CAROLINA POWER & LIGHT COMPANY

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT 2

IN-SERVICE INSPECTION PROGRAM

INTERVAL 2

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1.0 PURPOSE

1.1 This program is performed to comply with Subsections IWP and IWV of Section XI of the 1977 Edition of the ASME Boiler and Pressure Vessel Code Through the Summer, 1978 Addenda, except for specific reliefs requested in accordance with 10CFR50.55a(g)(5)(iii), which are identified in Sections 5.2 and 5.3 for pumps and valves respectively.

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4.0 DEFINITIONS/ABBREVIATIONS

4.1 CFR - Code of Federal Regulations

4.2 ASME - American Society of Mechanical Engineers

4.3 ANSI - American Nuclear Society Institute

4.4 ISI - In-Service Inspection

4.5 PASS - Passive

4.6 Test Intervals

W - Weekly

M - Monthly

Q - Quarterly

C - Cold Shutdown

R - Refueling

A - Annual

X - Frequency Determined from Table IWV-3510-1

J - Frequency Determined by 10CFR50 App. J.

4.0 DEFINITIONS/ABBREVIATIONS (Continued)

4.7 Actuator Types (ACT TYPE)

AO - Air

M - Manual

MO - Motor

SA - Self Actuate

SO - Solenoid

4.8 Valve Types (VLV TYPE)

BF - Butterfly

CK - Check

DA - Diaphragm

GA - Gate

GL - Globe

ND - Needle

REG - Regulator

RV - Relief/Safety

3W - 3-Way

VB - Vacuum Breaker

4.9 Valve Position (NORM POS)

CL - Closed

O - Open

LC - Locked Closed

LO - Locked Open

4.10 Valve Test Method

F - Observe Failure Mode

FF - Normally closed check valves are given a forward flow test to verify that disc opens.

J - Category A containment isolation valve tested in accordance with 10CFR50 App. J.

LT - Leak Test

RF - Normally open check valves are given a reverse flow test to show that disc seats.

4.0 DEFINITIONS/ABBREVIATIONS (Continued)

RV - Relief Valve (Test per IWV-3510)

S - Full Stroke

T - Measure Time

VI - Verify Remote Indication

4.11 Misc. Symbols

NA - Not Applicable

NR - Not Required

5.0 PROGRAM

5.1 General

In accordance with 10CFR50.55a(g)(4)(ii) the H. B. Robinson Unit 2 ISI Program is being updated to ASME Section XI, 1977 Edition with Addenda Through the Summer, 1978, Addenda. Steam generator inspections will continue to be inspected under Plant Technical Specifications, Section 4.2.1.1. Specific reliefs are requested in accordance with 10CFR50.55a(g)(5)(iii).

The interval for which this program is applicable will commence on March 7, 1981, and end on February 19, 1992.

The ISI Program was developed employing the classification guidelines contained in 10CFR50.2(v) and 10CFR50.55a(c)(2) for Quality Group A. Regulatory Guide 1.26, Revision 2, was used for classification of items in Quality Groups B and C, along with ANSI N18.2, 1973, and ANSI N18.2a, 1975. Quality Groups A, B, and C are the same as ASME Classes 1, 2 and 3 respectively.

The Attachments describe the Class 1, 2, and 3 pump and valve inspection program developed in accordance with Subsections IWP and IWV of ASME Section XI.

ATTACHMENT 6.1 lists all safety related Class 1, 2, and 3 pumps included in the testing program. The test parameters measured and the testing frequency are also listed.

ATTACHMENTS 6.2 thru 6.24 lists all safety related Class 1, 2, and 3 valves included in the program. Specifically excluded per IWV-1200 are valves used for operating convenience only, such as manual vent, drain, instrument, test maintenance, pressure regulating, thermal relief, and system control valves. Test methods and frequencies are also listed. Valve maximum stroke times are listed. Valves which cannot be tested during normal operation have the next acceptable frequency listed as allowed by IWV-3412(a), IWV-3415 and IWV-3416.

5.0 PROGRAM (Continued)

ATTACHMENT 6.25 provides additional information concerning testing requirements as they were applied to specific valves.

Cold Shutdown testing, when required, will commence 48 hours after initiation of Cold Shutdown conditions as defined in Technical Specifications except for Refueling outages. Testing will continue until completed or until the plant is ready to return to operation. Completion of all testing will not be a prerequisite to returning to operation. Testing not completed at one shutdown will be completed during subsequent shutdowns.

PUMP RELIEF REQUESTS

5.2 Pump Relief Requests

This section provides justification for the specific relief requested from Code test requirements as provided for in 10CFR50.55a(g)(5)(iii). Each request is identified by a unique number and identifies the pump(s) for which the request is being made. The specific Code test requirement found to be impractical is defined and the basis for exclusion from Code requirements is specified.

5.2.1 Specific Relief Request:

Monthly In-service Test

Applicable To:

All pumps

Basis for Relief Request:

Monthly Section XI operability testing has been a plant requirement for most of these pumps since operation began. An analysis of the results of these tests and comparable data from other operating plants has shown no significant changes in performance. Based on this analysis, the continuation of Section XI monthly testing would not significantly increase plant safety.

Monthly pump testing requires a total of at least 250 hours per year of pump operation, at least 575 man-hours per year for data acquisition, and at least 50 man-hours per year for data reduction, analysis, and record keeping. This amounts to a total of 625 man-hours per year. At a conservative total cost of $20 per man-hour, this amounts to $12,500 per year. Based upon the average exposure rates in the pump access areas, the total man-rem exposure per year for pump testing is approximately 1.0 man-rem. At the present conservatively estimated cost of $10,000 per man-rem to plant personnel, this exposure costs an additional $10,000 per year. Total cost to our customers is approximately $22,500 per year, for no significant increase in safety.

Alternate Testing:

Pumps will be tested in compliance with ASME Section XI and this program once per quarter. This is in agreement with changes that were implemented in Subsection IWP of the Code in the Winter, 1979, addenda.

5.2.2 Specific Relief Request:

Measuring pump bearing temperature annually

Applicable To:

All pumps

Basis for Relief Request:

The referenced Edition of the Code requires bearing temperature to be recorded annually. It has been demonstrated by experience that bearing temperature rise occurs only minutes prior to bearing failure. Therefore, the detection of possible bearing failure by a yearly temperature measurement is extremely unlikely. It requires at least an hour of pump operation to achieve stable bearing temperatures. The small probability of detection of bearing failure by temperature measurement does not justify the additional pump operating time required to obtain the measurements.

Alternate Testing:

NONE

5.2.3 Specific Relief Request:

A. Flow Rate Measurements as Required by IWP-3000

B. Differential Pressure Measurements as Required by IWP-3000

Applicable To:

Service Water Pumps

Basis for Relief Request:

The Service Water Pumps are used for removing heat from certain secondary system components during normal operation. Since heat load varies and inlet temperatures vary, automatic temperature control valves will vary the flow rates through the individual components, thus varying pump resistance. The system has no installed flow measuring devices capable of measuring flow from the pumps. The piping is concrete lined which prohibits the use of ultrasonic flow measuring techniques. There is insufficient room on the outlet piping of each individual pump to allow installation of any accurate flow devices.

H. B. Robinson currently verifies Service Water System operation during refueling by conducting a "dead head" (zero flow) test on each pump. This test provides a point for comparison to determine the condition of the pumps since the previous tests. These tests will be used as an alternative to the monthly Section XI test. If a pump is declared inoperable and maintenance is required on that pump, the pump will be tested in the manner in which the refueling tests are performed. Vibration and normal pump parameters will be checked on a quarterly basis as per the ISI Program requirements.

Alternate Testing:

Verification of system operation during refueling by conducting "dead head" (zero flow) test on each pump.

5.2.4 Specific Relief Request:

Measure Flow Rate

Applicable To:

Auxiliary Feedwater "A", "B" and SD, Safety Injection "A", "B", and "C", Residual Heat Removal "A" and "B", Containment Spray "A" and "B", and Boric Acid Transfer "A" and "B".

Basis for Relief Request:

Instrumentation is not installed to measure flow rate for testing.

For the first ISI interval, these pumps (except Boric Acid Transfer "A" and "B") were tested in a fixed resistance configuration so that any change in performance would be indicated by a change in differential pressure. This method of testing has proven satisfactory and will be continued.

Alternate Testing:

NONE

5.2.5 Specific Relief Request:

Measure Flow Rate

Applicable To:

Diesel Fuel Oil Transfer Pumps "A" and "B"

Basis for Relief Request:

These pumps discharge through a fixed resistance system of piping into the fuel oil day tanks. There is no flow instrumentation installed in this piping. Differential pressure will be measured quarterly for these pumps.

These pumps are run weekly to restore the level in the day tank after performance of the diesel generator test. This frequency is four times that required by IWP-3400, Summer, 1978 Addenda.

Alternate Testing:

Flow rates will be measured by a separate test procedure using manual calculations at refueling intervals.

5.2.6 Specific Relief Request:

Lubricant level observation after five minutes of pump operation, IWP-3100 and IWP-3500.

Applicable To:

Steam Driven Auxiliary Feedwater Pump

Motor Driven Auxiliary Feedwater Pumps A and B

Charging Pumps A, B, and C

Residual Heat Removal Pumps A and B

Basis For Relief Request:

Oil levels in these pumps change during operation. Oil levels will not be verified during operation.

Alternative Testing:

Oil levels will be verified as adequate prior to pump operation.

5.2.7 Specific Relief Request:

Suction pressure measurements prior to and during operation as required by IWP-3100.

Applicable To:

Charging Pumps A, B and C

Basis For Relief:

The charging pumps are positive displacement pumps and therefore differential pressure is not a limiting parameter. Suction pressure is measured prior to pump operation for information only and will not be measured during pump operation.

Alternative Testing:

Pump operability will be determined using flow rate measurements taken at a reference value rotative speed.

5.2.8 Specific Relief Request:

A). Flow Rate Measurements as required by IWP-3000.

B). Differential Pressure Measurements as required by IWP-3000.

Applicable To:

Component Cooling Water Pumps A, B, and C

Basis For Relief Request:

Adequate flow instrumentation is not installed to perform testing in accordance with Section XI requirements. Pump operability is based on differential pressure readings due to the system resistance being essentially fixed during normal operation.

Alternative Testing:

Since system resistance may vary slightly due to heat loads within the plant a shutoff head test will be performed at refueling shutdown intervals to supplement the normal ISI Testing.

5.2.9 Specific Relief Request:

Measure pump suction pressure prior to and during pump operation.

Applicable To:

Safety Injection A, B, C; Containment Spray A and B; Boric Acid Transfer A and B; Residual Heat Removal Pumps A and B; Service Water A, B, C, and D.

Basis For Reliefs:

These pumps take suction from vented static head reservoirs during testing. Suction pressure is calculated from this reservoir level. Flow from the pumps is routed through closed systems back to the suction source. Suction pressure differences prior to and during pump operation are negligible. Static head/reservior level will be determined prior to pump operation and not during.

Alternative Testing:

No alternative testing will be performed since the differential pressure value is unaffected.

