Docket No. 50-213
B13041

Attachment 2

Haddam Neck Plant

Third Ten-Year Interval IST Program
Revision 1

October 1988

ABSTRACT

The Third 10-Year Interval In-Service Testing Program for the Haddam Neck Plant was developed in accordance with Subsections IWA, IWP, and IWV of the ASME Boiler and Pressure Vessel Code, Section XI, 1983 Edition, including Addenda through Summer 1983 except where specific relief is requested in accordance with 10CFR 50.55(a)(g)(5)(iii). Also, portions of ANSI/ASME OM-10 have been applied in developing this program.

THIRD INTERVAL IN-SERVICE TESTING PROGRAM
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1.0 Introduction

The following subsections provide a listing of the In-Service Testing of Class 1, 2, and 3 pumps and valves at the Haddam Neck Plant. Also included is the Augmented In-Service Test Program (Diesel Generator Systems).

1.1 Operational Readiness Testing for Pumps

There are fourteen (14) pumps at the Haddam Neck Plant that are required to perform a specific function in shutting down the reactor or to mitigate the consequences of an accident and that are provided with an emergency power source. These pumps are tested on a quarterly basis with parameters measured as required by ASME, Section XI, Article IWP. Relief has been requested in cases where system design or lack of instrumentation prohibits CYAPCO from complying literally with the code.

Table IWP-1, Haddam Neck In-Service Pump Test Program, identifies the pumps to be tested, parameters to be measured, and notes for alternate testing where relief was required.

1.2 Operational Readiness Testing for Valves

Tables IWV-1, IWV-2, IWV-3, IWV-4, and IWV-5 include all valves in Haddam Neck which are required to be identified under Subsection IWV of ASME Section XI, as further defined in NRC staff guidelines and in meetings with NRC staff reviewers, CYAPCO, and Northeast Utilities personnel.

Most of the valves are presently under surveillance testing requirements of plant Technical Specifications or administratively controlled by plant procedures. In some cases, the specific requirements of IWV cannot be met due to plant design, operational requirements, or infringement on safety margins. These situations are noted and pertinent relief requests and alternate test schemes are presented.

Valves which cannot be tested while the reactor is at power are tested during cold shutdowns. CYAPCO has established a program to commence testing these valves within 48 hours of achieving cold shutdown conditions and to continue as time permits on subsequent shutdowns without repeating valve tests until the entire list has been completed.

Safety/relief valve set points are tested in accordance with ASME PTC25.3 - 1976 and are identified in the program.

Locked valves are also identified. These valves are considered "passive" and, as such, are not exercised or tested.

All exercising and testing procedures required by Article IWV, including schedules and the limiting values of observed parameters, shall be defined and performed by CYAPCO.

1.3 Augmented In-Service Testing Program

The attached Tables IWP-DG and IWV-DG include all Emergency Diesel Generator Auxiliary System Pumps and valves in the Haddam Neck Plant whose function is safety-related and are subjected to the periodic tests required by ASME code, Section XI, 1983 Edition, with Addenda through the Summer of 1983 to the extent possible.

In some cases the specific requirements of IWP and IWV cannot be met due to plant design, operational requirements, or infringement on safety margins. These situations are noted as required and pertinent Relief Requests are presented.

Boundary diagrams of the Fuel Oil, Fresh Water, and Lube Oil Systems were developed and are provided as attachments. Other references include P&ID 16103-26060, Sheet 2 of 2, "DG Compressed Air System" and P&ID 16103-26020, Sheet 1 of 2, "DG Fuel Oil Supply."

2.0 Pump and Valve Program Development

2.1 Valve Program

2.1.1 Scope

This program establishes the requirements for in-service testing of certain safety related valves and pressure relief devices (and their actuating and position indication systems) at the Haddam Neck Plant. The active or passive valves included in the testing program are those which are required to perform a specific function in shutting down the reactor to the cold shutdown condition, maintaining the cold shutdown condition, or in mitigating the consequences of an accident.

The pressure relief devices included are those for protecting systems or portions of systems which perform a required function in shutting down the reactor to the cold shutdown condition, maintaining the cold shutdown condition, or in mitigating the consequences of an accident.

Valves that are passive and valves that are not required to perform a specific function in shutting down the reactor or in mitigating the consequences of an accident such as those used only for operating convenience, vents, drains, instrument test, and pressure regulating valves have been included in this document but are excluded from the requirements of this testing program.

2.1.2 Definitions

a. Active Valves - Valves which are required to change obturator position to accomplish their required function.

b. Exercising - The demonstration based on direct visual or indirect positive indications that the moving parts of a valve function.

c. Full-Stroke Time - The time interval from initiation of the actuating signal to the indication of the end of the operating stroke.

d. Plant Operation - The conditions of startup, operation at power, hot standby, and reactor cooldown, as defined by the Unit Technical Specifications.

e. Obturator - Valve closure member (disk, gate, plug, ball, butterfly, etc.).

f. Passive Valve - Valves which maintain obturator position and are not required to change obturator position to accomplish the required function as defined in the scope of this program.

g. Degraded Valve - A deviation between the reference value and the most recent test results.

h. Reactor Coolant Pressure Isolation - That function which prevents intersystem overpressurization between the reactor coolant system and connected low pressure systems.

i. Reference Values - A single or range of values measured or determined when the equipment is known to be operating acceptably.

j. Operational Readiness - The ability of a valve to perform its intended function.

2.1.3 Categories of Valves

a. Category A - Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function.

b. Category B - Valves for which seat leakage in the closed position is inconsequential for fulfillment of their required function.

c. Category C - Valves which are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of their required function.

2.1.4 Category A and B Valve Test Requirements

a. In-service testing shall be performed in accordance with this program when the valves are required to be operable to fulfill their required function.

b. Exceeding the safety and/or Technical Specification limiting stroke time values immediately identifies the valve as inoperable and corrective action shall be initiated immediately. When corrective action is required as a result of tests made during cold shutdown, the condition shall be corrected before startup.

c. Exceeding the reference values immediately identifies the valve as degraded.

c.1 Reference values (valve stroke times) shall be determined from the results of preservice testing or the results of in-service testing under conditions as near as practicable to those expected during subsequent tests.

c.2 When a valve is identified as degraded, the valve shall be retested immediately. If retested and the second set of data also exceeds the acceptance criteria (degraded), the data shall be analyzed within 96 hours to verify the new stroke time represents acceptable valve operation, or the valve shall be declared inoperable. If the second set of data meets the acceptance criteria, the cause of the initial deviation shall be analyzed and the results documented.

c.3 Reference values shall only be established when the valve is known to be operating acceptably. If the particular parameter being measured can be significantly influenced by other related conditions, then these conditions shall be analyzed.

c.4 When a valve or its control system has been replaced, repaired, or has undergone maintenance (e.g., adjustment of stem packing, limit switches, or removal of the bonnet, stem assembly, actuator, obturator, or control system components) that could

affect the valve's performance, a new reference value shall be determined or the previous value reconfirmed by an in-service test.

d. Valves declared inoperable may be repaired, replaced, or the data shall be analyzed and the results documented in the test records.

e. Valve exercising during cold shutdown shall commence within 48 hours of achieving cold shutdown and continue until all testing is complete or the plant is ready to return to power. It is not a requirement to keep the plant in cold shutdown in order to complete cold shutdown testing.

f. All valve testing required to be performed during a reactor refueling outage shall be completed prior to returning the plant to operation.

g. When practical valves with fail safe actuators shall be tested for proper actuation upon loss of power each time the valve is exercised to meet the requirements of this program.

h. Valves requiring leakage rate tests shall be performed at least once every two years.

2.1.5 Category A and B Valve Exercising Requirements

a. The necessary valve obturator movement shall be determined by exercising the valve while observing an appropriate indicator, such as indicating lights which signal the required change of obturator position, or by observing other evidence, such as stem movement, changes in system pressure, flow rate, level, or temperature, which reflect change of obturator position.

b. The limiting value(s) of full-stroke time for each power operated valve are specified in the IST Valve Tables and are also specified on each respective valve surveillance test procedure.

c. The stroke time for all power operated valves shall be measured to at least the nearest second.

d. Any abnormality or erratic action shall be recorded and an evaluation shall be made regarding need for corrective action.

e. Valves which operate in the course of plant operation at a frequency which would satisfy the exercising requirements of this program need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during operation and are recorded in the plant record at intervals no greater than allowed by the valve test frequencies.

f. Valves with fail-safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power in accordance with the frequencies and appropriate relief requests given in the IST Valve Tables.

g. For a valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed. Within three months prior to placing the system in an operable status, the valves shall be exercised and the test schedule followed in accordance with the IST Valve Table.

2.1.6 Category A and B Stroke Time Acceptance Criteria

a. Electric motor operated valves with reference stroke times greater than 10 seconds shall exhibit no more than a ±15 percent change in stroke time when compared to the reference value.

b. Electric motor operated valves with reference stroke times less than or equal to 10 seconds shall exhibit no more than a ±25 percent or ±1 second change in stroke time, whichever is greater when compared to the reference value.

c. Power operated valves other than electric motor driven valves with referenced stroke times greater than 10 seconds shall exhibit no more than a ±25 percent change in stroke time when compared to the reference value.

d. Power operated valves other than electric motor driven valves with reference stroke times less than or equal to 10 seconds shall exhibit no more than a ±50 percent change in stroke time when compared to the reference value.

e. The stroke time for valves that change position in less than two seconds shall be measured and recorded and shall be acceptable, provided that the measured stroke time is less than two seconds.

