolant pumps, setting up test equipment inside the containment building and numerous valve manipulations. It is not practicable to perform these tests during cold shutdown.

Basis for Testing Series Check Valve Pairs as a Unit:

These valves are arranged so that there are two valves in series to each RCP. There are no test connections between the valves that would enable the valves to be individually tested. They will therefore be tested as pairs in accordance with ISTC-5223.

Therefore, each refueling outage, these valves will be verified closed by performing a backpressure flow test on each pair of valves.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO7

Valves: 8377 Pressurizer Auxiliary Spray Check Valve

Category: C **Code Class:** 1

Function:

Check valve 8377, has an active safety function to open enable use of the auxiliary spray system for reactor shutdown when normal pressurizer spray is inoperable. This is not an accident mitigation function but a safe shutdown function following a Hosgri earthquake.

Basis:

This valve is not equipped with a mechanical exerciser, position indicator or differential pressure instrumentation. The valve is located inside containment.

A flow test of this valve during power operations would require that either air operated globe valve 8145 or 8148 be opened. Failure of either valve in the open position could result in a loss of reactor coolant system pressure control that could result in a plant shutdown.

This check valve cannot be stroke tested closed during cold shutdown operation because the test would require setting up test equipment inside the containment building and numerous valve manipulations. It is not practicable to perform this test during cold shutdown.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO8

Valves:	8378A	Charging to Loop 3 Cold Leg Check
	8378B	Charging to Loop 4 Cold Leg Check
	8379A	Charging to Loop 3 Cold Leg Check
	8379B	Charging to Loop 4 Cold Leg Check
Category:	C	**Code Class:** 1
Valves:	8378C	Charging Line Check
Category:	C	**Code Class:** 2

Function:

8378A, 8378B, 8379A and 8379B are the RCS code pressure boundary valves on the RCP normal and alternate charging lines. The closing function of these valves to protect the upstream piping from over pressurization is not considered to be a safety function, at least for the purposes of the IST program, because the upstream piping is designed for, and normally subjected to, pressure higher than RCS pressure. Hence the ability of these valves to close is not a required safety function. These valves have active functions to open to supply normal and alternate charging to Loop 4 or 3 RCS Cold Legs for emergency boration flow path.

8378C is a containment isolation valve but is exempted from 10CFR50 Appendix J required leak rate testing. It has the same safety function to open as 8378A/B and 8379A/B.

Summary, these check valves have a safety function to open, but do not have a safety function to close.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation. They are located inside containment.

These valves should not be exercised during power operation because this would cause a thermal transient to be induced on the charging to RCS Cold Leg nozzle. This is per Westinghouse Infogram (WIG) 90-025.

These check valves cannot be stroke tested closed during cold shutdown operation because the test would require setting up test equipment inside the containment building and numerous valve manipulations. It is not practicable to perform these tests during cold shutdown.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO9

Valves: 8440 Volume Control Tank Outlet Check Valve

Category: C **Code Class:** 2

Function:

This check valve has an active safety function to close to prevent backflow from the charging pump suction header to relief valve 8123 during the post-LOCA containment sump recirculation mode of safety injection. It also has a safety function to open to provide a flow path for the charging pump mini-flow recirculation to return to the suction header of the charging pumps.

Basis:

This valve is not equipped with a mechanical exerciser, position indicator or differential pressure instrumentation.

This check valve is open during operation to provide the normal source of supply to the suction of the charging pumps. Exercising this valve during power operation would require alignment to the alternate supply which would result in injecting highly oxygenated, 2000 ppm borated water into the reactor coolant system. Injecting this water results in a negative reactivity addition to the reactor coolant system which could shut the plant down.

This valve cannot be tested for backflow during power operation as the only acceptable method of testing would be to perform hydros and measure for backleakage. This testing would require clearing pumps, entering ACTION Statements, and numerous valve and pump manipulations which affect the pressurizer level control and letdown temperature. This can cause cavitation in the letdown line.

This valve cannot be tested for backflow during cold shutdown as the only acceptable method of testing would be to perform hydros and measure for backleakage. This testing would require clearing pumps, entering ACTION Statements, and numerous valve and pump manipulations along with setting up the hydro testing equipment. It is not practicable to perform this testing on a cold shutdown frequency, therefore the closure test will be performed on a refueling outage frequency.

The ability to open is proven during normal operations per ISTC-3550. Closure will be tested on a refueling outage frequency.