5.2.10 Specific Relief Request:

Gauge range not exceeding three times the reference value.

Applicable To:

A and B RHR pump discharge pressure gauges PI-600 and PI-601.

Basis For Relief:

Applying the range criteria contained in IWP-4120 would result in requiring the subject gauges to have a full scale value of no greater than approximately 420 psi. The installed gauges have a range of 0-600 psi due to the need to operate the residual heat removal system at pressures greater than 420 psi. A 0-600 psi range is also necessary due to the 600 psi relief setpoint of valve RHR-706. A lower gauge range would result in possible over-ranging and equipment damage. Therefore, a 0-600 psi range gauge will be used in these locations.

Alternative Testing:

Applying the ±2% full scale accuracy requirement of IWP-4110 would result in a calibration tolerance of approximately ±8 psi for a 0-420 psi gauge. A more conservative requirement of ±1% full scale accuracy will be applied to the 0-600 psi range gauges PI-600 and PI-601. This will result in a calibration tolerance of ±6 psi. This tolerance is more restrictive than the Section XI requirement for a 0-420 psi range gauge.

VALVE RELIEF REQUESTS

5.3 Valve Relief Requests

This section provides justification for specific requests for relief from code requirements as provided for in 10CFR50.55a(g)(5)(iii). Each relief requested is identified by a unique number and identifies the valve(s) for which the relief request is being made. The code test requirement found to be impractical is defined and the basis for exclusion from code requirements is presented. Any alternate testing is specified.

5.3.1 Specific Relief Request:

Seat leak testing and Category A valves as required by IWV-3420

Applicable To:

All Category A valves for which test method is designated as J

Basis for Relief Request:

10CFR50 Appendix J requires periodic leak testing of Containment Isolation Valves. All Section XI Category A valves for this plant are containment isolation valves and require Section XI leak testing. In order to preclude redundant test requirements on these valves, the Appendix J requirements will be met in lieu of the Section XI requirements.

The H. B. Robinson containment has two features in its design that assure adequate integrity during and following a loss of Coolant Accident. These are the Isolation Valve Seal Water System and the Penetration Pressurization System. These two systems are conservatively designed, seismically qualified, and operated in accordance with Unit Technical Specifications and the requirements of 10CFR50 Appendix J for seal and surveillance systems that can be used in lieu of local Type C valve testing.

Alternate Testing:

The PPS and IVSW system will be tested as required by 10CFR50 Appendix J.

5.3.2 Specific Relief Request:

Exercising of valves as required by IWV-3520

Applicable To:

MS-V1-3A, V1-3B and V1-3C

Basis for Relief Request:

These valves are the Main Stream Check valves downstream of the MSIV's. Normal steam flow verifies the proper opening of the valves. Section XI requires reverse flow seating of the valves. These valves cannot be exercised shut during power operation since this would result in a plant trip. Verifying closure of these valves during cold shutdown could result in delaying start-up due to the complicated test methods needed to verify closure (i.e., valve disassembly or visual inspection from inside the main steam lines). Also, since these valves are non-isolable during power operation, any steam leaks of appreciable size would require a plant shutdown to correct. Therefore, since disassembly on a frequent basis would increase the probability of such leaks, such maintenance is not considered a feasible alternative. These valves will be verified shut during refueling outages by some method such as disassembly or visual inspection from inside the main steam lines.

5.3.3 Specific Relief Request:

Full Stroke Testing as Required by IWV-3520

Applicable To:

Valves SI-875D, SI-875E, and SI-875F

Basis for Relief Request:

These Accumulator Check Valves are partially stroked at cold shutdown by varying reactor coolant system pressure and observing increases and decreases in accumulator level. Stroke verification by passing design flow during cold shutdown is not practical due to the large volume of water that would be added to the Reactor Coolant System. Calculations have shown that a differential pressure of approximately 25 psi will shear any particles that may attempt to prevent the valve from functioning (FSAR Section 6.2.3). Based on this calculation and partial stroke testing presently performed, full stroke testing requirements are waived.

5.3.4 Specific Relief Request:

Full Stroke Testing as Required by IWV-3520

Applicable To:

Valves SI-873A, SI-873B, SI-873C, SI-873D, SI-873E, SI-873F, SI-874A, and SI-874B.

Basis for Relief Request:

These valves cannot be full stroke exercised during normal operation due to the difference in pressure between the RCS (2235 psig) and the discharge head of the SI Pumps (1500 psig). Injection into the RCS during cold shutdown is not desirable due to the possibility for low temperature overpressurization of the RCS. At refueling intervals, these valves are fully stroked during the Safety Injection System Test while the Reactor Vessel Head is removed and the Refueling Cavity can be filled. This constitutes the only practical interval that this test can be performed.

5.3.5 Specific Relief Request:

Full Stroke Testing as Required by IWV-3520

Applicable To:

Valve SW-544

Basis for Relief Request:

This valve is partially stroked quarterly by verifying flow through a downstream tell-tale drain. Valve SW-544 is in the service water supply to the Auxiliary Feedwater (AFW) Pump Suction Line. It is a back-up water supply that would only be initiated in emergency conditions (condensate tank level less than 10%). The Deep Well Water System also serves as a back-up AFW Pump suction supply source.

Full stroke testing can only be accomplished by adding untreated lake water to the AFW System which has controlled water chemistry. Therefore, system design does not allow full stroke testing. Dismantling the valve at refueling intervals is not considered necessary nor practical since this would disable the Service Water System. Disassembly for full stroke verification only does not add to the safety margin verified by a quarterly partial stroke test. In fact, disassembly for full stroke verification may prove detrimental and could possible add to services water system leakage during operation. The position taken is, considering partial stroke testing now performed quarterly and the redundant role this system shares with the deep well water system, no other testing or periodic disassembly for testing purpose is required.

Alternate Testing:

This valve was disassembled during the 1984 Steam Generator Replacement Outage. Internal conditions and operability of the valve were found to be satisfactory.

5.3.6 Specific Relief Request:

Individual Full Stroke Verification of Valves

Applicable To:

Valves SW-542 and SW-543

Basis for Relief Request:

These valves are installed in parallel, non-isolable flowpaths. Therefore, full stroke verification cannot be performed individually on each valve. Flow through these valves is verified collectively at quarterly intervals.

5.3.7 Specific Relief Request:

Full Stroke Testing as Required by IWV-3520

Applicable To:

Valves SI-879A, SI-879B, and SI-879C

Basis for Relief:

These valves cannot be full stroke exercised during normal operation due to the difference in pressure between the RCS (2235 psig) and the discharge head of the SI Pumps (1500 psig). Design flow through these valves cannot be achieved with the system aligned for miniflow recirculation.

Injection into the RCS via the SI Pumps during cold shutdown is not desirable due to the possibility for low temperature overpressurization of the RCS. These valves pass design flow at Refueling outages during the SI System flow test. These valves are partial-stroke exercised quarterly by observing a pressure increase from PT-943 when each Safety Injection Pump is tested.

5.3.8 Specific Relief Request:

Full Stroke Testing as Required by IWV-3520

Applicable To:

Valves SI-890A and SI-890B

Basis for Relief Request:

These valves are tested at cold shutdown by injecting air upstream and observing a pressure increase on a temporary test gauge downstream. The cold shutdown test constitutes the only method to verify disk travel short of initiating flow through the spray nozzles or disassembly.

Proper full stroke operation of these valves will be verified at refueling.

5.3.9 Specific Relief Request:

Reverse Flow Testing

Applicable To:

Valve V8-5

Basis for Relief Request:

This valve, in the Instrument Air supply line to Containment, cannot be aligned for reverse flow testing during normal operation. Such testing would isolate air to certain valves in containment and would result in a potential plant trip.

A test connection was installed during the 1984 Steam Generator Replacement Outage that allows seat leakage testing and reverse flow seating verification. Due to the special set-up requirements needed to perform this test, relief from reverse flow seating verification at cold shutdown intervals is requested. This testing will be performed at refueling intervals coincident with the seat leakage testing.

5.3.10 Specific Relief Request:

Full Stroke Forward Testing

Applicable To:

Valve CVC-357

Basis for Relief Request:

Full stroke exercising valve CVC-357 during power operation would result in over boration of the RCS, which could result in a plant shutdown. During cold shutdown, full stroke exercising this valve could result in a low temperature overpressurization of the RCS. This valve will be partial stroke exercised quarterly and full stroke exercised with flow during refueling outages.

5.3.11 Specific Relief Request:

Stroke Test of IWV-3520

Applicable To:

Valves SI-870C and SI-870D

Basis for Relief Request:

Due to special techniques that must be performed to ensure the vacuum breaking capability of these valves, a refueling test frequency has been chosen. A modification has been performed to allow bench testing of these valves.

5.3.12 Specific Relief Request:

Cycle Timing of Solenoid Actuated Valves

Applicable To:

1. Emergency Diesel "A" Valves
   - A. FO-27A: Fuel Oil Day Tank Isolation
   - B. FO-29A: Fuel Oil Day Tank Isolation
   - C. DA-19A and 23A: Diesel Air Start Solenoid Valves
2. Emergency Diesel "B" Valves
   - A. FO-27B: Fuel Oil Day Tank Isolation
   - B. FO-29B: Fuel Oil Day Tank Isolation
   - C. DA-19B and 23B: Diesel Air Start Solenoid Valves

Basis for Relief Request:

Operators for these valves are designed such that actuation cannot be verified by direct examination. Additionally, these valves are actuated by automatic signals from other diesel generator system components. Specifically FO-27A, 29A, 27B, and 29B are actuated by the Diesel Day Tank Level switches. The Diesel Air Start Solenoid valves are actuated in the diesel start sequence.

The design features of these valves and the inability to accurately determine the time of the actuation signals make cycle timing of these valves impractical.

Alternate Testing:

The Fuel Oil Day Tank isolation valves are cycled weekly during performance of the Diesel Generator periodic test. The air start solenoids are also cycled during this test. However, only one air start solenoid valve is tested weekly on each diesel. The periodic test contains instructions to isolate one of these valves per diesel by closing an upstream isolation valve. The selection of which valve to isolate is based on the date of the test. For an odd number test date, one valve per diesel would be isolated. For an even number test date, the other valve would be isolated.

During performance of the periodic test, failure of these valves to operate would be evident by failure to fill the Fuel Oil Day Tanks or by failure of the diesel to start.

The increased test frequency has been determined to be an adequate method of ensuring proper valve operation without cycle timing.

5.3.13 Specific Relief Request:

Testing valves in systems out of service, IWV-3416.

Applicable To:

Valves MS-263A, MS-263B, and MS-263C

Basis For Relief Request:

These valves are in the lines that supply steam to the Steam Driven Auxiliary Feedwater Pump. Adequate steam supply is not available to verify full flow through these valves prior to leaving cold shutdown conditions.

Alternative Testing:

These valves will be tested within one week after commencing power operation (greater than 2%). This will apply only to situations in which the normal quarterly interval for testing was exceeded during the shutdown.