2.1.7 Valve Seat Leakage Rate Testing

Containment isolation valves that are Appendix J, Type C, leak tested are included in this IST Program and are categorized as A or A/C. The applicable leak test procedures and requirements for containment isolation valves are determined by 10 CFR 50, Appendix J. The maximum allowable leakage rates for Category A or A/C valves are specified in the Plant Technical Specifications. Valves exceeding the maximum leakage rate shall be repaired or replaced and retested.

Containment isolation valves listed in the 10 CFR 50 Appendix J Program that do not receive a Type C local leak rate test are also included in this IST Program and are categorized as A or A/C. Relief requests for exemption from leak testing these valves are not given in this IST Program but are given in the Haddam Neck Appendix J Program submittal under separate docket.

For valves six inches nominal pipe size and larger, if a leakage rate exceeds the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate by 50 percent or greater, the test frequency shall be doubled. The tests shall coincide with a cold shutdown until corrective action is taken, at which time the original test frequency shall be resumed. If tests show a leakage rate increasing with time, and a rejection based on three or more tests indicates that the leakage rate of the

next scheduled test will exceed the maximum permissible leakage rate by greater than 10 percent, the valve shall be replaced or repaired. (Ref: ASME Code Section XI, 1983 Edition including the Summer 1983 Addenda, Articles IWV-3426 and IWV-3427, Analysis of Leakage Rates and Corrective Action.)

Containment isolation valves which also provide a reactor coolant system pressure isolation function are specified in the IST Valve Tables.

Valves which perform a function other than containment isolation are specified in the IST Valve List Table.

2.1.8 Check Valve Test Requirements

Check valves which operate in the course of plant operation at a frequency which would satisfy the exercising requirements of this Program need not be additionally exercised provided that the observations otherwise required for testing are made and analyzed during such operation and are recorded in the plant records at intervals no greater than the test frequency as specified in this Valve Test Program.

Valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat on cessation or reversal of flow, or opens to the position required to fulfill its intended function.

Observation may be by observing a direct indicator such as changes in system pressure, flow rate, level, temperature, seat leakage testing, or other positive means.

An an alternative to the testing as given in the above, disassembly of check valves may be used to verify operability.

2.1.9 Check Valve Test Frequencies

Check valves shall be exercised or examined during plant operation in a manner which verifies obturator travel to the closed, full open, or partially open position required to fulfill its function nominally every three months.

If full-stroke exercising during plant operation is not practical, it may be limited to part stroke exercising during plant operation and full-stroke exercising during cold shutdowns.

If exercising is not practical during plant operation, it may be limited to full-stroke exercising during cold shutdowns.

If exercising is not practical during plant operation and full-stroke exercising is also not practical, it may be limited to part stroke exercising during cold shutdowns and full-stroke exercising during refueling outages.

If exercising is not practical during plant operation or cold shutdowns, it may be limited to full-stroke exercising during refueling outages.

Valves requiring exercising at cold shutdowns shall be exercised during each cold shutdown. Such exercising is not required if the time period since the previous full-stroke exercise is less than three months.

Valve exercising shall commence within 48 hours of achieving cold shutdown and continue until all testing is complete or the plant is ready to return to power. It is not a requrement to keep the plant in cold shutdown in order to complete all cold shutdown testing.

All check valve testing required to be performed during a refueling outage shall be completed prior to returning the plant to operation.

2.1.10 Check Valve Corrective Action

If a check valve fails to exhibit the required change of obturator position, it shall be declared inoperable. A retest showing acceptable performance shall be run following any required corrective action before the valve is returned to service.

2.2 Pump Program

2.2.1 Pump Selection Basis

a. The pumps selected for inclusion in the IST program include Class 1, 2, and 3 centrifugal and displacement type pumps that are required to

perform a specific function in the shutting down of the reactor or in mitigating the consequences of an accident and are provided with an emergency power source.

b. The following Code allowed exclusions apply to pump testing:

b.1 Drivers are excluded from the requirements of Subsection IWP, except where the pump and driver form an integral unit and the pump bearings are in the driver.

b.2 Class 1, 2, and 3 pumps that are supplied with emergency power solely for operating convenience are excluded.

c. All tests and examination procedures required by Subsection IWP, including schedules, reference values, the location and type of measurement for each of the required test quantities, records of results, and all corrective action taken shall be performed by Connecticut Yankee ISI Engineering.

2.2.2 Pump Testing Program

a. In-service tests shall be conducted with the pump operating at nominal motor speed. A series of reference values are determined for quantities listed below, as observed or measured when the equipment is known to be operating correctly.

In-Service Test Quantities

Speed N - (if Variable Speed)
Inlet Pressure, Pi
Discharge Pressure
Differential Pressure, P
Flow Rate, Q
Vibration Amplitude, V
Bearing Temperature,
Proper Lubricant Level or Pressure
Bearing Temperature Tb
Current (amps)

In an in-service test, these quantities are remeasured and compared with the reference values (except where relief has been granted) to determine if corrective action is needed. When

a reference value or set of values may have been affected by replacement, repair, or routine servicing of the pump, a new reference value will be established by an in-service test run within 96 hours after return of the pump to normal service.

CYAPCO will use Overall Vibration Velocity (in/sec RMS) and a Vibration Signature Analysis program as described in Section 2.2.2 e.1, to meet the requirement for Vibration Amplitude, V. The Vibration Signature Analysis program eliminates the requirement for measuring bearing temperatures due to the program's ability to detect bearing problems at a very early stage.

Overall vibration velocity (in/sec RMS) will be compared to the acceptance criteria in Table IWP-2 of Section 3.0.

b. Test Frequency

Each in-service test shall include the measurement and observation of applicable test quantities. An in-service test shall be run on each applicable pump, at a frequency and scope as stated in Table IWP-1. If practicable, this test frequency shall be maintained during plant shutdown. If the pump is not tested during plant shutdown, it shall be tested within one week after the plant is returned to normal operation, which includes plant startup.

Pumps that are operating need not be run or stopped for a special test, provided the plant log shows each such pump was operated at reference conditions and the quantities specified were measured, observed, recorded, and analyzed.

c. Analysis and Corrective Action

c.1 Analysis of test data shall be performed within 96 hours following completion of the test. The test quantities shall be compared to the allowable range of quantities.

c.2 Corrective action to be taken by CYAPCO in the event that measured test quantities fall outside the allowable range shall be as follows:

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

- o If the deviations fall within the Required Action Range, the pump shall be declared inoperable until the cause of the deviation is determined and the condition corrected.

- o Corrective action shall be either replacement or repair per paragraph IWP-3111 of Section XI, or shall be an analysis which demonstrates that the condition does not impair pump operability and that the pump will still fulfill its function. When such an analysis is used, a new set of reference values shall be established.

d. Records of In-Service Tests

d.1 The following information shall be maintained by CYAPCO to meet the requirements for in-service testing:

- o A record for each pump, including the name of the manufacturer, the model, and the serial or other identification number.

- o An in-service test plan including:

  - o The hydraulic circuit to be used.

  - o The location and type of measurement for each required test quantity.

  - o The test quantity reference values, the limits of Pi (Table IWP-3100-2), and any other required information.

- Test record giving pertinent information such as test date, instruments used, results, corrective action required, and signatures of persons conducting and analyzing the test.

- A record of corrective actions and subsequent in-service tests verifying operational adequacy.

All in-service test plans and records shall be maintained at the Connecticut Yankee plant and shall be accessible for audit.

e. Vibration Signature Analysis Program

e.1 General Procedure

Vibration data will be monitored at least quarterly using equipment which collects vibration velocity signatures.

In addition to the overall vibration levels, vibration signatures will be reviewed and evaluated by a knowledgeable person to identify potential bearing degradation or other developing faults. When potential faults are identified, an evaluation is performed to determine the action range that is applicable. Corrective action is initiated per Section 2.2.2 c.2, as required.

The measurement locations for obtaining vibration signature data are the same locations used for obtaining the overall vibration data.

The reference vibration signatures will be established in accordance with the requirements described in Section 2.2.2 a. The vibration velocity signatures are compared to the reference signatures at a frequency not to exceed quarterly.

SECTION 3.0

PUMP PROGRAM

TABLE IWP-1
HADDAM NECK IN-SERVICE PUMP TESTING PROGRAM

Pumps	Speed Control	Inlet Pressure	Differential Pressure	Flow	Lubrication	Bearing Temperature	Vibration	Test Frequency
Charging P-18-1A P-18-1B	Fixed	Relief Request (P1)	Relief Request (P1)	Relief Request (P1)	In compliance	In compliance	Relief Request (P8)	Quarterly
Residual Heat Removal P-14-1A P-14-1B	Fixed	Relief Request (P2)	In compliance	Relief Request (P2)	In compliance	Relief Request (P7)	Relief Request (P8)	Quarterly
Aux. Feedwater P-32-1A P-32-1B	Variable	In compliance	In compliance	Relief Request (P3)	In compliance	Relief Request (P7)	Relief Request (P8)	Quarterly
Low Pressure Safety Injection P-92-A P-92-B	Fixed	Relief Request (P4)	In compliance	Relief Request (P4)	In compliance	Relief Request (P7)	Relief Request (P8)	Quarterly
High Pressure Safety Injection P-15-1A P-15-1B	Fixed	In compliance	In compliance	Relief Request (P5)	In compliance	Relief Request (P7)	Relief Request (P8)	Quarterly
Service Water P-37-1A P-37-1B P-37-1C P-37-1D	Fixed	Relief Request (P6)	Relief Request (P6)	Relief Request (P6)	In compliance	Relief Request (P7)	Relief Request (P8)	Quarterly

PUMP TEST RELIEF REQUESTS

Relief Request #PI

System: Charging

Affected Pumps: Charging Pumps P-18-1A and P-18-1B

Test Requirement: Pump inlet pressure, differential pressure, and flow rate will be measured during scheduled tests.