Justification:

Refueling outage frequency testing is per ISTC-3522(c)

NO. V-RO10

Valves: 8445 Emergency Borate Reverse Flow Check Valve

Category: C **Code Class:** 2

Function:

Check valve 8445, has an active safety function to open permit emergency boration flow through emergency borate valve 8104. It has no safety function in the closed direction.

Basis:

This valve is not equipped with a mechanical exerciser, position indicator or differential pressure instrumentation.

This check valve cannot be backflow tested during power operations because this test would require that both trains of boration flow path be cleared.

This check valve cannot be stroke tested closed during cold shutdown operation because the test would require clearing both trains of boration flow path, operating sealed closed valve, set up of test equipment and numerous valve manipulations. It is not practicable to perform this test during cold shutdown.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO11

Valves: 8475 Positive Displacement Charging Pump Discharge Check Valve

Category: C **Code Class:** 2

Function:

This valve has an active safety function to open to allow passage of the positive displacement charging pump's discharge flow. It also has a safety function of preventing backflow from another charging pump while the positive displacement charging pump is idle.

Basis:

This valve is not equipped with a mechanical exerciser, position indicator or differential pressure instrumentation.

Open stroke testing for 8475 will be performed quarterly.

This valve cannot be tested for backflow during power operation, as the only acceptable method of testing would be to perform hydros and measure for backleakage. This testing would require clearing pumps, entering ACTION statements, and numerous valve and pump manipulations which affect the pressurizer level control and letdown temperature. This can cause cavitation in the letdown line.

This valve cannot be tested for backflow during cold shutdown, as the only acceptable method of testing would be to perform hydros and measure for backleakage. This testing would require clearing pumps, entering ACTION statements, and numerous valve and pump manipulations, along with setting up the hydro testing equipment.

This valve will be tested for backflow each refueling outage.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO12

Valves: 8483, Charging Flow to Cold Legs Bypass Check Valve

Category: C **Code Class:** 1

Function:

This valve has a safety function to open to relieve pressure build up if normal and alternate charging valves 8146 and 8147 are both closed and Regenerative Heat Exchanger added heat to the charging line with resulting thermal expansion and pressure increase. The valve need only to partially open and allow flow to perform its safety function. The valve does not have a safety function to close to prevent back flow.

Basis:

This check valve cannot be exercised during power operation because opening this valve would require closing normal and alternate charging valves 8146 and 8147 which would isolate normal charging. This would result in thermal transient to be induced in the charging to RCS Cold Leg nozzles. This is per Westinghouse Infogram (WIG 90-025).

This valve cannot be tested for flow during Cold Shutdown as the only acceptable method of testing is to isolate normal and alternate charging thus isolating charging flow. The resultant differential pressure seen by 8146 or 8147 would be extremely high because all of the charging pump pressure would have to be reduced at the normal or alternate charging valve which is not set up to accomplish this. The valve can be tested during refueling outages when charging pump full flow tests using charging injection flow path are performed. During the charging pump full flow tests, the pressures differential across the normal or alternate charging valves is much lower.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO13

Valves:	8487A	Boric Acid Transfer Pump 2 Discharge Check Valve
	8487B	Boric Acid Transfer Pump 1 Discharge Check Valve
Category:	C	**Code Class:** 2

Function:

These valves have the safety function of opening to allow the discharge of boric acid for emergency boration. The boric acid transfer pumps are normally aligned such that only one pump discharges to the boric acid filter, while the other is aligned to recirculate flow to back to the boric acid storage tank. To align the second pump to the common discharge line to the boric acid filter requires local manual operator action, at which time a second local manual isolation valve could be closed if necessary to prevent short circuiting of flow. Hence, operation of these check valves in the closed direction is not considered to be a safety function.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

These check valves cannot be backflow tested during power operations or cold shutdown because this test would require that at least one train of boration flow path be cleared, test equipment to be set up and numerous valves to be manipulated. The boric acid transfer system is heat traced to maintain temperature, clearance of this system could result in a long term inoperability of the system.

It is not practicable to perform this test during power operations or cold shutdown.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO14

Valves:

8804A,	Charging Pump Suction from RHR System Isolation Valve
8804B,	Safety Injection Pump Suction from RHR System Isolation Valve
9003A,	RHR Hx-1 to containment spray header A Isolation Valve
9003B,	RHR Hx-2 to containment spray header A Isolation Valve

Category: B **Code Class:** 2

Function:

These motor-operated gate valves have an active safety function to open. This will line up the safety injection system and the containment spray system for the cold leg recirculation phase of post-LOCA safety injection.