ATTACHMENTS

6.0 LIST OF ATTACHMENTS

6.1 Pump Test Program

6.2 Main and Extraction Steam Systems

6.3 Feedwater, Condensate and Air Evacuation Systems

6.4 Service and Cooling Water System

6.5 Primary and Makeup Water System

6.6 Emergency Diesel Generator System

6.7 Fuel Oil System

6.8 Steam Generator Blowdown and Wet Layup System

6.9 Penetration Pressurization System

6.10 Isolation Valve Seal Water System

6.11 HVAC - Turbine, Fuel, Auxiliary and Reactor Building Systems

6.12 Primary Sampling System

6.13 Component Cooling Water System

6.14 Chemical and Volume Control System

6.15 Chemical and Volume Control System

6.0 LIST OF ATTACHMENTS (Continued)

6.16 Liquid Waste Disposal System

6.17 Gaseous Waste Disposal System

6.18 Safety Injection System

6.19 Residual Heat Removal System

6.20 Reactor Coolant System

6.21 Containment Vapor and Pressure Sampling System

6.22 Post Accident Containment Venting System

6.23 Fire Protection System

6.24 Fuel Transfer Tube

6.25 Additional Information

PUMP TEST PROGRAM

PUMP NAME & DRAWING NUMBER	PUMP NO.	TEST PARAMETER MEASURED							RELIEF REQUEST AND REMARKS
		SPEED n	INLET PRESSURE P	DIFFERENTIAL PRESSURE ΔP	FLOW RATE Q	VIBRATION AMPLITUDE V	LUBRICANT LEVEL OR PRESSURE	BEARING TEMPERATURE T_b	
Auxiliary Feedwater G-190197	AFW-A*	NR	Q	Q	NR	Q	Q	NR	OST-201, 5.2.1, 5.2.2, 5.2.4, 5.2.6
	AFW-B*	NR	Q	Q	NR	Q	Q	NR	OST-201, 5.2.1, 5.2.2, 5.2.4, 5.2.6
	AFW-SD	Q	Q	Q	NR	Q	Q	NR	OST-202, 5.2.1, 5.2.2, 5.2.4, 5.2.6
Safety Injection 5379-1082	SI-A*	NR	Q	Q	NR	Q	Q	NR	OST-151, 5.2.1, 5.2.2, 5.2.4, 5.2.9
	SI-B*	NR	Q	Q	NR	Q	Q	NR	OST-151, 5.2.1, 5.2.2, 5.2.4, 5.2.9
	SI-C*	NR	Q	Q	NR	Q	Q	NR	OST-151, 5.2.1, 5.2.2, 5.2.4, 5.2.9

*Synchronous or induction motors do not require speed check (IWP-4400).

PUMP TEST PROGRAM

PUMP NAME & DRAWING NUMBER	PUMP NO.	TEST PARAMETER MEASURED							RELIEF REQUEST AND REMARKS
		SPEED n	INLET PRESSURE P	DIFFERENTIAL PRESSURE ΔP	FLOW RATE Q	VIBRATION AMPLITUDE V	LUBRICANT LEVEL OR PRESSURE	BEARING TEMPERATURE T_b	
Residual Heat Removal 5379-1484	RHR-A*	NR	Q	Q	NR	Q	Q	NR	OST-251, 5.2.1, 5.2.2, 5.2.4, 5.2.6, 5.2.9, 5.2.10
	RHR-B*	NR	Q	Q	NR	Q	Q	NR	OST-251, 5.2.1, 5.2.2, 5.2.4, 5.2.6, 5.2.9, 5.2.10
Containment Spray 5379-1082	CS-A*	NR	Q	Q	NR	Q	Q	NR	OST-352, 5.2.1, 5.2.2, 5.2.4, 5.2.9
	CS-B*	NR	Q	Q	NR	Q	Q	NR	OST-352, 5.2.1, 5.2.2, 5.2.4, 5.2.9
Service Water G-190199	SW-A*	NR	Q	Q, R	NR	Q	Q	NR	OST-301, 302, 5.2.1, 5.2.2, 5.2.3, 5.2.9
	SW-B*	NR	Q	Q, R	NR	Q	Q	NR	OST-301, 302, 5.2.1, 5.2.2, 5.2.3, 5.2.9
	SW-C*	NR	Q	Q, R	NR	Q	Q	NR	OST-301, 302, 5.2.1, 5.2.2, 5.2.3, 5.2.9
	SW-D*	NR	Q	Q, R	NR	Q	Q	NR	OST-301, 302, 5.2.1, 5.2.2, 5.2.3, 5.2.9

*Synchronous or induction motors do not require speed check (IWP-4400).

PUMP TEST PROGRAM

PUMP NAME & DRAWING NUMBER	PUMP NO.	TEST PARAMETER MEASURED							REFLIEF REQUEST AND REMARKS
		SPEED n	INLET PRESSURE P	DIFFERENTIAL PRESSURE ΔP	FLOW RATE Q	VIBRATION AMPLITUDE V	LUBRICANT LEVEL OR PRESSURE	BEARING TEMPERATURE T_b	
Component Cooling 5379-376	CCW-A*	NR	Q	Q, R	NR	Q	Q	NR	OST-908, OST-917, 5.2.1, 5.2.2, 5.2.8
	CCW-B*	NR	Q	Q, R	NR	Q	Q	NR	OST-908, OST-917, 5.2.1, 5.2.2, 5.2.8
	CCW-C*	NR	Q	Q, R	NR	Q	Q	NR	OST-908, OST-917, 5.2.1, 5.2.2, 5.2.8
Service Water Booster G-190199	SWBP-A*	NR	Q	Q	Q	Q	Q	NR	OST-302, 5.2.1, 5.2.2
	SWBP-B*	NR	Q	Q	Q	Q	Q	NR	OST-302, 5.2.1, 5.2.2
Charging 5379-685	CVC-A	Q	Q	Q	Q	Q	Q	NR	OST-101, 5.2.1, 5.2.2, 5.2.6, 5.2.7
	CVC-B	Q	Q	Q	Q	Q	Q	NR	OST-101, 5.2.1, 5.2.2, 5.2.6, 5.2.7
	CVC-C	Q	Q	Q	Q	Q	Q	NR	OST-101, 5.2.1, 5.2.2, 5.2.6, 5.2.7

*Synchronous or induction motors do not require speed check (IWP-4400).

PUMP TEST PROGRAM

PUMP NAME & DRAWING NUMBER	PUMP NO.	TEST PARAMETER MEASURED							REFLIEF REQUEST AND REMARKS
		SPEED n	INLET PRESSURE P	DIFFERENTIAL PRESSURE ΔP	FLOW RATE Q	VIBRATION AMPLITUDE V	LUBRICANT LEVEL OR PRESSURE	BEARING TEMPERATURE T_b	
Boric Acid Transfer 5379-685	A*	NR	Q	Q	NR	Q	NR	NR	OST-108, 5.2.1, 5.2.2, 5.2.4, 5.2.9
	B*	NR	Q	Q	NR	Q	NR	NR	OST-108, 5.2.1, 5.2.2, 5.2.4, 5.2.9
Diesel Fuel Transfer G-190204-D	A*	NR	Q	Q	R	Q	NR	NR	OST-402, 403, 5.2.1, 5.2.2, 5.2.5
	B*	NR	Q	Q	R	Q	NR	NR	OST-402, 403, 5.2.1, 5.2.2, 5.2.5

*Synchronous or induction motors do not require speed check (IWP-4400).

MAIN & EXTRACTION STEAM SYSTEMS

P&ID NO. G-190196

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
V1-3A ISOLN.	2	1 of 3 (C-4)		X				26	STOP CK	AO	O	N	S F T VI	C C C C		5	OST-702
V1-3B ISOLN.	2	1 of 3 (E-4)		X				26	STOP CK	AO	O	N	S F T VI	C C C C		5	OST-702
V1-3C ISOLN.	2	1 of 3 (G-4)		X				26	STOP CK	AO	O	N	S F T VI	C C C C		5	OST-702
V1-8A	2	1 of 3 (B-4)		X				2	GL	MO	CL	N	S T VI	M M M		120	OST-202
V1-8B	2	1 of 3 (D-4)		X				2	GL	MO	CL	N	S T VI	M M M		120	OST-202
V1-8C	2	1 of 3 (F-4)		X				2	GL	MO	CL	N	S T VI	M M M		120	OST-202
MS-261A (MS-V1-3A)	2	1 of 3 (C-4)			X			26	CK	SA	O	N	RF	R	5.3.2		EST-086

MAIN & EXTRACTION STEAM SYSTEMS

P&ID NO. G-190196

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
MS-261B (MS-V1-3B)	2	1 of 3 (E-4)			X			26	CK	SA	O	N	RF	R	5.3.2		EST-086
MS-261C (MS-V1-3C)	2	1 of 3 (G-4)			X			26	CK	SA	O	N	RF	R	5.3.2		EST-086
MS-263A (MS-V1-9A)	2	1 of 3 (C-5)			X			2	CK	SA	CL	N	FF	M	5.3.13		OST-202
MS-263B (MS-V1-9B)	2	1 of 3 (D-5)			X			2	CK	SA	CL	N	FF	M	5.3.13		OST-202
MS-263C (MS-V1-9C)	2	1 of 3 (F-5)			X			2	CK	SA	CL	N	FF	M	5.3.13		OST-202
SV1-1A	2	1 of 3 (C-6)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-1B	2	1 of 3 (E-6)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-1C	2	1 of 3 (G-6)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-2A	2	1 of 3 (C-6)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-2B	2	1 of 3 (E-6)			X			6	RV	SA	CL	N	RV	R			EST-028

MAIN & EXTRACTION STEAM SYSTEMS

P&ID NO. G-190196

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
SV1-2C	2	1 of 3 (G-6)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-3A	2	1 of 3 (C-5)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-3B	2	1 of 3 (E-5)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-3C	2	1 of 3 (G-5)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-4A	2	1 of 3 (C-5)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-4B	2	1 of 3 (E-5)			X			6	RV	SA	CL	N	RV	R			EST-028
SV1-4C	2	1 of 3 (G-5)			X			6	RV	SA	CL	N	RV	R			EST-028

FEEDWATER, CONDENSATE & AIR EVACUATION SYSTEMS

P&ID NO. G-190197

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
AFW-2	3	1 of 4 (B-7)			X			6	CK	SA	CL	N	FF RF	C C			Reverse Flow OST-702. Partial Stroke Quarterly - OST-201 Full Stroke Cold Shutdown - OP-402
V2-20A	3	4 of 4 (C-5)		X				4	GA	MO	O	N	S T VI	M M M		60	OST-201
V2-20B	3	4 of 4 (B-5)		X				4	GA	MO	O	N	S T VI	M M M		60	OST-201
AFW-24	3	4 of 4 (B-2)		X				6	GA	M	LC	N	S	Q			OST-701
AFW-40	3	4 of 4 (C-4)			X			4	CK	SA	CL	N	FF	C			Partial Stroke Quarterly - OST-201. Full Stroke Cold Shutdown - OP-402
AFW-41	3	4 of 4 (B-4)			X			4	CK	SA	CL	N	FF	C			Partial Stroke Quarterly - OST-201. Full Stroke Cold Shutdown - OP-402
AFW-68	2	4 of 4 (B-6)			X			4	CK	SA	CL	Y	FF	C			OP-402
AFW-69	2	4 of 4 (C-6)			X			4	CK	SA	CL	Y	FF	C			OP-402