Basis for Relief: Instrumentation for direct measurement of pump inlet pressures is not available. The static pressure and hydrogen head pressure of the volume control tank will be used as the inlet pressure reference. The piping from the volume control tank to the charging pump inlets is a fixed resistance system. System flow rate and differential pressure vary according to requirements of reactor coolant pump seals, makeup, letdown, volume control tank level, etc., which makes a test at a referenced flow or differential pressure difficult to achieve. There is no recirculation piping which could be used for such a test.

Alternate Testing: CYAPCO will measure all necessary parameters under normal operating conditions. These will be used to determine a point which will be plotted on the manufacturer's performance curve. The utilization of the manufacturer's performance curve with offsets showing "alert" and "required action" tolerances is considered a satisfactory technique for evaluating pump test data in this variable resistance system.

Relief Request #P2

System: Residual Heat Removal

Affected Pumps: RHR Pumps P-14-1A and P-14-1B

Test Requirement: - Measure flow rate and inlet pressure during scheduled tests.

Basis for Relief: The quarterly in-service test is conducted using a fixed flow resistance circuit; therefore, measurement of flow rate is not essential for performance of satisfactory tests. Instrumentation is not installed to measure inlet pressure to these pumps. An existing pump drain connection has been found not suitable for the inlet pressure gauge connection.

Alternate Testing: No flow measurement will be made. CYAPCO will determine and reference the RWST level to pump inlet static head to establish inlet pressure.

Relief Request #P3

System: Auxiliary Feedwater

Affected Pumps: AF Pumps P-32-1A and P-32-1B

Test Requirement: Measure flow rate during scheduled tests.

Basis for Relief: The quarterly in-service test is conducted using a fixed flow resistance circuit; therefore, measurement of flow rate is not essential for performance of satisfactory tests.

Alternate Testing: No flow measurement will be made. Pump flow capacity is verified by Technical Specification testing requirements each refueling.

Relief Request #P4

System: Low Pressure Safety Injection

Affected Pumps: LPSI Pumps P-15-1A and P-15-1B

Test Requirement: Measure inlet pressure and flow rate during scheduled tests.

Basis for Relief: The quarterly in-service test is conducted using a fixed flow resistance circuit; therefore, measurement of flow rate is not essential for performance of satisfactory tests. Instrumentation is not installed to measure inlet pressure. An existing pump casing drain has been found not suitable for the inlet pressure gauge connection.

Alternate Testing: No flow measurement will be made. CYAPCO will determine and reference the RWST level to pump inlet static head to establish inlet pressure. Pump flow will be verified by testing every 5 years.

Relief Request #P5

System: High Pressure Safety Injection

Affected Pumps:

Test Requirement: Measure flow rate during scheduled tests.

Basis for Relief: The quarterly in-service test is conducted using a fixed flow resistance circuit; therefore, measurement of flow rate is not essential for performance of satisfactory tests.

Alternate Testing: No flow measurement will be made. CYAPCO will determine and reference the RWST level to pump inlet static head to establish inlet pressure. Pump flow capacity will be verified by testing every 5 years.

Relief Request #P6

System: Service Water Pumps

Affected Pumps: SW Pumps P-37-1A, P-37-1B, P-37-1C, and P-37-1D

Test Requirement: Resistance of a system shall be varied until the measured flow rate or differential pressure equals the corresponding reference value.

Basis for Relief: The service water system flow rate varies as river temperature and plant cooling requirements change. These variations, both seasonal and operating, make a test at a referenced flow rate or differential pressure difficult and/or impossible.

Alternate Testing: CYAPCO conducts quarterly in-service tests by using the pump shutoff head (zero flow) as a reference value. River water level relative head is used as pump inlet pressure reference. Also CYAPCO will measure all necessary parameters under normal operating conditions. These will be used to determine a point which will be plotted on the manufacturer's performance curve. The utilization of the manufacturer's performance curve with offsets showing "alert" and "required action" tolerances is considered a satisfactory technique for evaluating pump test data in this variable resistance system.

Relief Request #P7

System: 1. Residual Heat Removal
2. Auxiliary Feedwater
3. Low Pressure Safety Injection
4. High Pressure Safety Injection
5. Service Water

Affected Pumps: 1. RHR-P-14-1A and 1B
2. AF-P-32-1A and 1B
3. LPSI-P-92-A and B
4. HPSI-P-15-1A and 1B
5. SW-P-37-1A, 1B, 1C, and 1D

Test Requirement: The bearing temperature of all centrifugal pump bearings and main shaft bearings of reciprocating pumps shall be measured at points selected to be responsive to changes in the temperature of the bearing.

Basis for Relief: Bearing metal temperature monitoring can be effective in detecting bearing problems. However, no pumps, except the charging pumps, have the permanently installed temperature sensors required to measure bearing metal temperatures; i.e., outer race of antifriction bearings or babbitt lining of sleeve bearings. The measurement of bearing housing temperature is far less effective in detecting bearing problems than the quarterly performance of vibration signature analysis being performed by CYAPCO.

- HPSI and LPSI pump bearings are located deep inside the pump casing and are surrounded by the oil reservoir. There is no design provision for directly measuring bearing temperatures. A quarterly check on the lubrication level and vibration signature analysis is performed.

- Service water pumps have five bearings--primarily shafts steadying bearings. It is not possible to measure temperatures of the four lower bearings due to pump casing designs. A quarterly check on the lubrication level and vibration signature analysis is performed. The upper bearing temperature of the service water pumps is recorded.

- Residual heat removal pumps have no design provision for direct measurement of bearing temperatures and the results of using a handheld pyrometer are questionable. A quarterly check on lubrication level and vibration signature analysis is performed.

- Auxiliary feedwater pumps have no design provision for direct measurement of bearing temperatures. Bearings are enclosed in oil reservoir and are not directly accessible. A quarterly check on lubrication level and vibration signature analysis is performed.

Alternate Testing: Record and analyze pump vibration signature as scheduled. This analysis will provide more meaningful analysis of pump bearing condition than the annual measurement of bearing temperatures.

Relief Request #P8

System:
1. Charging
2. Residual Heat Removal
3. Auxiliary Feedwater
4. Low Pressure Safety Injection
5. High Pressure Safety Injection
6. Service Water

Affected Pump:
1. CH-P-18-1A and 1B
2. RHR-P-14-1A and 1B
3. AF-P-32-1A and 1B
4. LPSI-P-92A and B
5. HPSI-P-15-1A and 1B
6. SW-P-37-1A, 1B, 1C, and 1D

Test Requirement: Measure at least one displacement vibration amplitude during each scheduled test.

Basis for Relief and Alternate Testing: To meet the vibration monitoring of ASME, Section XI, Section IWP, exception is taken to the specific vibration requirements of IWP and an alternate, more effective vibration analysis program, as described herein, is used. During the scheduled in-service pump test, vibration velocity is measured. Vibration velocity is a function of displacement and frequency and is a direct measurement of component condition.

In addition, a supplemental program is performed which enhances the evaluation of the component condition. This program consists of signature analysis plotted on plotting paper and retained as a permanent record. These plots are compared to baseline data and to previous data for a continuing evaluation of the condition of the component. The vibration signature consists of an automatic plot of vibration amplitude in velocity versus frequency typically over a frequency range of 0-500 cycles per second.

This supplemental vibration program analysis approach provides for the early detection of deterioration of pump mechanical condition, a determination of the cause of problems, and a more accurate assessment of the vibration severity.

Criteria for evaluation of changes as to cause, severity, and the establishment of alert and required action ranges shall be specified in the CYAPCO procedures. Shown below are the allowable ranges for Vibration Test quantities. The acceptance criteria is based on an ASME publication 78-WA-NE-5 "Suggested Improvements in the Measurement of Pump Vibration for In-Service Inspection."

The NRC approved ASME publication 78-WA-NE-5 "Suggested Improvements in the Measurement of Pump Vibration for In-Service Inspection," in their safety evaluation of December 29, 1983.

Table IWP-2

Table 2 Suggested Revision of Table IWP-3100-2 Allowable Ranges for Vibration Test Quantities

Test Quantity		Acceptable Range	Alert Range	Required Action Range
v	When $0 \leq v_r \leq .15$ in/sec	$0 \geq v \leq .3$ in/sec	.3 in/sec $< v \leq$ .45 in/sec	v>.45 in/sec
v	When .15 in/sec $< v_r \leq$ .3 in/sec	$0 \geq v \leq .45$ in/sec	.45 in/sec $< v \leq$ .75 in/sec	v> .75 in/sec
v	When .3 in/sec $< v_r \leq$ .6 in/sec	$0 \geq v \leq .9$ in/sec	0.9 in/sec $< v \leq$ 1.5 in/sec	v> 1.5 in/sec
v	When .6 in/sec $< v_r \leq$ 1.0 in/sec	$0 \geq v \leq 1.1$ in/sec	1.1 in/sec $< v <$ 1.5 in/sec	v> 1.5 in/sec

Definitions:

v = velocity measured in inches/seconds, peak
v_r = reference velocity measurement (initial measurement after installation or rework)

SECTION 4.0

VALVE PROGRAM

4.1 LEGEND FOR VALVE TESTING

Q - Exercise valve (full-stroke) to verify satisfactory operation per Section XI, IWV-3411 and IWV-3521.