Basis:

These valves cannot be full or part stroke exercised during power operation because they are interlocked with valves 8982A&B (Containment Sump Isolation Valves) that are required to be closed with power to the valve operators removed by Technical Specification SR 3.5.2.1. Valves 8982A or B cannot be opened during power operation because this would result in one train of the RHR system being not OPERABLE.

During cold shutdown, valves 8804A & B and 9003A & B cannot be full or part stroke exercised open because they are interlocked with valve 8701 and 8702 (RCS Loop-4 TO RHR ISOLATION VALVES) in the closed position. 8701 and 8702 are required to be open and closing one of these valves would result in both RHR trains being incapable of removing decay heat from the core.

Valves 8804A&B and 9003A&B will be full stroke exercised during refueling outages.

Justification:

Refueling outage frequency testing is per ISTC-3521(e).

NO. V-RO15

Valves:

8819A,	Safety Injection to Cold Leg #1 Check Valve
8819B,	Safety Injection to Cold Leg #2 Check Valve
8819C,	Safety Injection to Cold Leg #3 Check Valve
8819D,	Safety Injection to Cold Leg #4 Check Valve
8905A,	Safety Injection to Hot Leg #1 Check Valve
8905B,	Safety Injection to Hot Leg #2 Check Valve
8905C,	Safety Injection to Hot Leg #3 Check Valve
8905D,	Safety Injection to Hot Leg #4 Check Valve

Category: A,C **Code Class:** 1

Function:

These check valves have an active safety function to open to supply flow from the safety injection pumps to the reactor coolant system (RCS).

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation. They are located inside containment.

These valves cannot be exercised during power operation because the safety injection pumps do not develop sufficient head to overcome RCS pressure.

These valves cannot be exercised during cold shutdown because a maximum of zero safety injection pumps are allowed to be capable of injecting into the RCS by Technical Specification SR 3.4.12.1 to protect against a low temperature overpressurization of the RCS. Also during cold shutdown there may not be sufficient volume in the RCS to accommodate the amount of water needed to full stroke exercise these valves.

These valves will be full stroke exercised during refueling outages.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO16

Valves:	8820,	Charging Injection 2nd-off Check Valve
	8900A,	Charging Injection Loop-1 Cold Leg Check Valve
	8900B,	Charging Injection Loop-2 Cold Leg Check Valve
	8900C,	Charging Injection Loop-3 Cold Leg Check Valve
	8900D,	Charging Injection Loop-4 Cold Leg Check Valve

Category: C **Code Class:** 1

Function:

These check valves have an active safety function to open to supply safety injection flow to the reactor coolant system (RCS) cold legs from the high-head safety injection pumps (centrifugal charging pumps).

Basis:

These valves cannot be full stroke exercised during plant operation because the high RCS pressure will prevent the maximum required injection flow rate.

These valves cannot be full stroke exercised during cold shutdown because of insufficient RCS expansion volume to accommodate the high flow rates required to full stroke these valves. These high flow rates could challenge the RCS low temperature overpressure (LTOP) mitigation system. To prevent challenging the LTOP system, venting of the pressurizer by removal of a safety valve would be required. Additionally, full stroke exercising these valves cannot be performed with a bubble in the pressurizer, because the net charging rate must be minimal to prevent thermal cycling of the pressurizer.

These valves are not equipped with mechanical exercisers, position indicators, or differential pressure instrumentation.

These valves will be full stroke exercised on a refueling outage frequency.

Justification:

Refueling outage frequency testing is per ASME OM Code ISTC-3522(c).

NO. V-RO17

Valves: SI-8919A Safety Injection Pump 1 to RWST Check Valve
SI-8919B Safety Injection Pump 2 to RWST Check Valve

Category: C **Code Class:** 2

Function:

These check valves have the safety function to open to enable functioning of the Safety Injection pump minimum flow system. These check valves do not have a safety function to close.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

These valves can only be verified closed by performing a seat leakage test using a hydrostatic pump. Performance of seat leakage test cannot be performed during power operation because it would require closure of the SI Pump recirculation line motor operated valves, which are required by technical specifications to remain open during power operations.