FEEDWATER, CONDENSATE & AIR EVACUATION SYSTEMS

P&ID NO. G-190197

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
AFW-70	2	4 of 4 (B-6)			X			4	CK	SA	CL	Y	FF	C			OP-402
AFW-84 (AFW-19)	3	4 of 4 (D-4)			X			6	CK	SA	CL	N	FF	C			Full Stroke Cold Shutdown - OP-402. Partial Stroke Quarterly - OST-201
V2-14A	3	4 of 4 (G-4)		X				4	GA	MO	CL	Y	S T VI	M M M		60	OST-202
V2-14B	3	4 of 4 (F-4)		X				4	GA	MO	CL	Y	S T VI	M M M		60	OST-202
V2-14C	3	4 of 4 (E-4)		X				4	GA	MO	CL	Y	S T VI	M M M		60	OST-202
V2-16A	2	4 of 4 (B-5)		X				4	GA	MO	CL	N	S T VI	M M M		60	OST-201
V2-16B	2	4 of 4 (C-5)		X				4	GA	MO	CL	N	S T VI	M M M		60	OST-201
V2-16C	2	4 of 4 (B-5)		X				4	GA	MO	CL	N	S T VI	M M M		60	OST-201

FEEDWATER, CONDENSATE & AIR EVACUATION SYSTEMS

P&ID NO. G-190197

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
FCV-479	3	4 of 4 (G-3)		X				4	GL	AO	CL	Y	S F T VI	C C C C		60	OST-702
FCV-489	3	4 of 4 (F-3)		X				4	GL	AO	CL	Y	S F T VI	C C C C		60	OST-702
FCV-499	3	4 of 4 (E-3)		X				4	GL	AO	CL	Y	S F T VI	C C C C		60	OST-702
V2-6A	3	4 of 4 (G-2)		X				16	GA	MO	O	N	S T VI	C C C		120	OST-702
V2-6B	3	4 of 4 (F-2)		X				16	GA	MO	O	N	S T VI	C C C		120	OST-702
V2-6C	3	4 of 4 (E-2)		X				16	GA	MO	O	N	S T VI	C C C		120	OST-702

SERVICE & COOLING WATER SYSTEM

P&ID NO. G-190199

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
118	3	10 of 12 (C-4)		X				6	GA	M	LC	N	S	Q			OST-701
261	3	10 of 12 (F-2)			X			1	CK	SA	CL	N	FF	Q			OST-204
272	3	10 of 12 (E-1)			X			1	CK	SA	CL	N	FF	Q			OST-204
374	3	2 of 12 (C-8)			X			18	CK	SA	O/CL	N	FF RF	M M			OST-302
375	3	2 of 12 (C-6)			X			18	CK	SA	O/CL	N	FF RF	M M			OST-302
376	3	2 of 12 (C-7)			X			18	CK	SA	O/CL	N	FF RF	M M			OST-302
377	3	2 of 12 (C-5)			X			18	CK	SA	O/CL	N	FF RF	M M			OST-302
541	3	9 of 12 (G-6)			X			30	CK	SA	O/CL	N	FF RF	M			OST-302
542	3	10 of 12 (B-4)			X			1	CK	SA	O/CL	N	FF	M	5.3.6		OST-201
543	3	10 of 12 (B-4)			X			1	CK	SA	CL	N	FF	M	5.3.6		OST-201
544	3	10 of 12 (C-4)			X			6	CK	SA	CL	N	FF	Q	5.3.5		OST-701 (Partial Stroke)

SERVICE & COOLING WATER SYSTEM

P&ID NO. G-190199

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
545	3	10 of 12 (B-3)			X			30	CK	SA	O/CL	N	FF RF	M M			OST-302
546	3	4 of 12 (F-4)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
547	3	4 of 12 (F-4)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
548	3	4 of 12 (E-4)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
549	3	4 of 12 (D-4)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
560	3	7 of 12 (F-5)			X			12	CK	SA	O/CL	N	FF	M			OST-302
561	3	7 of 12 (E-5)			X			12	CK	SA	O/CL	N	FF	M			OST-302
562	3	9 of 12 (D-6)			X			1	CK	SA	O/CL	N	FF	M			OST-201
563	3	9 of 12 (E-6)			X			1	CK	SA	O/CL	N	FF	M			OST-201
V6-16A	3	10 of 12 (B-3)		X				16	BF	MO	O	N	S T VI	M M M		300	OST-302

SERVICE & COOLING WATER SYSTEM

P&ID NO. G-190199

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
V6-16B	3	10 of 12 (C-3)		X				16	BF	MO	O	N	S T VI	M M M		300	OST-302
V6-33A	2	7 of 12 (E-3)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-33B	2	7 of 12 (E-3)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-33C	2	7 of 12 (G-3)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-33D	2	7 of 12 (F-3)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-33E	2	7 of 12 (E-4)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-33F	2	7 of 12 (F-4)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-34A	2	5 of 12 (C-6)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902

SERVICE & COOLING WATER SYSTEM

P&ID NO. G-190199

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
V6-34B	2	5 of 12 (D-6)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-34C	2	5 of 12 (E-6)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-34D	2	5 of 12 (F-6)		X				6	BF	MO	O	N	S T VI	M M M		300	OST-902
V6-35A	2	4 of 12 (G-3)		X				1	GL	MO	O	N	S T VI	M M M		300	OST-902
V6-35B	2	4 of 12 (G-4)		X				1	GL	MO	O	N	S T VI	M M M		300	OST-902
V6-35C	2	4 of 12 (G-3)		X				1	GL	MO	O	N	S T VI	M M M		300	OST-902
V6-35D	2	4 of 12 (G-3)		X				1	GL	MO	O	N	S T VI	M M M		300	OST-902
TCV-1660	3	6 of 12 (C-1)		X				4	GL	AO	O	N	S T F	W W W		60	OST-401

SERVICE & COOLING WATER SYSTEM

P&ID NO. G-190199

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
TCV-1661	3	6 of 12 (C-5)		X				4	GL	AO	O	N	S T F	W W W		60	OST-401
TCV-1902A	3	10 of 12 (F-3)		X				1	GL	AO	O	N	S T F	M M M		60	OST-202
TCV-1903A	3	9 of 12 (B-5)		X				1	GL	AO	O	N	S T F	M M M		60	OST-201
TCV-1903B	3	9 of 12 (F-5)		X				1	GL	AO	O	N	S T F	M M M		60	OST-201
V6-12A	3	2 of 12 (D-7)		X				30	BF	MO	O	N	S T VI	M M M		300	OST-302
V6-12B	3	2 of 12 (C-7)		X				30	BF	MO	O	N	S T VI	M M M		300	OST-302
V6-12C	3	2 of 12 (C-7)		X				30	BF	MO	O	N	S T VI	M M M		300	OST-302
V6-12D	3	2 of 12 (D-5)		X				30	BF	MO	O	N	S T VI	M M M		300	OST-302

PRIMARY & MAKE-UP WATER SYSTEM

P&ID NO. G-190202

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
DW-19	3	1 of 4 (A-7)		X				6	GA	M	LC	N	S	Q		NA	OST-701
DW-21	3	1 of 4 (A-8)		X				6	GA	M	LC	N	S	Q		NA	OST-701

EMERGENCY DIESEL GENERATOR SYSTEM

P&ID NO. G-190204A

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
DA-9A (DG-ASA-1)	3	1 of 3 (B-4)			X			3/4	CK	SA	-	N	FF RF	Q Q			OST-701
DA-9B (DG-ASB-1)	3	1 of 3 (E-4)			X			3/4	CK	SA	-	N	FF RF	Q Q			OST-701
DA-19A	3	1 of 3 (B-6)		X				1½	3W	SO	O/CL	N	S	W	5.3.12		OST-401
DA-19B	3	1 of 3 (E-6)		X				1½	3W	SO	O/CL	N	S	W	5.3.12		OST-401
DA-20A	3	1 of 3 (B-6)			X			1½	CK	SA	-	N	FF	W			OST-401
DA-20B	3	1 of 3 (E-6)			X			1½	CK	SA	-	N	FF	W			OST-401
DA-23A	3	1 of 3 (B-6)		X				1½	3W	SO	O/CL	N	S	W	5.3.12		OST-401
DA-23B	3	1 of 3 (E-6)		X				1½	3W	SO	O/CL	N	S	W	5.3.12		OST-401
DA-24A	3	1 of 3 (B-6)			X			1½	CK	SA	-	N	FF	W			OST-401
DA-24B	3	1 of 3 (E-6)			X			1½	CK	SA	-	N	FF	W			OST-401

EMERGENCY DIESEL GENERATOR SYSTEM

P&ID NO. G-190204A

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
DA-28 (DG-AS-10)	3	1 of 3 (D-4)		X				2	GL	M	CL	N	S VI	Q Q			OST-701
DA-30 (DG-AS-14)	3	1 of 3 (D-3)		X				3/4	GL	M	CL	N	S VI	Q Q			OST-701

FUEL OIL SYSTEM

P&ID NO. G-190204-D

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
FO-21A (V9-13)	3	2 of 2 (D-7)			X			2	CK	SA	-	N	FF	M			OST-403
FO-21B (V9-13)	3	2 of 2 (D-8)			X			2	CK	SA	-	N	FF	M			OST-403
FO-24 (DG-FO-14)	3	2 of 2 (C-7)		X				2	GL	M	CL	N	S	Q			OST-701
FO-27A (DG-FO-9A-1)	3	2 of 2 (C-6)		X				2	GA	SO	CL	N	S	Q	5.3.12		OST-701
FO-27B (DG-FO-9B-1)	3	2 of 2 (B-6)		X				2	GA	SO	CL	N	S	Q	5.3.12		OST-701
FO-28A (DG-FO-10A)	3	2 of 2 (C-6)		X				2	GL	M	CL	N	S	Q			OST-701
FO-28B (DG-FO-10B)	3	2 of 2 (B-6)		X				2	GL	M	CL	N	S	Q			OST-701
FO-29A (DG-FO-9A2)	3	2 of 2 (C-6)		X				2	GA	SO	CL	N	S	Q	5.3.12		OST-701
FO-29B (DG-FO-9B2)	3	2 of 2 (B-6)		X				2	GA	SO	CL	N	S	Q	5.3.12		OST-701

STEAM GENERATOR BLOWDOWN & WET LAYUP SYSTEM

P&ID NO. G-190234

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
FCV-1930A	2	1 of 3 (F-6)	X					3	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004
FCV-1930B	2	1 of 3 (F-6)	X					3	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004
FCV-1931A	2	1 of 3 (E-6)	X					3	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004
FCV-1931B	2	1 of 3 (E-6)	X					3	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004
FCV-1932A	2	1 of 3 (C-6)	X					3	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004