LT - Valves are leak tested per Section XI Article IWV-3420.

ILRT - Containment Isolation Valves are leak tested in conjunction with containment integrated leak test.

LLRT - Containment Isolation Valves are leak tested in conjunction with Local Leak Rate Testing.

MT - Stroke time measurements are taken per Section XI Article IWV-3410 for power operated valves.

CV - Exercise check valves to the position required to fulfill their function per Section IWV 3521 except as noted in IWV 3522.

SRV - Safety and relief valves are tested in accordance with ASME PTC 25.3-1976.

ET - Verify and record valve position before operations are performed and after operations are completed, and verify that valve is locked or sealed.

CS - Exercise valve (full-stroke) to verify satisfactory operation at cold shutdown, as noted per Section IWV 3416, 3522, and 3412.

R - Exercise valve (full-stroke) to verify satisfactory operation during Reactor Refueling Outage based on Relief Request.

PI - Visually observe, every two years or less, actual valve position to confirm that remote valve position indications accurately reflect valve operation, IWV-3300. Examples of how this can be done are: verifying local position indicator, or flow, or pressure change, or stem traveling in the correct direction.

FT - Remove actuator power from valves with fail-safe actuators to confirm that the valve travels to its fail-safe position per IWV-3415.

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
REACTOR COOLANT SYSTEM, 16103-26007, Sh. 1&2										
PR-MOV-567	1-B	Pressurizer Relief Isolation	2	GA	M	C	Q MT PI			20 sec. to open
PR-MOV-569	1-B	Pressurizer Relief Isolation	2	GA	M	C	Q MT PI			20 sec. to open
PR-SOV-552A	1-B	Pressurizer Head Vent	1	GL	SOL	C	Q MT PI	 V-4 	CS 	See Note 17 Degraded if > 2 sec. Verified by noting flow thru valve.
PR-SOV-552B	1-B	Pressurizer Head Vent	1	GL	SOL	C	Q MT PI	 V-4 	CS 	See Note 17 Degraded if > 2 sec. Verified by noting flow thru valve.
PR-SOV-552C	1-B	Pressurizer Head Vent	1	GL	SOL	C	Q MT PI	 V-4 	CS 	See Note 17 Degraded if > 2 sec. Verified by noting flow thru valve.

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
PR-SOV-552D	1-B	Pressurizer Head Vent	1	GL	SOL	C	Q MT PI	 V-4 	CS 	See Note 17 Degraded if > 2 sec. Verified by noting flow thru valve.
RC-SOV-596A	1-B	RPV Head Vent	1	GL	SOL	C	Q MT PI	 V-4 	CS 	See Note 17 Degraded if > 2 sec. Verified by noting flow thru valve.
RC-SOV-596B	1-B	RPV Head Vent	1	GL	SOL	C	Q MT PI	 V-4 	CS 	See Note 17 Degraded if > 2 sec. Verified by noting flow thru valve.
RC-SOV-596C	1-B	RPV Head Vent	1	GL	SOL	C	Q MT PI	 V-4 	CS 	See Note 17 Degraded if > 2 sec. Verified by noting flow thru valve.
RC-SOV-596D	1-B	RPV Head Vent	1	GL	SOL	C	Q MT PI	 V-4 	CS 	See Note 17 Degraded if > 2 sec. Verified by noting flow thru valve.

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
PR-AOV-568	1-B	Pressurizer PORV	3	GA	A	C	Q MT PI FT		CS	See Note 6 15 sec. to open/close
PR-AOV-570	1-B	Pressurizer PORV	3	GA	A	C	Q MT PI FT		CS	See Note 6 15 sec. to open/close
PR-AOV-574	1-B	Pressurizer Spray	2	GL	AOV	C	Q MT PI FT		CS	See Note 7 No safety time limit
PR-AOV-573	1-B	Pressurizer Spray	2	GL	AOV	C	Q MT PI FT		CS	See Note 7 No safety time limit
RC-MOV-[illegible]	1-B	Loop #4 Isolation - TH	27.5	GA	MOV	O	Q MT PI		CS	See Note 8 No safety time limit

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
RC-MOV-512	1-B	Loop #4 Isolation - TC	27.5	GA	MOV	O	Q MT PI		CS 	See Note 8 No safety time limit
RC-MOV-513	1-B	Loop #3 Isolation	27.5	GA	MOV	O	Q MT PI		CS 	See Note 3 No safety time limit
RC-MOV-524	1-B	Loop #3 Isolation	27.5	GA	MOV	O	Q MT PI		CS 	See Note 8 No safety time limit
RC-MOV-526	1-B	Loop #2 Isolation	27.5	GA	MOV	O	Q MT PI		CS 	See Note 8 No safety time limit
RC-MOV-537	1-B	Loop #2solation	27.5	GA	MOV	O	Q MT PI		CS 	See Note 8 No safety time limit

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
RC-MOV-538	1-B	Loop #1 Isolation	27.5	GA	MOV	O	Q MT PI		CS	See Note 8 No safety time limit
RC-MOV-546	1-B	Loop #1 Isolation	27.5	GA	MOV	O	Q MT PI		CS	See Note 8 No safety time limit
RC-CV-509	1-C	Loop Press. Equal. Line	1.5	Spring Check		C	CV		CS	See Note 9
RC-CV-523	1-C	Loop Press. Equal. Line	1.5	Spring Check		C	CV		CS	See Note 9
RC-CV-536	1-C	Loop Press. Equal. Line	1.5	Spring Check		C	CV		CS	See Note 9

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
RC-CV-545	1-C	Loop Press. Equal. Line	1.5	Spring Check		C	CV		CS	See Note 9

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
POWER OPERATED RELIEF VALVE AIR ACCUMULATOR SYSTEM										
CA-SOV-752	3-B	PORV Air System Supply	0.5	GL	SOV	C	Q		CS	See Note 10 Tested as part of PR-AOV-558 and 570
CA-SOV-754	3-B	PORV Air System Supply	0.5	GL	SOV	C	Q		CS	See Note 10 Tested as part of PR-AOV-568 and 570
CA-CV-825	3-AC	PORV Air System Supply Isolation	0.5	CK		C	CV LT		CS	See Note 11 Will be part of air system leak test.
CA-CV-826	3-AC	PORV Air System Supply Isolation	0.5	CK		C	CV LT		CS	See Note 11 Will be part of air system leak test.
CA-CV-239	2-AC	MSTV Accumulator	0.5	CK		C	CV LT		CS	See Note 41

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
CA-CV-902	2-AC	MSTV Accumulator	0.5	CK			LT		CS	See Note 41
CA-SOV-1211-1A	2-AC	MS-TV-1211-1 control air to close solenoid	1	SOV	M	C	Q LT		CS	See Note 52
CA-SOV-1211-2A	2-AC	MS-TV-1211-2 control air to close solenoid	1	SOV	M	C	Q LT		CS	See Note 52
CA-SOV-1211-3A	2-AC	MS-TV-1211-3 control air to close solenoid	1	SOV	M	C	Q LT		CS	See Note 52
CA-SOV-1211-4A	2-AC	MS-TV-1211-4 control air to close solenoid	1	SOV	M	C	Q LT		CS	See Note 52

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SAFETY INJECTION SYSTEM, 16103-26010										
SI-CV-103	2-C	LPSI Discharge to RHR system	10	GK		C	CV	V-3	R	Verify open
SI-CV-107A	2-C	"A" LPSI Pump Discharge Check	10	CK		C	CV	V-3	Q/R	Verify closed Quarterly and Refueling. Exercise open Refueling.
SI-CV-107B	2-C	"B" LPSI Pump Discharge Check	10	CK		C	CV	V-3	Q/R	Verify closed Quarterly and Refueling. Exercise open Refueling.
SI-CV-856A	2-C	"A" HPSI Pump Discharge Check	6	CK		C	CV	V-2	Q/R	Verify closed Quarterly (partial stroke) and Refueling (full stroke).
SI-CV-856B	2-C	"B" HPSI Pump Discharge Check	6	CK		C	CV	V-2	Q/R	Verify closed Quarterly (partial stroke) and Refueling (full stroke).