It is impracticable to stroke closed these valves during cold shutdown because the only test method to verify closure is to perform a seat leakage test. Performance of this test requires setup of a hydrostatic pump and associated test equipment for the leak test. The system alignment would render both SI pumps inoperable because the recirculation line would be isolated.

Open stroke tests for these valves need not be performed at an interval when it is not practicable to perform the check valve closure test per ISTC-3522(a), therefore open stroke tests are also performed on a refueling outage frequency.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO18

Valves: 8922A, Safety Injection Pump #1 Discharge Check Valve

8922B, Safety Injection Pump #2 Discharge Check Valve

Category: C **Code Class:** 2

Function:

These check valves have an active safety function to open to supply flow from the safety injection pumps to the reactor coolant system (RCS). They also have a closure safety function (backflow) to prevent pump to pump interaction.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

These valves cannot be exercised open during power operation because the safety injection pumps do not develop sufficient head to overcome RCS pressure.

These valves cannot be exercised open during cold shutdown because Technical Specification SR 3.4.12.1 requires that a maximum of zero safety injection pumps are capable of injecting into the RCS to protect against a low temperature overpressurization of the RCS. Also during cold shutdown there may not be sufficient volume in the RCS to accommodate the amount of water needed to full stroke exercise these valves.

These valves will be full stroked exercised open during refueling outages.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO19

Valves: 8924 RWST to Charging Pump Check Valve

Category: C **Code Class:** 2

Function:

This check valve has an active safety function to open to supply borated water from the RWST to the suction of the Charging Pumps. This valve also has a safety function in the closed position (backflow) to limit potential post-LOCA recirculation flow to the RWST.

Basis:

The valve cannot be full stroked exercised during power operation because this would require injecting borated water from the RWST into the RCS, which could result in a plant shutdown.

The valve cannot be exercised during cold shutdown because of the high flow rates could challenge the RCS low temperature overpressure protection system.

Close exercising of valve 8924 is not practicable during power operation or cold shutdown because the test method used would require either the use of a hydro pump to pressurize the suction side of the charging pumps or opening of SI-8804A to pressurize the suction of the charging pumps using an RHR pump, neither of which can be performed when the plant is in cold shutdown. The valve is not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

Valve 8924 can be full stroke tested each refueling outage.

Justification:

The valve shall be full stroke exercised during refueling outages per ISTC-3522(c)

NO. V-RO20

Valves:

8949A, Safety Injection to Hot Leg #1 Check Valve
8949B, Safety Injection to Hot Leg #2 Check Valve
8949C, Safety Injection to Hot Leg #3 Check Valve
8949D, Safety Injection to Hot Leg #4 Check Valve

Category: A,C **Code Class:** 1

Function:

These check valves have an active safety function to open to supply safety injection flow to the reactor coolant system (RCS) hot legs.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation. They are located inside containment.

Valves 8949A&B cannot be exercised during power operation because neither the residual heat removal nor the safety injection pumps develop sufficient head to overcome RCS pressure. Valves 8949C&D cannot be exercised during power operation because the safety injection pumps do not develop sufficient head to overcome RCS pressure.

These valves cannot be exercised during cold shutdown because a maximum of zero safety injection pumps are capable of injecting into the RCS by Technical Specification SR 3.4.12.1 to protect against a low temperature over-pressurization of the RCS. Valves 8949A&B cannot be exercised during cold shutdown using the RHR pump because this would result in short cycling the core and not removing decay heat properly.

These valves will be full stroke exercised during refueling outages.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO21

Valves: 8977 RWST to Safety Injection Pump Check Valve

Category: C **Code Class:** 2

Function:

This check valve has an active safety function to open to supply borated water from the RWST to the suction of the Safety Injection Pumps. This valve also has a safety function in the closed position (backflow) to limit potential post-LOCA recirculation leakage to the RWST.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation. They are located inside containment.

The valve cannot be full stroked exercised during power operation because the Safety Injection Pumps do not develop enough head to overcome RCS pressure.

The valve cannot be exercised during cold shutdown because a maximum of zero Safety Injection Pumps are allowed to be capable of injecting into the RCS per Technical Specification SR 3.4.12.1 to protect against a low temperature over pressurization of the RCS.

Close exercising of valve 8977 is not practicable during power operation or cold shutdown because the test method used would require either the use of a hydro pump to pressurize the suction side of the safety injection pumps or opening of SI-8804B to pressurize the suction of the safety injection pumps using an RHR pump, neither of which can be performed when the plant is in cold shutdown.