STEAM GENERATOR BLOWDOWN & WET LAYUP SYSTEM

P&ID NO. G-190234

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
FCV-1932B	2	1 of 3 (C-6)	X					3	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004
FCV-1933A	2	1 of 3 (F-6)	X					3/4	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004
FCV-1933B	2	1 of 3 (F-6)	X					3/4	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004
FCV-1934A	2	1 of 3 (D-6)	X					3/4	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004
FCV-1934B	2	1 of 3 (D-6)	X					3/4	GA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	10	OST-701 EST-004

STEAM GENERATOR BLOWDOWN & WET LAYUP SYSTEM

P&ID NO. G-190234

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
FCV-1935A	2	1 of 3 (C-6)	X					3/4	GA	AO	O	N	S F T VI J	Q Q Q Q J	 5.3.1	 10 	OST-701 EST-004
FCV-1935B	2	1 of 3 (B-6)	X					3/4	GA	AO	O	N	S F T VI J	Q Q Q Q J	 5.3.1	 10 	OST-701 EST-004

PENETRATION PRESSURIZATION SYSTEM

P&ID NO. G-190261

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
225C	2	4 of 4 (G-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		
226C	2	4 of 4 (E-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		
235C	2	4 of 4 (D-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		
241C	2	4 of 4 (G-2)	X				X	3/8	GA	M	CL	N	J	J	5.3.1		
245A	2	4 of 4 (D-4)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		
248A	2	4 of 4 (G-3)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		
251C	2	4 of 4 (D-8)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		
296 (274C)	2	4 of 4 (C-3)	X		X		X	3/8	CK	SA	-	N	J	J	5.3.1		
EV-1721B (EV-H2A)	2	4 of 4 (C-7)	X					1	3W	SO	-	N	S J	Q J	5.3.1		OST-701
EV-1722	2	4 of 4 (D-4)	X				X	1	3W	SO	-	N	J	J	5.3.1		

PENETRATION PRESSURIZATION SYSTEM

P&ID NO. G-190261

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
EV-1723	2	4 of 4 (G-3)	X				X	1	3W	SO	-	N	J S	J C	5.3.1		OST-703
EV-1724	2	4 of 4 (G-1)	X				X	1	3W	SO	-	N	J S	J C	5.3.1		OST-703
EV-1727	2	4 of 4 (E-6)	X					3/8	3W	SO	-	N	S J	Q J	5.3.1		OST-701
EV-1728	2	4 of 4 (G-6)	X					3/8	3W	SO	-	N	S J	Q J	5.3.1		OST-701
EV-1743 (EV-H2B)	2	4 of 4 (D-6)	X					3/8	3W	SO	-	N	S J	C J	5.3.1		OST-703

ISOLATION VALVE SEAL WATER SYSTEM

P&ID NO. G-190262

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
IVSW-70	2	1 of 1 (D-2)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-71	2	1 of 1 (C-2)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-72	2	1 of 1 (C-2)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-73	2	1 of 1 (C-2)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-74	2	1 of 1 (B-2)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-75	2	1 of 1 (B-2)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-76	2	1 of 1 (C-4)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-77	2	1 of 1 (C-4)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-78	2	1 of 1 (C-4)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-79	2	1 of 1 (C-4)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004

ISOLATION VALVE SEAL WATER SYSTEM

P&ID NO. G-190262

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
IVSW-80	2	1 of 1 (B-4)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-81	2	1 of 1 (B-4)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-82	2	1 of 1 (E-8)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-83	2	1 of 1 (E-8)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-84	2	1 of 1 (D-8)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-85	2	1 of 1 (D-8)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-86	2	1 of 1 (D-8)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-87	2	1 of 1 (D-8)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-88	2	1 of 1 (C-8)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-89	2	1 of 1 (C-8)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004

ISOLATION VALVE SEAL WATER SYSTEM

P&ID NO. G-190262

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
IVSW-90	2	1 of 1 (C-7)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-91	2	1 of 1 (C-7)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-92	2	1 of 1 (B-7)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-93	2	1 of 1 (F-7)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-94	2	1 of 1 (F-7)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-95	2	1 of 1 (F-7)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-96	2	1 of 1 (G-7)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-97	2	1 of 1 (G-7)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
IVSW-98	2	1 of 1 (C-2)	X		X			3/8	CK	SA	CL	Y	J FF	J R	5.3.1		EST-004
AOV-26-E	2	1 of 1 (B-4)		X			X	3/8	GA	SO	O	Y	J	J			EST-004

ISOLATION VALVE SEAL WATER SYSTEM

P&ID NO. G-190262

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
AOV-30A	2	1 of 1 (E-7)		X			X	3/8	GA	SO	O	Y	J	J			EST-004
AOV-30G	2	1 of 1 (C-7)		X			X	3/8	GA	SO	O	Y	J	J			EST-004
AOV-30G-1	2	1 of 1 (C-7)		X			X	3/8	GA	SO	O	Y	J	J			EST-004
AOV-30G-2	2	1 of 1 (B-7)		X			X	3/8	GA	SO	O	Y	J	J			EST-004

HVAC- TURBINE, FUEL, AUXILIARY & REACTOR BUILDING SYSTEMS

P&ID NO. G-190304

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
RMS-1	2	1 of 2 (I-18)	X					1	DA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701
RMS-2	2	1 of 2 (I-19)	X					1	DA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701
RMS-3	2	1 of 2 (I-18)	X					1	DA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701
RMS-4	2	1 of 2 (I-19)	X					1	DA	AO	O	N	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701
V12-6	2	1 of 2 (F-10)	X				X	42	BF	AO	CL	N	J	J	5.3.1		
V12-7	2	1 of 2 (F-11)	X				X	42	BF	AO	CL	N	J	J	5.3.1		

HVAC- TURBINE, FUEL, AUXILIARY & REACTOR BUILDING SYSTEMS

P&ID NO. G-190304

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
V12-8	2	1 of 2 (G-18)	X				X	42	BF	AO	CL	N	J	J	5.3.1		
V12-9	2	1 of 2 (G-17)	X				X	42	BF	AO	CL	N	J	J	5.3.1		
V12-10	2	1 of 2 (H-18)	X					6	BF	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701
V12-11	2	1 of 2 (H-17)	X					6	BF	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701
V12-12	2	1 of 2 (G-10)	X				X	6	BF	AO	CL	N	S T VI F J	C C C C J	5.3.1	60	OST-703
V12-13	2	1 of 2 (G-11)	X				X	6	BF	AO	CL	N	S T VI F J	C C C C J	5.3.1	60	OST-703

PRIMARY SAMPLING SYSTEM

P&ID NO. 5379-353

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
956A	2	1 of 1 (G-6)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
956B	2	1 of 1 (G-6)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
956C	2	1 of 1 (F-6)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
956D	2	1 of 1 (F-6)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
956E	2	1 of 1 (E-6)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004

PRIMARY SAMPLING SYSTEM

P&ID NO. 279-353

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
956F	2	1 of 1 (E-6)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	 5.3.1	60	OST-701 EST-004
956G	2	1 of 1 (E-6)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	 5.3.1	60	OST-701 EST-004
956H	2	1 of 1 (E-6)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	 5.3.1	60	OST-701 EST-004
959	2	1 of 1 (D-7)	X					3/8	GL	AO	CL	N	S F T VI	Q Q Q Q		60	OST-701

COMPONENT COOLING WATER SYSTEM

P&ID NO. 5379-376

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
702-A	3	1 of 4 (D-6)			X			16	CK	SA	O/CL	N	FF RF	M M			OST-908
702-B	3	1 of 4 (C-6)			X			16	CK	SA	O/CL	N	FF RF	M M			OST-908
702-C	3	1 of 4 (B-6)			X			16	CK	SA	O/CL	N	FF RF	M M			OST-908
715	2	3 of 4 (B-2)			X			3x4	RV	SA	CL	Y	RV	X			EST-036
716-A	2	3 of 4 (D-8)		X				6	GA	MO	O	Y	S T VI	C C C		60	OST-703
716-B	2	3 of 4 (D-8)	X					6	GA	MO	O	Y	S T J VI	C C J C	5.3.1	60	OST-703 EST-004
722-A	3	3 of 4 (B-5)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
722-B	3	3 of 4 (E-5)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036

COMPONENT COOLING WATER SYSTEM

P&ID NO. 5379-376

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
722-C	3	3 of 4 (D-5)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
729	3	3 of 4 (F-2)			X			3x4	RV	SA	CL	Y	RV	X			EST-036
730	2	3 of 4 (F-1)	X					6	GA	MO	O	Y	S T VI J	C C C J	 5.3.1	60	OST-703 EST-004
735	2	2 of 4 (C-5)	X					3	GL	MO	O	Y	S T VI J	C C C J	 5.3.1	120	OST-703 EST-004
737-A	2	3 of 4 (B-8)		X				3	GA	M	O	Y	S	M			OST-908
739	2	3 of 4 (B-1)		X				3	GL	AO	O	Y	S F T VI	M M M M		60	OST-908
749-A	3	2 of 4 (E-7)		X				16	GA	MO	O	Y	S T VI	Q Q Q		300	OST-252

COMPONENT COOLING WATER SYSTEM

P&ID NO. 5379-376

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
749-B	3	2 of 4 (E-5)		X				16	GA	MO	O	Y	S T VI	Q Q Q		300	OST-252
791-B	3	2 of 4 (B-3)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
791-D	3	4 of 4 (B-4)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
791-E	3	2 of 4 (C-3)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
791-F	3	2 of 4 (C-3)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
791-J	3	4 of 4 (G-6)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
791-K	3	4 of 4 (F-6)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
791-L	3	4 of 4 (C-4)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-036
FCV-626	2	3 of 4 (D-1)	X					3	GA	MO	O	Y	S T VI J	C C C J	5.3.1	60	OST-703 EST-004

CHEMICAL AND VOLUME CONTROL SYSTEM

P&ID NO. 5379-685

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
200-A	2	1 of 3 (F-5)		X				2	GL	AO	CL	Y	S F T VI	Q Q Q Q		10	OST-102
200-B	2	1 of 3 (G-5)		X				2	GL	AO	CL	Y	S F T VI	Q Q Q Q		10	OST-102
200-C	2	1 of 3 (G-5)		X				2	GL	AO	CL	Y	S F T VI	Q Q Q Q		10	OST-102
202-A	2	1 of 3 (F-4)	X					3	GA	M	O	N	S J	C J	5.3.1		OST-703 EST-004
203	2	1 of 3 (F-5)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
204-A	2	1 of 3 (G-4)	X					2	GL	AO	O	Y	S F T VI J	C C C C J	5.3.1	10	OST-703 EST-004
204-B	2	1 of 3 (G-4)	X					2	GL	AO	O	Y	S F T VI J	C C C C J	5.3.1	60	OST-703 EST-004