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
							Q		CS	See Note 12
							MT			15 sec to open
SI-MOV-861A	1-A	Loop 1 Safety Injection Isol.	3	GA	M	C	LT		CS	Tech Spec 4.3-B.3 Pressure Isolation Valve
							PI			
							Q		CS	See Note 12
							MT			15 sec to open
SI-MOV-861B	1-A	Loop 2 Safety Injection Isol.	3	GA	M	C	LT		CS	Tech Spec 4.3-B.3 Pressure Isolation Valve
							PI			
							Q		CS	See Note 12
							MT			15 sec to open
SI-MOV-861C	1-A	Loop 3 Safety Injection Isol.	3	GA	M	C	LT		CS	Tech Spec 4.3-B.3 Pressure Isolation Valve
							PI			
							Q		CS	See Note 12
							MT			15 sec to open
SI-MOV-861D	1-A	Loop 4 Safety Injection Isol.	3	GA	M	C	LT		CS	Tech Spec 4.3-B.3 Pressure Isolation Valve
							PI			
SI-CV-862A	1-AC	Loop 1 SI Isolation Check-P3	3	CK		C	CV	V	Q/R	Partial stroke Quarterly full stroke Refueling
							LT		CS	Tech Spec 4.3-F Pressure Isolation Valve

IST VALVES
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Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SI-CV-862B	1-AC	Loop 2 SI Isolation Check-P3	3	CK		C	CV	V-2	Q/R	Partial stroke Quarterly full stroke Refueling
							LT		CS	Tech Spec 4.3-F Pressure Isolation Valve
SI-CV-862C	1-AC	Loop 3 SI Isolation Check-P3	3	CK		C	CV	V-2	Q/R	Partial stroke Quarterly full stroke Refueling
							LT		CS	Tech Spec 4.3-F Pressure Isolation Valve
SI-CV-862D	1-AC	Loop 4 SI Isolation Check-P3	3	CK		C	CV	V-2	Q/R	Partial stroke Quarterly full stroke Refueling
							LT		CS	Tech Spec 4.3-F Pressure Isolation Valve
SI-MOV-871A	1-A	Core Deluge to RV Head	6	GA	M	C	Q		CS	See Note 13
							MT			15 sec to open
							LT	V-6		Pressure Isolation Valve
							PI			
SI-MOV-871B	1-A	Core Deluge to RV Head	6	GA	M	C	Q		CS	See Note 13
							MT			15 sec to open
							LT	V-6		Pressure Isolation Valve
							PI			

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SI-CV-872A	1-AC	Core Deluge to Head Check	6	CK		C	CV LT	V-3	R CS	Tech Spec 4.3-F Pressure Isolation Valve
SI-CV-872B	1-AC	Core Deluge to Head Check	6	CK		C	CV LT	V-3	R CS	Tech Spec 4.3-F Pressure Isolation Valve
SI-MOV-24	2-B	From RWST to HPSI Pump	16	GA	M	LO	Q MT PI		Q/CS	See Note 2

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
RESIDUAL HEAT REMOVAL, 16103-26028										
RH-MOV-22	2-B	Containment Sump Suction Isolation	8	GA	M	LO	Q MT PI			90 sec to open Tech Spec 3.6-B
RH-MOV-23	2-B	Containment Spray Isolation	8	GA	M	C	Q MT PI		CS	See Note 14 90 sec to open
RH-MOV-25	2-B	Charcoal Fitler Spray Isol.	2	GA	M	C	Q MT PI			30 sec to open
RH-MOV-26	2-B	Charcoal Fitler Spray Isol.	2	GA	M	C	Q MT PI			30 sec to open
RH-MOV-27	2-B	Charcoal Fitler Spray Isol.	2	GA	M	C	Q MT PI			30 sec to open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
RH-MOV-28	2-B	Charcoal Fitler Spray Isol.	2	GA	M	C	Q MT PI			30 sec to open
RH-MOV-29	2-B	Charcoal Fitler Spray Header Isolation	3	GA	M	C	Q MT PI			40 sec to open
RH-MOV-33A	2-B	RHR to CVCS X-Connect	4	GA	M	C	Q MT PI		CS	See Note 15 90 sec to open
RH-MOV-33B	2-B	RHR to CVCS X-Connect	4	GA	M	C	Q MT PI		CS	See Note 15 90 sec to open
RH-MOV-34	2-B	Containment Spray Isolation	8	GA	M	C	Q MT PI		CS	See Note 14 90 sec to open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
RH-MOV-780	1-A	Inboard Stop-RCS Loop No. 1	10	GA	M	C	Q		CS	See Note 16
							MT			40 sec to open
							LT			Pressure Isolation Valve
							PI			
RH-MOV-781	1-A	Outboard Stop-RCS Loop No. 1	10	GA	M	C	Q		CS	See Note 16
							MT			40 sec to open
							LT			Pressure Isolation Valve
							PI			
RH-MOV-874	2-B	RHR to RWST, Charging and SI System	6	GL	M	LC	Q			Cycle open and closed
							MT			No safety time limit
							PI			
RH-CV-783	2-C	Containment Sump Suction Check	8	CK		C	CV	V-1	Q/R	Verify close Quarterly. Valve requires disassy. to verify operability during Refueling when core is unloaded.
RH-CV-788A	2-C	"A" RHR Pump Discharge Check	8	CK		C	CV		Q/CS	See Note 1 Partial stroke Quarterly.

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
RH-CV-788B	2-C	"A" RHR Pump Discharge Check	8	CK		C	CV		Q/CS	See Note 1 Partial stroke Quarterly.
RH-MOV-803	1-A	Outboard Stop-RCS Loop No. 2	10	GA	M	C	Q MT LT PI		CS	See Note 16 40 sec to open Pressure Isolation Valve
RH-MOV-804	1-A	Inboard Stop-RCS Loop No. 2	10	GA	M	C	Q MT LT PI		CS	See Note 16 40 sec to open Pressure Isolation Valve
RH-MOV-21	2-A	RWST to RHR	10	GA	M	LC	Q MT PI			See Note 50 Valve tested in closed direction.
RH-V-808A	2-B	Containment Sump Suction Isolation	8	GA	H	C	Q PI			Cycle open and closed

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
RH-CV-808A	2-C	Containment Sump Suction Check	8	CK		C	CV	V-1	Q/R	Verify closed Quarterly. Valve requires disassy. to verify operability during Refueling when core is unloaded.

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
CHEMICAL & VOLUME CONTROL, 16103-26018 SH.1 thru 6										
BA-MOV-32	2-B	RWST to Charging Pump Suction	6	GA	M	C	Q MT PI		CS	See Note 18 90 sec to open
CH-MOV-257	2-B S	VCT Outlet to Charging Pump Suction	4	GA	M	O	Q MT PI		CS	See Note 19 20 sec to close
CH-CV-263	2-C	"A" Charging Pump Discharge Check	3	CK		O	CV			Cycle open and closed
CH-CV-268	2-C	"A" Charging Pump Discharge Recirc Check	2	CK		O	CV			Cycle open and closed
CH-CV-272	2-C	"B" Charging Pump Discharge Check	3	CK		O	CV			Cycle open and closed

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
CH-CV-277	2-C	"B" Charging Pump Discharge Recirc Check	2	CK		O	CV			Cycle open and closed
CH-CV-293	1-C	Charging Line to Loop No. 2	3	CK		O	CV			Verify open
CH-CV-326	1-C	Charging Equalization Spring Check	0.75	CK	Spring Check		CV		CS	Dp, see Note 51
CH-MOV-292B	1-B	Charging Line to Loop No. 2	3	GA	M	O	Q MT PI			15 sec to close
CH-MOV-292C	1-B	Charging Line to Loop No. 2	3	GA	M	O	Q MT PI			15 sec to close

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
CH-AOV-278	2-B	Charging Line Suction to Metering Pump	2	GL	A	C	Q MT PI FT			No time specified
CH-SOV-242	2-B	Charging Pump Suction Piping Vent	0.75	GA	M	O	Q MT PI		CS	See Note 19
CH-FCV-110	2-B	Charging Flow Control	3	GDN	A	O	Q MT PI		CS	See Note 20 30 sec to open
CH-FCV-110A	2-B	Charging Flow Control	3	GDN	A	O	Q MT PI		CS	See Note 20 30 sec to open
BA-CV-320	2-C	Boric Acid Supply to Charging Pumps	2	CK		C	CV		CS	Verify open only See Note 21

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
BA-MOV-349	3-B	Boric Acid Supply to Metering Pump	2	GA	M	C	Q MT PI			See Note 22 30 sec to open
BA-CV-361	3-C	"B" Boric Acid Pump Disch. Check	2	CK		C	CV			Cycle open and closed
BA-CV-370	3-C	"A" Boric Acid Pump Disch. Check	2	CK		C	CV			Cycle open and closed
BA-MOV-366	2-B	Boric Acid to Charging System	2	GA	M	C	Q MT PI		CS	See Note 22 30 sec to open
BA-CV-372	2-C	RWST to Charging Pump Suction Check	6	CK		C	CV		CS	See note 23 Verify open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
BA-MOV-373	2-B	RWST to Charging Pump Suction	6	GA	M	C	Q MT PI		CS	See Note 23 20 sec to open
BA-MOV-386	2-B	From Safety Injection to Boric Acid System	2	GA	M	C	Q MT PI			30 sec to open
BA-CV-387	3-C	Boric Acid Pump Disch. to Charging Pump	2	CK		C	CV		CS	See Note 24 Verify open
CH-MOV-331	2-B	Seal Water Return Line Trip	0.75	GA	M	O	Q MT PI		CS	See Note 26 No safety time limit
DH-MOV-310	1-A	Drain Header Remote Throttle	2	GA	M	C	Q MT LT PI		CS	See Note 27 Pressure Isolation Valve