The valve is not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

Valve 8977 can be full stroke tested each refueling outage.

Justification:

The valve shall be full stroke exercised during refueling outages per ISTC-3522(c).

NO. V-RO22

Valves: 8981 Refueling Water Storage Tank to Residual Heat Removal Pump Check Valve

Category: C **Code Class:** 2

Function:

This check valve has an active safety function to open to supply borated water from the RWST to the suction of the RHR pumps. This valve also has a safety function in the closed position (backflow) to limit potential post-LOCA recirculation leakage to the RWST.

Basis:

The valve cannot be full stroked exercised during power operation because the RHR pumps do not develop enough head to overcome RCS pressure.

The valve cannot be exercised during cold shutdown because both RHR pumps must be aligned to remove decay heat from the RCS; therefore no flow path exists for full stroke exercising the valve. The valve is not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

Valve 8981 will be full stroke exercised each refueling outage.

Valve 8981 will be back pressure tested close each refueling outage.

Justification:

The valve shall be full stroke exercised during refueling outages per ISTC-3522(c).

NO. V-RO23

Valves:	8982A,	Containment Recirc Sump to RHR Pump #1 Isolation Valve (Outside Containment)
	8982B,	Containment Recirc Sump to RHR Pump #2 Isolation Valve (Outside Containment)
Category:	B	**Code Class:** 2

Function:

These motor-operated gate valves have an active safety function to open which allows the RHR pumps to take suction from the containment recirculation sumps during the cold leg recirculation phase of an accident.

Basis:

These valves cannot be full or part stroked exercised during power operation because they are required to be closed with power to the valve operators removed by Technical Specification SR 3.5.2.1. If these valves were opened during power operation, this would result in one train of the RHR system being not OPERABLE.

These valves cannot be full or part stroke exercised during cold shutdown because opening one of these valves could introduce air into the suction piping of the RHR pumps, causing the RHR pumps to be not OPERABLE for an extended period of time.

These valves will be full stroke exercised on a refueling outage frequency.

Justification:

Refueling outage frequency testing is per ISTC-3521(e).

NO. V-RO24

Valves:	8998A	Spray Additive Tank Outlet Check Valve
	8998B	Spray Additive Tank Outlet Check Valve
Category:	A,C	**Code Class:** 2

Function:

These check valves have an active safety function to open to allow the passage of sodium hydroxide solution for eduction into the containment spray flow. They also have a safety function to prevent back leakage, and thereby prevent diluting the educted NaOH solution, in the event that one of the containment spray pumps fails.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

These valves cannot be exercised during power operation because the system alignment for testing these check valves would result in the entire Spray Additive System being not OPERABLE.

These valves can only be verified closed by performing a seat leakage test. Performance of this test involves setting up of leak test equipment, breaching radioactive systems, aligning normally sealed valves and collecting radioactive fluids in leak measuring devices. The alignment would render both trains of containment spray system inoperable.

Open stroke tests for these valves need not be performed at an interval when it is not practicable to perform the check valve closure test per ISTC-3522(a), therefore the open stroke tests are also performed on a refueling outage frequency.

Justification:

Cold shutdown frequency testing is per ISTC-3522(c).

NO. V-RO25

Valves: MU-971 Makeup Water to Miscellaneous Sources Check Valve

Category: C **Code Class:** 3

Function:

These check valves have an active safety function to open to allow flow from the condensate storage tank via the makeup water transfer pumps to the spent fuel pool. MU-971 is in this flow path. Closure of this valve is not a safety function.

Basis:

This valve cannot be exercised during power operation or cold shutdown because the closure test uses a hydrostatic pump to back seat test the valve. This requires set up of test equipment inside the radiological controlled area, isolating and draining portions of the makeup water system that provide makeup water to the spent fuel pool, CCW surge tanks, chemistry lab sample sinks, condensate polishing demineralizers and the post loca sample room among other things.

Open stroke tests for this valve need not be performed at an interval when it is not practicable to perform the check valve closure test per ISTC-3522(a), therefore the open stroke test is also performed on a refueling outage frequency.

This valve is not equipped with a mechanical exerciser, position indicator or differential pressure instrumentation.

Justification:

Cold shutdown frequency testing is per ISTC-3522(c).