CHEMICAL AND VOLUME CONTROL SYSTEM

P&ID NO. 5379-685

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
209	3	2 of 3 (G-4)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
257	3	2 of 3 (G-5)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
266	3	2 of 3 (D-5)			X			4	CK	SA	O	Y	FF RF	Q C			FF Verified by Charging Flow OST-109
282	2	1 of 3 (F-4)	X					3	GL	M	O	Y	S J	C J	5.3.1		OST-703 EST-004
283-A	3	2 of 3 (D-7)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
283-B	3	2 of 3 (C-7)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
283-C	3	2 of 3 (B-7)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
292-A	2	1 of 3 (A-2)	X					3/4	GL	M	O	N	S J	C J	5.3.1		OST-703 EST-004
293-A	2	1 of 3 (C-3)	X					2	GL	M	O/CL	N	S J	C J	5.3.1		OST-703 EST-004
293-C	2	1 of 3 (B-3)	X					2	GL	M	O/CL	N	S J	C J	5.3.1		OST-703
295	2	1 of 3 (A-2)	X					3	GA	M	CL	N	S J	C J	5.3.1		OST-703 EST-004

CHEMICAL AND VOLUME CONTROL SYSTEM

P&ID NO. 5379-685

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
297-A	2	1 of 3 (B-8)	X					1	ND	M	O	N	S J	C J	5.3.1		OST-703 EST-004
297-B	2	1 of 3 (B-6)	X					1	ND	M	O	N	S J	C J	5.3.1		OST-703 EST-004
297-C	2	1 of 3 (B-5)	X					1	ND	M	O	N	S J	C J	5.3.1		OST-703 EST-004
309-A	2	1 of 3 (F-3)	X				X	2	GL	M	CL	N	J	J	5.3.1		EST-004
350	3	2 of 3 (B-3)		X				2	GA	MO	CL	Y	S T VI	M M M		60	OST-107
351	3	2 of 3 (B-3)			X			2	CK	SA	CL	Y	FF	C			GP-007
355	3	2 of 3 (D-3)			X			1	CK	SA	CL	Y	FF	Q			OST-102
357	3	2 of 3 (C-4)			X			4	CK	SA	CL	Y	FF	Q R	5.3.10		OST-701 (Partial Stroke) GP-009
381	2	1 of 3 (E-2)	X					3	GA	MO	O	N	S T VI J	C C C J	5.3.1	60	OST-703 EST-004
382	3	1 of 3 (E-3)			X			3	RV	SA	CL	Y	RV	X			EST-029

CHEMICAL AND VOLUME CONTROL SYSTEM

P&ID NO. 5379-685

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
397A	3	3 of 3 (B-5)			X			2	CK	SA	CL	N	FF	M			OST-108
397B	3	3 of 3 (B-5)			X			2	CK	SA	CL	N	FF	M			OST-108
FCV-113A	3	2 of 3 (C-3)		X				1	GL	AO	C	Y	S F T VI	M M M M		30	OST-107
LCV-115B	3	2 of 3 (C-5)		X				4	BF	AO	C	N	S F T VI	M M M M		30	OST-107
LCV-115C	3	2 of 3 (D-5)		X				4	GA	MO	O	Y	S T VI	C C C		30	OST-703
2080	3	2 of 3 (B-5)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
2081	3	2 of 3 (C-5)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
2082	3	2 of 3 (D-5)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029

CHEMICAL AND VOLUME CONTROL SYSTEM

P&ID NO. 5379-686

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
1118-A	3	1 of 2 (F-6)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
1118-B	3	1 of 2 (E-6)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
1118-C	3	1 of 2 (C-6)			X			2x3	RV	SA	CL	Y	RV	X			EST-029

LIQUID WASTE DISPOSAL SYSTEM

P&ID NO. 5379-920

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
1713	2	3 of 6 (E-6)	X				X	1	CK	SA	CL	Y	J	J	5.3.1		EST-061
1721	2	3 of 6 (C-6)	X					3	DA	AO	O	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
1722	2	3 of 6 (C-7)	X					3	DA	AO	O	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
1723	2	3 of 6 (B-7)	X					2	DA	AO	O	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
1728	2	3 of 6 (B-7)	X					2	DA	AO	O	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
1786	2	3 of 6 (F-6)	X					1	DA	AO	O	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004

LIQUID WASTE DISPOSAL SYSTEM

P&ID NO. 5379-920

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
1787	2	3 of 6 (D-7)	X					1	DA	AO	O	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
1789	2	3 of 6 (D-7)	X					3/4	DA	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
1793	2	3 of 6 (E-6)	X				X	1	DA	M	CL	Y	S J	Q J	5.3.1		OST-701 EST-061
1794	2	3 of 6 (D-6)	X					3/4	DA	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	EST-004
1966	2	3 of 6 (E-6)	X				X	3/4	GL	M	CL	Y	J	J	5.3.1		EST-061

GASEOUS WASTE DISPOSAL SYSTEM

P&ID NO. 5379-921

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
1621	3	2 of 2 (F-3)			X			1x2	RV	SA	CL	N	RV	X			EST-029
1622	3	2 of 2 (G-3)			X			1x2	RV	SA	CL	N	RV	X			EST-029
1623	3	2 of 2 (D-3)			X			1x2	RV	SA	CL	N	RV	X			EST-029
1624	3	2 of 2 (E-3)			X			1x2	RV	SA	CL	N	RV	X			EST-029

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
841-A	2	1 of 5 (E-3)		X				1	GL	AO	CL	N	S F T VI	Q Q Q Q		30	OST-152
841-B	2	1 of 5 (E-3)		X				1	GL	AO	CL	N	S F T VI	Q Q Q Q		30	OST-152
844-A	2	3 of 5 (C-2)		X				8	G	MO	O	N	S T VI	Q Q Q		60	OST-353
844-B	2	3 of 5 (E-2)		X				8	G	MO	O	N	S T VI	Q Q Q		60	OST-353
845-A	3	3 of 5 (F-6)		X				2	GL	MO	CL	N	S T VI	C C C		60	OST-157
845-B	3	3 of 5 (E-6)		X				2	GL	MO	CL	N	S T VI	C C C		60	OST-157
855	2	5 of 5 (F-3)	X					1	GL	AO	CL	N	S F T VI J	Q Q Q Q J	5.3.1	60	OST-152 EST-059

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
857-A	2	1 of 5 (F-7)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
857-B	2	1 of 5 (C-8)			X			3/4 x 1	RV	SA	CL	Y	RV	X			EST-029
858-A	2	5 of 5 (G-5)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
858-B	2	5 of 5 (E-5)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
858-C	2	5 of 5 (C-5)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
859	2	4 of 5 (F-8)			X			3/4 x 1	RV	SA	CL	N	RV	X			EST-029
860-A	2	5 of 5 (C-2)		X				14	GA	MO	CL	Y	S T VI	Q Q Q		120	OST-252
860-B	2	5 of 5 (B-2)		X				14	GA	MO	CL	Y	S T VI	Q Q Q		120	OST-252
861-A	2	5 of 5 (C-2)		X				14	GA	MO	CL	Y	S T VI	Q Q Q		120	OST-252

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
861-B	2	5 of 5 (B-2)		X				14	GA	MO	CL	Y	S T VI	Q Q Q		120	OST-252
862-A	2	2 of 5 (C-4)		X				14	GA	MO	O	Y	S T VI	C C C		120	OST-703
862-B	2	2 of 5 (C-3)		X				14	GA	MO	O	Y	S T VI	C C C		120	OST-703
863-A	2	2 of 5 (C-3)		X				8	GA	MO	CL	Y	S T VI	C C C		120	OST-703
863-B	2	2 of 5 (C-3)		X				8	GA	MO	CL	Y	S T VI	C C C		120	OST-703
864-A	2	2 of 5 (E-4)		X				16	GA	MO	O	N	S T VI	C C C		120	OST-157
864-B	2	2 of 5 (E-4)		X				16	GA	MO	O	N	S T VI	C C C		120	OST-157
865-A	2	4 of 5 (F-2)		X				10	GA	MO	O	Y	S T VI	C C C		10	OST-161

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
865-B	2	4 of 5 (D-2)		X				10	GA	MO	O	Y	S T VI	C C C		10	OST-161
865-C	2	4 of 5 (C-2)		X				10	GA	MO	O	Y	S T VI	C C C		10	OST-161
866-A	1	4 of 5 (D-7)		X				2	GL	MO	CL	Y	S T VI	C C C		60	OST-703
866-B	1	4 of 5 (D-7)		X				2	GL	MO	CL	Y	S T VI	C C C		60	OST-703
867-A	2	1 of 5 (D-3)		X				4	GA	MO	CL	Y	S T VI	Q Q Q		10	OST-151 (Stroke Monthly) OST-152
867-B	2	1 of 5 (C-3)		X				4	GA	MO	CL	Y	S T VI	Q Q Q		10	OST-151 (Stroke Monthly) OST-152
869	2	1 of 5 (F-8)	X					3	GA	MO	O	N	S T VI J	Q Q Q J	5.3.1	60	OST-152 EST-004

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
870-A	2	1 of 5 (D-8)	X					3	GA	MO	CL	N	S T VI J	Q Q Q J	 5.3.1	10	OST-151 (Stroke Monthly) OST-152 EST-004
870-B	2	1 of 5 (D-7)	X					3	GA	MO	CL	N	S T VI J	Q Q Q J	 5.3.1	10	OST-151 (Stroke Monthly) OST-152 EST-004
871	2	3 of 5 (E-2)			X			3/4 x 1	RV	SA	CL	N	RV	X			EST-029
872	3	3 of 5 (G-6)			X			3/4 x 1	RV	SA	CL	N	RV	X			EST-029
873-A	2	4 of 5 (C-6)			X			2	CK	SA	CL	Y	FF	R	5.3.4		OST-154
873-B	2	4 of 5 (C-6)			X			2	CK	SA	CL	Y	FF	R	5.3.4		OST-154
873-C	2	4 of 5 (C-5)			X			2	CK	SA	CL	Y	FF	R	5.3.4		OST-154
873-D	1	4 of 5 (B-6)			X			2	CK	SA	CL	Y	FF	R	5.3.4		OST-154
873-E	1	4 of 5 (C-5)			X			2	CK	SA	CL	Y	FF	R	5.3.4		OST-154

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
873-F	1	4 of 5 (C-5)			X			2	CK	SA	CL	Y	FF	R	5.3.4		OST-154
874-A	1	4 of 5 (C-7)			X			2	CK	SA	CL	Y	FF	R	5.3.4		OST-154
874-B	1	4 of 5 (C-7)			X			2	CK	SA	CL	Y	FF	R	5.3.4		OST-154
875-A	1	4 of 5 (B-6)			X			10	CK	SA	CL	Y	FF	C			OST-703 Full Stroke OST-161 Partial Stroke
875-B	1	4 of 5 (B-7)			X			10	CK	SA	CL	Y	FF	C			OST-703 Full Stroke OST-161 Partial Stroke
875-C	1	4 of 5 (A-7)			X			10	CK	SA	CL	Y	FF	C			OST-703 Full Stroke OST-161 Partial Stroke
875-D	1	4 of 5 (F-3)			X			10	CK	SA	CL	Y	FF	C	5.3.3		OST-161 Partial Stroke
875-E	1	4 of 5 (D-3)			X			10	CK	SA	CL	Y	FF	C	5.3.3		OST-161 Partial Stroke
875-F	1	4 of 5 (C-3)			X			10	CK	SA	CL	Y	FF	C	5.3.3		OST-161 Partial Stroke
876-A	1	4 of 5 (F-3)			X			8	CK	SA	CL	Y	FF	C			OST-703
876-B	1	4 of 5 (D-4)			X			8	CK	SA	CL	Y	FF	C			OST-703