IST VALVES
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Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DH-V-311	1-A	Drain Header	2	GA	H	C	Q			Passive
							LT			Pressure Isolation Valve
FH-FCV-295	2-B	Loop Fill Flow Controller	3	GL	A	C	Q			
							MT			No safety time limit
							PI			
FH-MOV-344	2-B	Loop Fill Flow Controller	2	GL	M	C	Q			
							MT			No safety time limit
							PI			
FH-MOV-578	1-B	Loop 1 Fill Isolation	1.5	GA	M	C	Q		CS	See Note 28
							MT			No safety time limit
							PI			
DH-MOV-544	1-B	Loop 1 Drain Isolation	1.5	GA	M	C	Q		CS	See Note 29
							MT			No safety time limit
							PI			

IST VALVES
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Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FH-MOV-535	1-B	Loop 2 Fill Isolation	1.5	GA	M	C	Q		CS	See Note 28
							MT			No safety time limit
							PI			
DH-MOV-534	1-B	Loop 2 Drain Isolation	1.5	GA	M	C	Q		CS	See Note 29
							MT			No safety time limit
							PI			
FH-MOV-522	1-B	Loop 3 Fill Isolation	1.5	GA	M	C	Q		CS	See Note 28
							MT			No safety time limit
							PI			
DH-MOV-521	1-B	Loop 3 Drain Isolation	1.5	GA	M	C	Q		CS	See Note 29
							MT			No safety time limit
							PI			
FH-MOV-508	1-B	Loop 4 Fill Isolation	1.5	GA	M	C	Q		CS	See Note 28
							MT			No safety time limit
							PI			

IST VALVES
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Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DH-MOV-507	1-B	Loop 4 Drain Isolation	1.5	GA	M	C	Q		CS	See Note 29
							MT			No safety time limit
							PI			
CH-MOV-311	2-B	Reactor Coolant Pump Seal Isolation	2	GA	M	O	Q		CS	See Note 30
							MT			No safety time limit
							PI			
CH-MOV-312	2-B	Reactor Coolant Pump Seal Isolation	2	GA	M	O	Q		CS	See Note 30
							MT			No safety time limit
							PI			
CH-MOV-313	2-B	Reactor Coolant Pump Seal Isolation	2	GA	M	O	Q		CS	See Note 30
							MT			No safety time limit
							PI			
CH-MOV-314	2-B	Reactor Coolant Pump Seal Isolation	2	GA	M	O	Q		CS	See Note 30
							MT			No safety time limit
							PI			

IST VALVES
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Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt	Remark
CH-MOV-298	1-B	Charging to Pressurizer Spray	1.5	GA	M	O	Q MT PI		CS	See Note 31 No safety time limit
LD-MOV-200	1-B	Letdown Isolation From RCS	3	GA	M	O	Q MT PI		CS	See Note 32
CH-CV-260	2-B	VCT to Charging Pump Header Check	4	CK	C		CV			See Note 50 Verify open for reliability

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt	Remark
MAIN STEAM SYSTEM, 16103-26012 Sh 1&2										
MS-NRV-11	2-BC	SG No.1 Non-Return Valve	24	Stop CK	H	O	Q PI		CS	See Note 33 Cycle open and closed
MS-NRV-21	2-BC	SG No.2 Non-Return Valve	24	Stop CK	H	O	Q PI		CS	See Note 33 Cycle open and closed
MS-NRV-31	2-BC	SG No.3 Non-Return Valve	24	Stop CK	H	O	Q PI		CS	See Note 33 Cycle open and closed
MS-NRV-41	2-BC	SG No.4 Non-Return Valve	24	Stop CK	H	O	Q PI		CS	See Note 33 Cycle open and closed
MS-PICV-1206A	3-B	Steam Supply to Aux. FP "A"	2	CONT	A	C	Q MT PI FT			90 sec to open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
MS-PICV-1295B	3-B	Steam Supply to Aux. FP "A"	2	CONT	A	C	Q MT PI FT			90 sec to open
MS-TV-1211-1	2-BC	Main Steam Supply to Turbine	24	Stop CK	A	O	Q MT PI FT		Q/CS	See Note 3 10 sec to close
MS-TV-1211-2	2-BC	Main Steam Supply to Turbine	24	Stop CK	A	O	Q MT PI FT		Q/CS	See Note 3 10 sec to close
MS-TV-1211-3	2-BC	Main Steam Supply to Turbine	24	Stop CK	A	O	Q MT PI FT		Q/CS	See Note 3 10 sec to close
MS-TV-1211-4	2-BC	Main Steam Supply to Turbine	24	Stop CK	A	O	Q MT PI FT		Q/CS	See Note 3 10 sec to close

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
MS-NRV-18	2-BC	SG No.1 Atmospheric Dump	3	Stop CK	H	O	Q PI			Cycle open and closed
MS-NRV-28	2-BC	SG No.1 Atmospheric Dump	3	Stop CK	H	O	Q PI			Cycle open and closed
MS-NRV-38	2-BC	SG No.1 Atmospheric Dump	3	Stop CK	H	O	Q PI			Cycle open and closed
MS-NRV-48	2-BC	SG No.1 Atmospheric Dump	3	Stop CK	H	O	Q PI			Cycle open and closed
MS-HICV-120A	2-B	Atmospheric Dump	12	CON	A	C	Q MT PI FT			90 sec to close

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
MS-TV-1212	2-B	MS Drain to B/D Tank	1	GL	A	O/C	Q MT PI			60 sec to close
MS-TV-1213	2-B	MS Drain to Condenser	1	GL	A	O/C	Q MT PI			60 sec to close

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FEEDWATER SYSTEM, [illegible]03-26013, Sh. 1										
FW-MOV-35	3-B	Aux. FP Discharge to SG's	3	GA	M	C	Q MT PI			30 sec to open
FW-CV-143-1	2-C	FW Supply to SG No. 1	12	CK		O	CV			Verify open
FW-CV-143-2	2-C	FW Supply to SG No. 2	12	CK		O	CV			Verify open
FW-CV-143-3	2-C	FW Supply to SG No. 3	12	CK		O	CV			Verify open
FW-CV-143-4	2-C	FW Supply to SG No. 4	12	CK		O	CV			Verify open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FW-CV-153	3-C	"B" Aux. Feedpump Discharge Check	3	CK		C	CV		CS	See Note 34 Cycle open and closed
FW-CV-182	3-C	Aux. Feed to SG Check	3	CK		C	CV		CS	See Note 34 Verify open
FW-CV-184	3-C	"A" Aux. Feedpump Discharge Check	3	CK		C	CV		CS	See Note 34 Cycle open and closed
FW-CV-156-1	2-C	Aux. FW Supply to SG No.1	1.5	CK		C	CV		CS	See Note 35 Verify open
FW-CV-156-2	2-C	Aux. FW Supply to SG No.2	1.5	CK		C	CV		CS	See Note 35 Verify open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FW-CV-156-3	2-C	Aux. FW Supply to SG No.3	1.5	CK		C	CV		CS	See Note 35 Verify open
FW-CV-156-4	2-C	Aux. FW Supply to SG No.4	1.5	CK		C	CV		CS	See Note 35 Verify open
FW-FCV-1301-1	2-B	SG No.1 FW Reg. Valve	8	CON	A	O	Q MT PI FT		CS	See Note 36 65 sec to close
FW-FCV-1301-2	2-B	SG No.2 FW Reg. Valve	8	CON	A	O	Q MT PI FT		CS	See Note 36 65 sec to close
FW-FCV-1301-3	2-B	SG No.3 FW Reg. Valve	8	CON	A	O	Q MT PI FT		CS	See Note 36 65 sec to close

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FW-FCV-1301-4	2-B	SG No.4 FW Reg. Valve	8	CON	A	O	Q		CS	See Note 36
							MT			65 sec to close
							PI			
							FT			
FW-HICV-1301-1	2-B	SG No.1 FW Reg. Bypass Valve	1.5	CON	A	C	Q			
							MT			60 sec to open
							PI			
							FT			
FW-HICV-1301-2	2-B	SG No.2 FW Reg. Bypass Valve	1.5	CON	A	C	Q			
							MT			60 sec to open
							PI			
							FT			
FW-HICV-1301-3	2-B	SG No.3 FW Reg. Bypass Valve	1.5	CON	A	C	Q			
							MT			60 sec to open
							PI			
							FT			
FW-HICV-1301-4	2-B	SG No.4 FW Reg. Bypass Valve	1.5	CON	A	C	Q			
							MT			60 sec to open
							PI			
							FT			

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FW-MOV-11	2-B	SG No.1 FW Control Valve Isolation	12	GA	M	O	Q MT PI		CS	See Note 38 70 sec maximum to close
FW-MOV-12	2-B	SG No.2 FW Control Valve Isolation	12	GA	M	O	Q MT PI		CS	See Note 38 70 sec maximum to close
FW-MOV-13	2-B	SG No.3 FW Control Valve Isolation	12	GA	M	O	Q MT PI		CS	See Note 38 70 sec maximum to close
FW-MOV-14	2-B	SG No.4 FW Control Valve Isolation	12	GA	M	O	Q MT PI		CS	See Note 38 70 sec maximum to close
FW-MOV-160	3-B	Aux. FW Header Isolation Valve	3	GA	M	O	Q MT PI			35 sec maximum to close

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FW-CV-135-1	2-AC	FW Header Isolation Valve	3	CK		C	CV LT	V-7	PR	
FW-CV-135-2	2-AC	FW Header Isolation Valve	3	CK		C	CV LT	V-7	PR	
FW-CV-135-3	2-AC	FW Header Isolation Valve	3	CK		C	CV LT	V-7	PR	
FW-CV-135-4	2-AC	FW Header Isolation Valve	3	CK		C	CV LT	V-7	PR	
FW-NRV-521	2-C	Feedwater MOV Stop Check Valve	0.5	CK		C	Q		CS	See Note 49

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FW-NRV-522	2-C	Feedwater MOV Stop Check Valve	0.5	CK		C	Q		CS	See Note 49
FW-NRV-523	2-C	Feedwater MOV Stop Check Valve	0.5	CK		C	Q		CS	See Note 49
FW-NRV-524	2-C	Feedwater MOV Stop Check Valve	0.5	CK		C	Q		CS	See Note 49
FW-CV-155	2-C	Auxiliary Pump Recirculation	1	CK			CV			Cycle open and closed.
FW-CV-180	2-C	Auxiliary Pump Recirculation	1	CK			CV			Cycle open and closed.