NO. V-RO26

Valves:	FP-180	Containment Fire Water Isolation Check Valve (IC) – Unit One
	FP-867	Containment Fire Water Isolation Check Valve (IC) – Unit Two

Category: A,C **Code Class:** 2

Function:

These check valves have the safety function in closed direction of preventing back leakage to maintain design basis containment integrity. The valves have no safety function in the open direction; the ability to provide firewater to the containment, while important, is not considered to be safety related.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation.

These valves can only be verified closed by performing a seat leakage test. Performance of seat leakage test can not be performed during power operation because it would a breach of containment integrity, require setting up test equipment inside containment and aligning the fire protection system in such a way that the containment fire protection header is isolated.

It is impracticable to stroke closed these valves during cold shutdown because the only test method to verify closure is to perform a seat leakage test. Performance of this test requires setup of test equipment and either isolating firewater to containment building or installing a firewater jumper to provide containment firewater flow during the time the header is isolated.

Open stroke tests using flow for these valves require that special fire hoses and headers be installed and routed to a spare containment penetration so that firewater flow can be directed outside containment. This alignment renders both the fire water system and containment integrity inoperable for the duration of the test and until an extensive amount of test equipment removed and plant systems restored. It is not practicable to perform the flow test in either plant operation or cold shutdown.

Therefore open stroke tests are performed on a refueling outage frequency.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

NO. V-RO27

Valves:

VAC-252	Containment Hydrogen Sample Return Isolation Check (IC)
VAC-253	Containment Hydrogen Sample Return Isolation Check (IC)

Category: A, C **Code Class:** 2

Function:

These check valves serve as containment isolation valves and have the safety function to close to prevent back leakage from containment to system outside of containment. These valves have a safety function to open for containment hydrogen monitoring capability to complete the sample flow path from containment to the hydrogen monitors and back to the containment.

Basis:

These valves are not equipped with mechanical exercisers, position indicators or differential pressure instrumentation. They are located inside containment.

These containment isolation valves can only be verified closed by performing a seat leakage test. Performance of seat leakage test can not be performed during power operation because it would require breaching containment, setting up test equipment inside containment and personnel would be required to enter containment to perform necessary valve alignments and test equipment setup.

It is impracticable to full stroke open test these valves using flow during power operations and cold shutdown because the hydrogen monitoring system flow indicator is not calibrated. During refueling outages, the portable leak test monitor is used to measure flow rate through the check valves as part of the local leak rate test procedure. This can only be performed during refueling outages.

Justification:

Refueling outage frequency testing is per ISTC-3522(c).

RELIEF REQUEST	COMPONENT	RELIEF REQUEST APPROVAL STATUS
1	Valves that cannot be stroke tested in Cold Shutdown unless Reactor Coolant Pump are shutdown. CCW-FCV-355, CCW-FCV-356, CCW-FCV-357, CCW-FCV-363, CCW-FCV-749 and CCW-FCV-750. CVCS-8100 and CVCS-8112.	Pre-Approved per NUREG-1482 Revision 1, paragraph 3.1.1.4.

NO. V-RR1

Valves:	Code Class:	Category	Description
CVCS-8100	2	A	RCP Seal Water Return Isolation OC
CVCS-8112	2	A	RCP Seal Water Return Isolation IC
CCW-FCV-356	2	A	CCW to RCP's Rx Vessel Support
CCW-FCV-357	2	A	RCP Thermal Barrier CCW Return OC
CCW-FCV-363	2	A	RCP Coolers CCW Return OC
CCW-FCV-749	2	A	RCP Coolers CCW Return IC
CCW-FCV-750	2	A	RCP Thermal Barrier CCW Return IC

Test Requirement: Exercise Test frequency per ISTC-3521.

Function:

These valves have an active safety function to close to provide containment isolation.

Valves:	Code Class:	Category	Description
CCW-FCV-355	3	B	CCW Header C Isolation

Function:

This valve has an active safety function to close to isolate CCW header C in order to increase flow to the vital headers.

Basis:

These valves cannot be exercised unless reactor coolant pumps have been stopped.

Justification:

Deferral of exercising testing of these valves until either a refueling outage or extended cold shutdown outage that would allow for the reactor coolant pumps to be stopped for a sufficient period of time is preapproved per NUREG-1482, paragraph 3.1.1.4.