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
876-C	1	4 of 5 (C-3)			X			8	CK	SA	CL	Y	FF	C			OST-703
878-A	2	2 of 5 (D-7)		X				4	GA	MO	O	N	S T VI	C C C		120	OST-703
878-B	2	2 of 5 (F-7)		X				4	GA	MO	O	N	S T VI	C C C		120	OST-703
879-A	2	2 of 5 (D-7)			X			3	CK	SA	CL	N	FF	R	5.3.7		Refueling - OST-154 (Partial Stroke Monthly - OST-151)
879-B	2	2 of 5 (E-7)			X			3	CK	SA	CL	N	FF	R	5.3.7		Refueling - OST-154 (Partial Stroke Monthly - OST-151)
879-C	2	2 of 5 (F-7)			X			3	CK	SA	CL	N	FF	R	5.3.7		Refueling - OST-154 (Partial Stroke Monthly - OST-151)
880-A	2	3 of 5 (C-5)		X				6	GA	MO	CL	N	S T VI	Q Q Q		60	OST-353
880-B	2	3 of 5 (C-5)		X				6	GA	MO	CL	N	S T VI	Q Q Q		60	OST-353
880-C	2	3 of 5 (E-5)		X				6	GA	MO	CL	N	S T VI	Q Q Q		60	OST-353

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
880-D	2	3 of 5 (E-5)		X				6	GA	MO	CL	N	S T VI	Q Q Q		60	OST-353
883-L	2	1 of 5 (C-6)	X				X	1	GL	M	LC	N	J	J	5.3.1		EST-004
883-W	2	1 of 5 (C-5)	X				X	1	GL	M	CL	N	J	J	5.3.1		EST-004
889-A	2	3 of 5 (D-3)			X			2	CK	SA	CL	N	FF	M			OST-352
889-B	2	3 of 5 (D-3)			X			2	CK	SA	CL	N	FF	M			OST-352
890-A	2	3 of 5 (C-5)			X			6	CK	SA	CL	N	FF	C R	5.3.8		OST-703 Partial Stroke EST-058
890-B	2	3 of 5 (E-6)			X			6	CK	SA	CL	N	FF	C R	5.3.8		OST-703 Partial Stroke EST-058
891-A	2	3 of 5 (C-8)	X					6	GA	M	LO	N	S J	Q J	5.3.1		OST-353 EST-004
891-B	2	3 of 5 (E-8)	X					6	GA	M	LO	N	S J	Q J	5.3.1		OST-353 EST-004
894	2	1 of 5 (C-4)			X			1	CK	SA	CL	Y	RF FF	M M			OST-108

SAFETY INJECTION SYSTEM

P&ID NO. 5379-1082

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
895-V	2	1 of 5 (G-7)	X				X	3/4	GL	M	LC	N	J	J	5.3.1		EST-004
898-F	2	1 of 5 (G-7)	X				X	3/4	GL	M	LC	N	J	J	5.3.1		EST-004
899-D	3	3 of 5 (G-7)			X			3/4	VB	SA	CL	N	S	R	5.3.11		EST-068
899-E	3	3 of 5 (G-7)			X			3/4	VB	SA	CL	N	S	R	5.3.11		EST-068

RESIDUAL HEAT REMOVAL SYSTEM

P&ID NO. 5379-1484

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
706	2	1 of 1 (B-8)			X			2x3	RV	SA	CL	Y	RV	X			EST-029
744-A	2	1 of 1 (B-8)		X				10	GA	MO	CL	Y	S T VI	Q Q Q		15	OST-252
744-B	2	1 of 1 (B-7)		X				10	GA	MO	CL	Y	S T VI	Q Q Q		15	OST-252
750	1	1 of 1 (B-2)		X				14	GA	MO	CL	Y	S T VI	C C C		300	OST-703
751	1	1 of 1 (B-2)		X				14	GA	MO	CL	Y	S T VI	C C C		300	OST-703
753-A	2	1 of 1 (D-5)			X			10	CK	SA	CL	Y	FF	C			Full Stroke Cold Shutdown GP-007 Partial Stroke Monthly OST-251
753-B	2	1 of 1 (F-5)			X			10	CK	SA	CL	Y	FF	C			Full Stroke Cold Shutdown GP-007 Partial Stroke Monthly OST-251

RESIDUAL HEAT REMOVAL SYSTEM

P&ID NO. 5379-1484

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
759A	2	1 of 1 (D-7)		X				10	GA	MO	O	Y	S T VI	Q Q Q		120	OST-252
759B	2	1 of 1 (F-7)		X				10	GA	MO	O	Y	S T VI	Q Q Q		120	OST-252

REACTOR COOLANT SYSTEM

P&ID NO. 5379-1971

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
516	2	2 of 2 (G-8)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
519-A	2	2 of 2 (F-8)	X					3	DA	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
519-B	2	2 of 2 (F-8)	X					3	DA	AO	CL	Y	S F T VI J	Q Q Q Q J	5.3.1	60	OST-701 EST-004
535	1	2 of 2 (F-2)		X				3	GA	MO	O	Y	S T VI	Q Q C		60	OST-701 (S, T) OST-703 (VI)
536	1	2 of 2 (F-2)		X				3	GA	MO	O	Y	S T VI	Q Q C		60	OST-701 (S, T) OST-703 (VI)
550	2	2 of 2 (F-7)	X					3/4	DA	AO	O	Y	S F T VI J	Q Q Q Q J	5.3.1	120	OST-701 EST-060

REACTOR COOLANT SYSTEM

P&ID NO. 5379-1971

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
551-A	1	2 of 2 (G-4)			X			4x6	RV	SA	CL	Y	RV	R			EST-027
551-B	1	2 of 2 (G-3)			X			4x6	RV	SA	CL	Y	RV	R			EST-027
551-C	1	2 of 2 (G-3)			X			4x6	RV	SA	CL	Y	RV	R			EST-027
553	2	2 of 2 (G-8)	X					3/8	GL	AO	CL	Y	S F T VI J	Q Q Q Q J	 5.3.1	60	OST-701 EST-004
567	1	1 of 2 (D-3)		X				1	GL	SO	CL	Y	F T VI	C C C		5 CLOSE	OST-703
568	1	1 of 2 (D-3)		X				1	GL	SO	CL	Y	F T VI	C C C		5 CLOSE	OST-703
569	1	1 of 2 (C-3)		X				1	GL	SO	CL	Y	F T VI	C C C		5 CLOSE	OST-703

REACTOR COOLANT SYSTEM

P&ID NO. 5379-1971

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
570	1	1 of 2 (C-3)		X				1	GL	SO	CL	Y	F T VI	C C C		5 CLOSE	OST-703
571	1	1 of 2 (D-2)		X				1	GL	SO	CL	Y	F T VI	C C C		5 CLOSE	OST-703
572	1	1 of 2 (D-1)		X				1	GL	SO	CL	Y	F T VI	C C C		5 CLOSE	OST-703
582 (DWC-1)	2	2 of 2 (E-1)	X				X	3/8	GA	M	CL	Y	J	J	5.3.1		
584 (DWC-2)	2	2 of 2 (E-1)	X				X	3/8	GA	M	CL	Y	J	J	5.3.1		
PCV-455C	1	2 of 2 (F-2)		X				3	GL	AO	CL	Y	S F T VI	C C C C		2	OST-703
PCV-456	1	2 of 2 (F-2)		X				3	GL	AO	CL	Y	S F T VI	C C C C		2	OST-703

CONTAINMENT VAPOR AND PRESSURE SAMPLING SYSTEM

P&ID NO. HBR2-6490

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
PAS-1	2	1 of 1 (C-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		EST-046
PAS-2	2	1 of 1 (B-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		EST-046
PAS-3	2	1 of 1 (D-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		EST-046
PAS-4	2	1 of 1 (C-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		EST-046
PAS-5	2	1 of 1 (E-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		EST-046
PAS-6	2	1 of 1 (D-6)	X				X	3/8	GL	M	CL	N	J	J	5.3.1		EST-046
VCT-13	2	1 of 1 (G-8)	X				X	2	GL	M	CL	N	J	J	5.3.1		EST-009

POST ACCIDENT CONTAINMENT VENTING SYSTEM

P&ID NO. HBR2-6933

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
PCV-1716	2	1 of 1 (C-7)	X					2	GL	AO	O	N	S F VI T J	C C C C J	5.3.1	60	OST-703 EST-062
SA-43	2	1 of 1 (A-7)	X				X	2	DA	M	LC	N	J	J	5.3.1		
SA-44	2	1 of 1 (A-7)	X				X	2	DA	M	LC	N	J	J	5.3.1		
V8-5	2	1 of 1 (C-7)	X		X			2	CK	SA	O/CL	N	J	J	5.3.1, 5.1.9		EST-062
V12-14	2	1 of 1 (F-8)	X					3	DA	AO	CL	N	S F T VI J	C C C C J	5.3.1	60	OST-703
V12-15	2	1 of 1 (G-6)	X					3	DA	AO	CL	N	S F T VI J	C C C C J	5.3.1	60	OST-703

POST ACCIDENT CONTAINMENT VENTING SYSTEM

P&ID NO. HBR2-6933

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
V12-18	2	1 of 1 (E-8)	X					3	DA	AO	CL	Y	S F T VI J	C C C C J	5.3.1	60	OST-703
V12-19	2	1 of 1 (E-7)	X					3	DA	AO	CL	N	S F T VI J	C C C C J	5.3.1	60	OST-703

FIRE PROTECTION SYSTEM

P&ID NO. HBR2-8255

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY A	B	C	D	PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
FP-248	2	2 of 5 (E-7)	X					4	GA	MO	O	Y	S T VI J	Q Q Q J	5.3.1	60	OST-701 EST-063
FP-249	2	2 of 5 (E-7)	X					4	GA	MO	O	Y	S T VI J	Q Q Q J	5.3.1	60	OST-701 EST-063
FP-256	2	2 of 5 (F-7)	X					4	GA	MO	O	Y	S T VI J	Q Q Q J	5.3.1	60	OST-701 EST-063
FP-258	2	2 of 5 (F-7)	X					4	GA	MO	O	Y	S T VI J	Q Q Q J	5.3.1	60	OST-701 EST-063

FUEL TRANSFER TUBE

P&ID NO. SK-2

VALVE NUMBER	CLASS	SH. NO. COORD.	VALVE CATEGORY				PASS	SIZE (IN)	VLV TYPE	ACT TYPE	NORM POS	HI RAD AREA	TEST METH	TEST FREQ	REL REQ	MAX STROKE TIME (SEC)	REMARKS
			A	B	C	D											
FP GATE	2	--	X				X		GA	M	CL	Y	J	J	5.3.1		