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
BD-TV-1312-1	2-B	SG #1 Blowdown	1	GA	A	O	Q		CS	See Note 39
							MT			60 sec to open
							LT			No LT, See Note 37
							PI			
							FT			
BD-TV-1312-2	2-B	SG #2 Blowdown	1	GA	A	O	Q		CS	See Note 39
							MT			60 sec to open
							LT			No LT, See Note 37
							PI			
							FT			
BD-TV-1312-3	2-B	SG #3 Blowdown	1	GA	A	O	Q		CS	See Note 39
							MT			60 sec to open
							LT			No LT, See Note 37
							PI			
							FT			
BD-TV-1312-4	2-B	SG #4 Blowdown	1	GA	A	O	Q		CS	See Note 39
							MT			60 sec to open
							LT			No LT, See Note 37
							PI			
							FT			
CD-LCV-1317A		Makeup level control valve to Condenser E-23-1B	8	GL	A		Q			
							MT			No safety limit specified
							PI			

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
CD-LCV-1317B		Main condenser high level control valve from condensate pump discharge	4	GL	A		Q MT PI			No safety limit specified.
CD-V-633	3-B	Aux Stm Gen Feed Pump P-32-1C suction isolation from DWST	6	GA	H		Q PI			ISI Boundary Valve.
DW-CV-507	3-C	Check valve to DWST	3	CK			CV			ISI Boundary Valve.
DW-V-527	3-B	Demineralized water to chemical feeder isolation.	0.5	BALL	H	O	Q		CS	ISI Boundary Valve.
GW-PCV-1341	3-B	Gland Seal Water Pumps (P-58-1A&1B) outlet pressure control valve	1	GL	A	O	Q MT PI			No safety limit specified.

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SERVICE WATER SYSTEM, 16103-26014, Sh. 1 thru 7										
SW-MOV-1	3-B	East Header isolation	12	GA	M	O	Q MT PI		CS	See Note 40 90 sec to close
SW-MOV-2	3-B	West Header Isolation	12	GA	M	O	Q MT PI		CS	See Note 40 90 sec to close
SW-MOV-3	3-B	CC HX "A" Discharge	16	GA	M	O/C	Q MT PI		CS	See Note 40 90 sec to close
SW-MOV-4	3-B	CC HX "B" Discharge	16	GA	M	O/C	Q MT PI		CS	See Note 40 90 sec to close
SW-MOV-5	3-B	RHR HX "B" Discharge	12	GA	M	C	Q MT PI			90 sec to open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SW-MOV-6	3-B	RHR HX "A" Discharge	12	GA	M	C	Q MT PI			90 sec to open
SW-AOV-8	3-B	Boron Recovery Return Isol.	8	CON	A	C	Q MT PI FT			10 sec to close
SW-AOV-9	3-B	SFP HX Return Isol.	6	CON	A	O	Q MT PI FT			10 sec to close
SW-AOV-129	3-B	"A" Diesel Cooling Return	4	CON	A	C	Q MT PI FT			30 sec to open
SW-AOV-130	3-B	"B" Diesel Cooling Return	4	CON	A	C	Q MT PI FT			30 sec to open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SW-CV-276A	3-C	"A" SW Pump Discharge Check	16	CK		C	CV			Verify open & closed
SW-CV-276B	3-C	"B" SW Pump Discharge Check	16	CK		O	CV			Verify open & closed
SW-CV-276C	3-C	"C" SW Pump Discharge Check	16	CK		O	CV			Verify open & closed
SW-CV-276D	3-C	"D" SW Pump Discharge Check	16	CK		O	CV			Verify open & closed
SW-CV-271A	3-C	Car Fan Supply Check	6	CK		O	CV			Verify open

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SW-CV-271B	3-C	Car Fan Supply Check	6	CK		O	CV			Verify open
SW-CV-271C	3-C	Car Fan Supply CheCK	6	CK		O	CV			Verify open
SW-CV-271D	3-C	Car Fan Supply CheCK	6	CK		O	CV			Verify open
SW-AOV-738A	3-B	Prim Service Water Filter Bypass to Discharge A	2	GA	A	O	Q MT PI FT			
SW-AOV-738B	3-B	Prim Service Water Filter Bypass to Discharge B	2	GA	A	O	Q MT PI FT			

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SW-TV-2365A	3-B	Service Water to WE and SG Blowoff Tank Cond.	6	GA	A	O	Q MT PI FT			No safety time limit
SW-TV-2365B	3-B	Service Water to WE and SG Blowoff Tank Cond.	6	GA	A	O	Q MT PI FT			No safety time limit
SW-V-111A	3-B	North header to service water filters.	2	GA	H	O	Q			ISI Boundary Valve
SW-V-111B	3-B	South header to service water filters.	2	GA	H	O	Q			ISI Boundary Valve
SW-V-112A	3-B	North header to service water filters and HP ejector.	2	GA	H	O	Q			ISI Boundary Valve

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SW-V-112B	3-B	South header to service water filters and HP ejector.	2	GA	H	O	Q			ISI Boundary Valve
SW-V-259	3-B	To Primary Drains Tank Vent Condenser E-11-1A isolation	1	GL	H	O	Q			ISI Boundary Valve
SW-V-260	3-B	To Primary Drains Tank Vent Condenser E-11-1A isolation	1	GL	H	O	Q			ISI Boundary Valve
SW-V-626	3-B	Screenwash Booster Pump (P-101-1A) east seal supply filter drain.	0.5	GA	H	O	Q			ISI Boundary Valve
SW-V-629	3-B	Screenwash Booster Pump (P-101-1A) west seal supply filter drain.	0.5	GA	H	O	Q			ISI Boundary Valve

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SW-V-650	3-B	Radiation Monitor (R-19) to service water header isolation.	0.75	GL	H	O	Q			ISI Boundary Valve
SW-V-715	3-B	To Aux. Turbine Building Coolers and SGFP.	0.75	GL	H	LO	Q			ISI Boundary Valve
SW-V-729	3-B	E-10-1A instrument isolation.	1	GL	H	O	Q			ISI Boundary Valve
SW-V-733	3-B	South RHR inlet to Primary Sample Chiller	1.5	GA	H	O	Q			ISI Boundary Valve
SW-V-735	3-B	North RHR inlet to Primary Sample Chiller	1.5	GA	H	O	Q			ISI Boundary Valve

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SW-V-1422A	3-B	Hose connection header isolation	0.75	GA	H	O	Q			ISI Boundary Valve
SW-V-1422B	3-B	Hypochlorite Room service water hose connection.	0.75	GA	H	O	Q			ISI Boundary Valve
CC-CV-225A	3-C	RHR Pump Cooler Supply	1	CK		C	CV		CS	See Note 4 Cycle open and closed
CC-CV-225B	3-C	RHR Pump Cooler Supply	1	CK		C	CV		CS	See Note 4 Cycle open and closed

IST VALVES
TABLE IWV-1

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SPENT FUEL POOL COOLING, 16103-26049										
SF-V-124	3-B	Spent Fuel Pit Pump drain to heat exchanger	2	DIA	H	O	Q			ISI Boundary Valve
SF-V-837	3-B	Spent Fuel Pit purification return throttle	2	GL	H	O	Q			ISI Boundary Valve
SF-CV-812	3-C	SFP Pump "A" Discharge Check	4	CK		O/C	CV			
SF-CV-866	3-C	SFP Pump "B" Discharge Check	4	CK		O/C	CV			

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SI-V-860	2-A	Safety Injection to Sump	3	3	GA		C	Q			Passive
								LT	V-17		Not tested
WG-AOV-558	2-A	PRT Vent Trip	4	0.75	GL	A	O	Q		CS	See Note 45
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			
WG-TV-1845	2-A	PRT Vent Trip	4	1	GA	A	O	Q		CS	See Note 45
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			
WG-V-984A	2-A	PRT Sample	4	0.5	GA	H	LC	Q			Passive
								LT		LLRT	
SS-SOV-150A	1-A	Hydrogen Sample Line	6	0.5	GL	SOL	LC	Q			
								MT	V-5		close in < 2 sec.
								LT		LLRT	
								PI			
SS-SOV-150B	1-A	Hydrogen Sample Line	6	0.5	GL	SOL	LC	Q			
								MT	V-5		close in < 2 sec.
								LT		LLRT	
								PI			