REQUEST FOR RELIEF P-RR1 FOR COMPONENT COOLING WATER PUMPS THIRD TEN-YEAR INTERVAL

NO. P-RR1

System: Component Cooling Water

Pumps:	**Pump Type**	**Code Class:**	**Group:**
Component Cooling Water Pump 1-1	Centrifugal	3	A
Component Cooling Water Pump 1-2	Centrifugal	3	A
Component Cooling Water Pump 1-3	Centrifugal	3	A
Component Cooling Water Pump 2-1	Centrifugal	3	A
Component Cooling Water Pump 2-2	Centrifugal	3	A
Component Cooling Water Pump 2-3	Centrifugal	3	A

Functions:

The component cooling water (CCW) system removes heat from safety-related and nonsafety-related system components during normal operation and plant shutdown and transfers it to the ultimate heat sink via the auxiliary saltwater (ASW) system. The CCW pumps (CCWPs) are horizontally mounted centrifugal pumps.

The CCW system provides for safe shutdown and cooldown of the reactor by removing heat from safety-related and nonsafety-related system components after normal reactor shutdown, and from vital system components after an accident leading to an emergency shutdown.

Test Requirement

ASME OM Code, subsection ISTB-5121(b) and ISTB-5123(b). The resistance of the system, shall be varied until flow rate equals the reference point.

Basis For Relief

A variable flow measurement for the CCWP test is required because it is impractical to establish a fixed reference value(s). Relief is requested per 10CFR50.55a(f) (5) (iii). Diablo Canyon Power Plant (DCPP) had previously received relief for these pumps in the first and second 10 year plans.

NO. P-RR1(cont.)

The CCW system has varying heat loads, and therefore varying flow requirements. A full flow test line with a single throttle valve for the purpose of testing was not incorporated in the initial design of the system. For some plant conditions, a reference flow condition cannot be established without adversely affecting the system flow balance and Technical Specification (TS) operability requirements. Thus, these pumps must be tested in a manner that the CCW system remains properly flow balanced during and after the testing and each supplied load remains fully operable per TS to maintain the required level of plant safety during power operation. During refueling outages, CCW flow demand varies greatly due to reactor coolant system cooldown, clearing of components for maintenance, and spent fuel pool heat exchanger cooling water demand. Past experience at DCPP has shown that CCW flow during refueling outages is usually greater than flow during power operations and it is not practical to reduce flow in order to perform the CCWP IST. At a minimum, perturbation of multiple systems is required to establish a flow point due to the multiple flow paths of the CCW system. This abnormal configuration would have to be maintained for the length of time required to take vibration data and pump hydraulic data. In addition, the requirement for the Operators to manipulate valves required to adjust CCW flow to the reference point is adverse to ALARA.

Alternative Test

Perform inservice tests on CCWPs using the following. A reference pump curve (flow rate vs. pump head) has been developed for each of the six CCWPs.

The following elements will be performed in developing the pump curves for testing the CCWPs. Existing data from previously performed inservice tests may be used in developing the curves. If a pump is replaced or repaired in such a way that inservice test parameters would require new reference values, then a preservice test performed per ISTB-5100 would be used to develop the new reference pump curve and reference vibration values.

1. Pump reference curves will be developed when the pumps are known to be operating satisfactorily.
2. Instrumentation used to develop pump curves is at least as accurate (accuracy and range) as required by ASME OM Code Table ISTB-3400-1
3. Pump curves will be constructed using a minimum of five points.
4. Points used to construct the curves are beyond the flat portion (low flow rates) of the pump curve in a range, which includes the design bases flow rate.
5. Acceptance criteria for flow rate and differential pressure will be established by taking the more conservative of curves based on the limits of Table ISTB-5100-1, or the operability criteria in TS or Safety Analysis Report.
6. Vibration levels will be measured over the range of pump conditions, and appropriate vibration acceptance criteria based on ISTB-5100-1, will be assigned for regions of the pump curve.
7. A new reference curve will be prepared by performing a preservice test procedure in accordance with ISTB-5110, or the previous curve will be validated, if the pump curve is affected by replacement, repair, or routine service.
8. The comprehensive pump test will be performed at a flow that is ±20% of design flow. Design flow for a CCW pump is 9200 gpm. The group A test will be performed at a flow rate that is at least 80% of design flow.

NO. P-RR1(cont.)

References

DCPP Final Safety Analysis Report Update Docket Numbers 50-275 and 50-323; Section 9.2.2 Component Cooling Water System.

DCPP Units 1 and 2 Technical Specification Bases for SR 3.6.6.3.