ADDITIONAL INFORMATION

SYSTEM	VALVE	DESCRIPTION	REMARKS
CVCS	LCV-115C	VCT to Charging Pumps Isolation	Testing of this valve during normal operation would disrupt suction to the Charging Pumps with potential loss of pumps and all RCP seal flow.
CVCS	351	Emergency Boration Flow Path to RCS	This valve is in a flow path used to inject boric acid from the BAST directly to the RCS via the Charging Pumps. Cycling during normal operation would result in over-boration.
CVCS	202A & 282	Charging Line to RCS Manual Isolation	Cycling these valves during normal operation would disrupt charging flow to the RCS. Use of the bypass valve, 309A, as a flow path while cycling 202A and 282, will bypass HCV-121 and effect RCP seal water flow, and this is undesirable.
CVCS	204A & 204B	RCS Letdown Flow Isolation	Testing during normal operation causes loss of letdown flow. Should this occur coincident with normal charging flow and one of these valves fail to reopen, a high RCS level trip would result.
CVCS	297A, B, C 292A, 293A, 293C, 295	RCP Seal Water Injection Isolation	Cycling of these valves during normal operation would disrupt seal flow to the RCP's.
CVCS	381	RCP Seal Water Return Line Isolation	Testing during normal operation would result in disruption of seal flow and raise the potential for seal damage.
CVCS	266	VCT to Charging Pumps Check Valve	Verifying closure of check valve 266 during power operation would result in loss of charging flow and RCP Seal flow causing damage to the RCP Seals.
CVCS	357	RWST to Charging Pumps Check Valve	See Relief Request 5.3.10.

ADDITIONAL INFORMATION

SYSTEM	VALVE	DESCRIPTION	REMARKS
Auxiliary Feedwater	AFW-2	Condensate Storage Tank to AFW Pump Suction Check Valve	This valve is partially stroked quarterly due to the running of AFW Pumps on miniflow recirculation. Design flow is passed through the valve at cold shutdown intervals when the AFW Pumps feed the Steam Generators pursuant to OP-402. The AFW pumps are not used to feed the Steam Generators during normal operation due to the potential for thermal shocking the Feedwater Nozzles and the Feed Rings.
Auxiliary Feedwater	AFW-84 (AFW-19)	Steam Driven AFW Pump Discharge Check Valve	Same as for AFW-2.
Auxiliary Feedwater	AFW-40, 41	Motor Driven AFW Pumps Discharge Check Valves	Same as for AFW-2.
Auxiliary Feedwater	AFW-68, 69 70	Auxiliary Feedwater to Main Feedwater Check Valves	These valves are not cycled at power due to the practice of not feeding Steam Generators via the AFW System during normal operation. The AFW Pumps are not used in this situation due to the potential for thermal shocking the Feedwater Nozzles and the Feed Rings.
RHR	750 & 751	RCS to RHR System Isolation	These valves cannot be opened unless valves 862A & B are closed (interlocked circuitry). Valves 862A & B are opened with A.C. control power removed when RCS pressure is above 1,000 psig (Tech. Spec. 3.3.1.1.h).
RHR	753A, B	RHR Pump Discharge Check Valves	With the plant at power, no flow path for the RHR System exists other than miniflow recirculation line. The flow path will not introduce design flow through 753A and B. These valves pass design flow during cold shutdown while the RHR System is providing core cooling.

ADDITIONAL INFORMATION

SYSTEM	VALVE	DESCRIPTION	REMARKS
Auxiliary Coolant (CCW)	FCV-626 & 735	CCW from RCP Thermal Barrier Isolation Valve	Testing during normal operation would result in loss of cooling water flow to the thermal barrier of the RCP's.
Auxiliary Coolant (CCW)	716A & 716B	Inlet Isolation for CCW Flow to the RCP's	Testing during normal operation would isolate all CCW to all RCP's.
Auxiliary Coolant (CCW)	730	Outlet Isolation for CCW Flow to RCP Upper and Lower Lube Oil Coolers	Testing during normal operation would result in disruption of flow to the lube oil coolers.
Reactor Coolant	PCV-455C & PCV-456	Pressurizer Power Operated Relief Valves	These valves are not taken credit for in any accident analyses. Their design function is for system control. These valves are in the ISI program to provide "information only" testing to ensure operability.
Reactor Coolant	535 & 536	Block Valves for Pressurizer Power Operated Relief Valves	These valves are not taken credit for in any accident analyses. These are maintenance valves with non-Q operators. These valves are in the ISI program due to earlier commitments made in response to IE Inspection Report 82-27.
Main Steam	V1-3A, B, C (Isolation)	Main Steam Isolation Valves	Cycling these valves during normal operation is not possible due to the resulting loss of steam flow and subsequent Reactor Trip. A partial stroke of these valves during normal operation is not possible since these are stop-check valves and a downward movement of the disk would tend to close the valve. The valve operators are tested weekly to ensure binding does not exist.

ADDITIONAL INFORMATION

SYSTEM	VALVE	DESCRIPTION	REMARKS
Main Steam	V1-3A, B, C (Check)	Main Steam Check Valves	See Relief Request 5.3.2
Feedwater	FCV-479, 489, 499	Main Feedwater Regulating Valve Bypass Valve	Cycling these valves during normal operation could result in a steam flow/feed flow mismatch and subsequent plant trip.
Feedwater	V2-6A, 6B, 6C	Main Feedwater Regulating Valve Block Valve	Same as for FCV-479, 489, and 499.
Post Accident Containment Vent	PCV-1716	Instrument Air to Containment Isolation	This valve closes only on a Phase "A" Containment Isolation Signal and can be opened only when the signal is overridden. Also, cycling this valve during normal operation would isolate air to certain valves in containment and would result in a potential plant trip.
Post Accident Containment Vent	V8-5	Instrument Air to Containment Check Valve	See Relief Request 5.3.9.
Safety Injection	890A, B	Containment Spray Pumps Discharge Check Valves	See Relief Request 5.3.8.
Safety Injection	875A, B, C	Accumulator Discharge Check Valves	These valves cannot be cycled during normal operation due to the pressure differential that exists across the valves with either the SI or RHR Pumps running. These valves are cycled during cold shutdown when the RHR System is providing core cooling.
Safety Injection	875D, E, F	Accumulator Discharge Check Valves	See Relief Request 5.3.3.

ADDITIONAL INFORMATION

SYSTEM	VALVE	DESCRIPTION	REMARKS
Safety Injection	845A, B	Spray Additive Tank to Containment Spray Pump Isolation	Cycling these valves during normal operation would require closing valves 892A, 892C, or 845C to preclude level reduction in the Spray Additive Tank. Failure of 892A, 892C, or 845C in the closed position would isolate the sodium hydroxide addition flow path. This fact, coupled with the single failure proof design of the valves 845A and 845B, justifies a cold shutdown testing interval. Also per Tech. Spec. 4.5.2.4, valves 844A and 844B must be closed before 845A and 845B are cycled. Closing valves 844A and 844B would render the containment spray system inoperable and can only be done at cold shutdown conditions.
Safety Injection	864A, B	RWST Discharge Isolation	Per Tech. Spec. 3.3.1.1.h, during conditions of operation with reactor coolant pressure in excess of 1,000 psig, the A.C. control power shall be removed from these valves with the valves in the open position. Cycling of these valves during normal operation would violate Tech. Spec.
Safety Injection	862A, B	RWST to RHR Pumps Isolation	Same as for 864A, B.
Safety Injection	865A, B, C	Accumulator Discharge Isolation	Same as for 864A, B.
Safety Injection	878A, B	SI Pump Discharge Header Cross Connect	Same as for 864A, B.
Safety Injection	873A, B, C D, E, F	High Head SI to RCS Cold Legs Check Valves	See Relief Request 5.3.4.
Safety Injection	874A, B	High Head SI to RCS Hot Legs Check Valves	See Relief Request 5.3.4.

ADDITIONAL INFORMATION

SYSTEM	VALVE	DESCRIPTION	REMARKS
Safety Injection	863A, B	RHR Pumps Discharge to SI Pumps Suction Isolation	Per Tech. Spec. 3.3.1.1.h, during conditions of operation with reactor coolant pressure in excess of 1,000 psig, the A.C. control power shall be removed from these valves with the valves in the closed position. Cycling of these valves during normal operation would violate Tech. Spec.
Safety Injection	866A, B	High Head SI to RCS Hot Legs Isolation	Same as for 863A, B.
Safety Injection	879A, B, C	SI Pumps Discharge Check Valves	See Relief Request 5.3.7.
Safety Injection	876A, B, C	RHR Pump Discharge to RCS Loop Cold Leg Check valves	These valves cannot be full stroke exercised during normal operation due to the difference in the pressure between the RCS (2235 psig) and the discharge head of the RHR Pumps (160 psig).
Safety Injection	870C, D	Spray Additive Tank Vacuum Breakers	See Relief Request 5.3.11.
Penetration Pressurization	EV-1721B, (EV-H2A), EV-1743 (EV-H2B) EV-1727, & EV-1728	Penetration Pressurization Air Supply and Bleed Off Valves For V12-10 & V12-11, V12-18 &V12-19, RMS-1 & RMS-2, and RMS-3 & RMS-4 Innerspaces, respectively	These valves are normally de-energized, i.e., in the failed position, during normal operation with air being supplied to the penetration innerspace. Therefore, a failure mode test does not apply to these valves. A full stroke open timing test does not apply to these valves since they are enclosed and stem travel cannot be visually verified. Remote indication for valve position does not exist. The primary safety consideration is the operation of the valves listed in the description.

ADDITIONAL INFORMATION

SYSTEM	VALVE	DESCRIPTION	REMARKS
Isolation Valve Seal Water (IVSW)	Check valves on each branch line off four main headers	Containment Isolation Valves Seal Water Source Check Valves	The Isolation Valve Seal Water System is not taken credit for in the FSAR as reducing any calculated offsite dose. Containment integrity is verified during an ILRT with this system depressurized. Therefore, failure of this system to function would not result in any unreviewed safety question. The testing at refueling intervals pursuant to Technical Specification 4.4.2.c is adequate to assess proper system operation.
Post Accident Containment Vent	V12-14, V12-15, V12-18, & V12-19	Containment Vent Valves	At conditions above cold shutdown, these valves are required to be closed per Tech. Spec. 1.7.a to maintain containment integrity. Therefore, quarterly valve testing would violate Technical Specifications. These valves will be exercised during cold shutdowns.
Service Water	SW-544	Redundant Auxiliary Feedwater Pump Suction Source Check Valve	See Relief Request 5.3.5.
Service Water	SW-542, SW-543	Service Water to Auxiliary Feedwater Pump Check Valves	See Relief Request 5.3.6.
Emergency Diesel Generator	FO-27A & B FO-29A & B DA-19A & B DA-23A & B	Fuel Oil Day Tank Isolation Valves; Diesel Air Start Solenoid Valves	See Relief Request 5.3.12.