DCPP Supplemental Safety Evaluation Number 31, "Appendix A, Safety Evaluation Pump and Valve Inservice Testing Program," paragraph 2.3.3, "Relief Request (3)."

REQUEST FOR RELIEF P-RR2 FOR AUXILIARY SALTWATER PUMPS THIRD TEN-YEAR INTERVAL

NO. P-RR2

System: Auxiliary Saltwater

Pumps:	**Pump Type**	**Code Class:**	**Group:**
Auxiliary Saltwater Pump 1-1	Vertical Line Shaft	3	A
Auxiliary Saltwater Pump 1-2	Vertical Line Shaft	3	A
Auxiliary Saltwater Pump 2-1	Vertical Line Shaft	3	A
Auxiliary Saltwater Pump 2-2	Vertical Line Shaft	3	A

Functions:

The auxiliary saltwater (ASW) system supplies cooling water from the ultimate heat sink, the Pacific Ocean, to the component cooling water (CCW) heat exchangers. The CCW system, in turn, removes heat from nuclear primary plant equipment and components during normal plant operation, plant cooldowns, refueling and accident conditions, including a loss of coolant accident.

Each DCPP unit is provided with two redundant ASW trains. Each of these trains consist of a full capacity ASW pump (ASWP) and associated piping to supply the tube side of one of the CCW heat exchangers with cooling water. Each pump may also be cross-connected so as to supply the opposite train heat exchanger.

Test Requirement

ASME OM Code, subsection ISTB-5221(b) and ISTB-5223(b). The resistance of the system, shall be varied until flow rate equals the reference point.

Basis For Relief

Adjustment to a specific reference value for the ASWP test is not practical because the pump flow rate varies based on tide level (suction pressure) and heat exchanger differential pressure (system resistance), which cannot be readily controlled. The CCW heat exchanger outlet throttle valves are the only valves which can be adjusted to set ASWP flow at the desired test flow. These valves are sealed in a throttled position which ensures the train can perform its required safety function under worst case conditions. A CCW heat exchanger is considered inoperable after its outlet valve is adjusted until a flow verification test is performed. The flow verification test requires that the system alignment with the most system resistance i.e., ASW pump #1 to CCW heat exchanger #2 (or ASW pump #2 to CCW heat exchanger #1) be used. This realignment, test and subsequent data analysis takes several hours, during which time the CCW heat exchanger is inoperable. Diablo Canyon Technical Specifications require that the second vital CCW heat exchanger be placed in service whenever ultimate heat sink temperature is greater than 64°F. In order to meet the Technical Specification LCO, ASW pump tests performed when ultimate heat sink temperatures are above 64°F must be performed with two CCW heat exchangers in service and result in test flows of up to 14,000 gpm. When the test is run with only one CCW heat exchanger in service (normal test alignment), reference pump flow is between 11,500 and 12,500 gpm. Relief is requested per 10CFR50.55a(f) (5) (iii).

NO. P-RR2(cont.)

Alternative Test

Perform inservice tests on ASWPs using the following. A reference pump curve (flow rate vs. pump head) has been developed for each of the four ASWPs.

The following elements will be performed in developing the pump curves for testing the ASWPs:

1. Pump reference curves will be developed when the pumps are known to be operating satisfactorily.
2. Instrumentation used to develop pump curves is at least as accurate (accuracy and range) as required by ISTB-3500-1.
3. These pump curves will be constructed using a minimum of five points.
4. Points used to construct the curves are beyond the flat portion (low flow rates) of the pump curve in a range which includes the design bases flow rate.
5. Acceptance criteria for flow rate and differential pressure will be established by taking the more conservative of curves based on the limits of Table ISTB-5200-1, or the operability criteria in TS or Safety Analysis Report.
6. Vibration levels will be measured over the range of pump conditions, and appropriate vibration acceptance criteria based on Table ISTB-5200-1, will be assigned for regions of the pump curve.
7. A new reference curve will be prepared, or the previous curve will be validated, if the pump curve is affected by replacement, repair, or routine service.
8. The comprehensive pump test will be performed at a flow rate that is ±20% of design flow. The group A test will be performed at a flow that is at least 80% of design flow. Design flow for the ASW pumps is 11,000 gpm.

References

DCPP Final Safety Analysis Report Update Docket Numbers 50-275 and 50-323; Section 9.2.2 Component Cooling Water System.

DCPP Units 1 and 2 Technical Specification 3.7.8.