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SS-SOV-150C	1-A	Hydrogen Sample Line	6	0.5	GL	SOL	LC	Q MT LT PI	V-5	 LLRT 	close in < 2 sec.
SS-SOV-150D	1-A	Hydrogen Sample Line	6	0.5	GL	SOL	LC	Q MT LT PI	V-5	 LLRT 	close in < 2 sec.
CH-TV-334	2-A	Seal Water Return Line Trip	7	4	CONT	A	O	Q MT LT PI	 V-14 	 LLRT 	Passive Valve not leak tested
CH-TV-240	2-A	Seal Water Return Line Trip	7	4	CONT	A	O	Q MT LT PI FT	 	CS LLRT 	See Note 47 60 sec to close
CH-TV-241	2-A	Seal Water Return Line Trip	7	4	CONT	A	O	Q MT LT PI FT	 	CS LLRT 	See Note 47 60 sec to close
CH-RV-332	2-AC	Seal Water Return Line Relief	7	3	REL		C	SRV LT	 V-14	 	 Valve not leak tested

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
CH-CV-262	2-AC	Charging Pump Recirculation	7	2	CK		O	CV			Cycle open
								LT	V-14		No leak test performed
CH-CV-399	1-AC	RCS Charging	8	3	CK		O	CV			Cycle open and close
								LT	V-16	ILRT	
SS-SOV-151A	1-A	Hydrogen Sample Line	9A	0.5	GL	SOL	LC	Q			
								MT	V-5		close in < 2 sec.
								LT		LLRT	
								PI			
SS-SOV-151B	1-A	Hydrogen Sample Line	9A	0.5	GL	SOL	LC	Q			
								MT	V-5		close in < 2 sec.
								LT		LLRT	
								PI			
SS-SOV-151C	1-A	Hydrogen Sample Line	9B	0.5	GL	SOL	LC	Q			
								MT	V-5		close in < 2 sec.
								LT		LLRT	
								PI			
SS-SOV-151D	1-A	Hydrogen Sample Line	9B	0.5	GL	SOL	LC	Q			
								MT	V-5		close in < 2 sec.
								LT		LLRT	
								PI			

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
LD-AOV-202	1-A	Letdown Orifice Control	10	2	CONT	A	O/C	Q		CS	See Note 46
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			
LD-AOV-203	1-A	Letdown Orifice Control	10	2	CONT	A	O/C	Q		CS	See Note 46
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			
LD-AOV-204	1-A	Letdown Orifice Control	10	2	CONT	A	O/C	Q		CS	See Note 46
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			
LD-TV-230	1-A	Letdown Control Isolation	10	3	CONT	A	O	Q		CS	See Note 46
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			
SS-TV-950	2-A	Loop and Pressurizer Drain	11A	0.375	GL	A	O	Q			
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			
SS-TV-955	2-A	Pressurizer Steam Space	11B	0.375	GL	A	O	Q			
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SS-AOV-960	2-A	Pressurizer Liquid Space	11C	0.375	GL	A	O	Q MT LT PI FT		 LLRT 	 60 sec to close
SS-AOV-965	2-A	Loop 1 Hot Leg	11D	0.375	GL	A	O	Q MT LT PI FT		 LLRT 	 60 sec to close
DH-TV-1842A	2-A	Valve Stem Leak-off	12A	1.5	CONT	A	O	Q MT LT PI		CS LLRT 	See Note 5 60 sec to close
DH-TV-1842B	2-A	Valve Stem Leak-off	12A	1.5	CONT	A	O	Q MT LT PI		CS LLRT 	See Note 5 60 sec to close
SS-V-999A	2-A	Neutron Shield Tank Sample	12B	0.375	GA	H	LC	LT		LLRT	Passive
WD-HICV-1840	2-A	Sump Pump Discharge	13	2	CONT	A	O	Q MT LT PI		CS LLRT 	See Note 5 60 sec to close

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
WD-TV-1846	2-A	Sump Pump Discharge	13	2	CONT	A	O	Q		CS	See Note 5
								MT			60 sec to close
								LT		LLRT	
								PI			
DH-TV-1843	2-A	Vapor Seal Head Tank Drain	14	1.5	GA	A	O	Q		CS	See Note 5
								MT			60 sec to close
								LT		LLRT	
								PI			
DH-TV-1844	2-A	Vapor Seal Head Tank Drain	14 78	2	GA	A	O	Q		CS	See Note 5
								MT			60 sec to close
								LT		LLRT	
								PI			
NG-SOV-470	2-A	Nitrogen Supply to PRT	20	0.75	GL	SOL	C	Q	V-5		
								MT			close in < 2 sec
								LT		LLRT	
								PI			
NG-CV-557	2-AC	Nitrogen Supply to PRT	20	0.75	CK		C	CV	V-9	R	
								LT		LLRT	
HC-V-220B	2-A	Space Heating Condensate Return	22	3	GA	H	LC	LT		LLRT	Passive

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
LM-TV-1811A	2-A	Open Bulb Leak Monitoring	23A	0.375	GA	A	O	Q		CS	See Note 5
								MT	V-5		60 sec to close
								LT		LLRT	
								PI			
LM-TV-1811B	2-A	Open Bulb Leak Monitoring	23A	0.375	GA	A	O	Q		CS	See Note 5
								MT			60 sec to close
								LT		LLRT	
								PI			
LM-TV-1812	2-A	Closed Bulb Leak Monitoring	23B	0.375	GA	A	O	Q	V-11		No testing required
								MT	V-11		
								LT	V-11		
								PI	V-11		
VH-V-588	2-A	Air Monitor Purge	23D	0.75	GA	H	LC	LT	V-18		Valve not leak tested
SI-V-863A	2-A	Loop 1 SI Test Recirc	24	0.75	GL	H	LC	LT		LLRT 1gpm	Passive
SI-V-863B	2-A	Loop 2 SI Test Recirc	24	0.75	GL	H	LC	LT		LLRT 1gpm	Passive

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SI-V-863C	2-A	Loop 3 SI Test Recirc	24	0.75	GL	H	LC	LT		LLRT 1gpm	Passive
SI-V-863D	2-A	Loop 4 SI Test Recirc	24	0.75	GL	H	LC	LT		LLRT 1gpm	Passive
CC-CV-853	2-AC	CC Water to RCP Oil Cooler	28	6	CK		O	CV LT	V-9	R LLRT	
CC-TV-1411	2-A	CC Water from RCP Oil Cooler	29	6	CONT	A	O	Q LT PI		LLRT	Passive
HS-CV-295A	2-AC	Containment Space Heating Supply	30	6	CK		C	CV LT	V-12 V-12		Valve not tested
HS-CV-295	2-AC	Containment Space Heating Supply	30	6	CK		C	CV LT	V-12 V-12		Valve not tested

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt	Remark
HS-TV-380	2-A	Containment Space Heating Supply	30	1.5	GA	A	O	Q MT LT PI FT		LLRT	60 sec to close
HS-TV-381	2-A	Containment Space Heating Supply	30	1.5	GA	A	O	Q MT LT PI FT		LLRT	60 sec to close
BLANK FLANGE	2-A	Containment Space Heating Supply	30	6			C	LT		LLRT	
PU-V-242	2-A	Refueling Cavity Purification	33	3	GA	H	LC	LT		LLRT	Passive
PU-V-242A	2-A	Refueling Cavity Purification	33	3	GA	H	LC	LT		LLRT	Passive
CC-FCV-608	2-A	CC Water from RCP Thermal Barrier	34	3	CONT	A	O	Q LT PI		LLRT	Passive

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt	Remark
CC-CV-721	2-AC	CC Water to RCP Thermal Barrier	38	3	CK		C	CV	V-10		Valve not tested
								LT	V-10		
CC-TV-912	2-A	CC Water to RCP Thermal Barrier	38	3	GL	A	O	Q		CS	See Note 43
								MT			60 sec to close
								LT			
								PI			
								FT			
CC-TV-913	2-A	CC Water to RCP Thermal Barrier	38	3	GL	A	O	Q		CS	See Note 43
								MT			60 sec to close
								LT			
								PI			
								FT			
VS-1-1B	2-A	Containment Purge Air Exhaust	39	42	BFLY	H	LC	LT		LLRT	Passive
VS-V-1101	2-A	Containment Purge Air Exhaust Bypass	39	8	GA	H	LC	LT		LLRT	Passive
VS-1-1A	2-A	Containment Purge Air Supply	40	42	BFLY	H	LC	LT		LLRT	Passive

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DH-TV-1847	2-A	Drain Header	41	1.5	CONT	A	O	Q		CS	See Note 5
								MT			60 sec. to close
								LT		LLRT	
								PI			
								FT			
DH-TV-1841	1-A	Drain Header	41	1.5	CONT	A	O	Q			
								MT			60 sec to close
								LT		LLRT	
								PI			
								FT			
DH-RV-1847	2-A	Drain Header Relief	41	1.5	REL		C	SRV	V-15		Valve not tested.
								LT			
CC-CV-885	2-AC	CC Water to Neutron Shield Tank Cooler	60	1.5	CK		O	CV	V-8		Valve not tested
								LT	V-8		
CC-TV-917	2-AC	CC Water to Neutron Shield Tank Cooler	60	1.5	GA	A	O	Q		CS	See Note 42
								MT			60 sec. to close
								LT		LLRT	
								PI			
								FT			
CC-TV-920	2-AC	CC Water to Neutron Shield Tank Cooler	60	1.5	GA	A	O	Q		CS	See Note 42
								MT			60 sec. to close
								LT		LLRT	
								PI			
								FT			

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P&	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
CC-TV-1831	2-A	CC Water from Neutron Shield Tank Cooler	61	1.5	CONT	A	O	O		CS	See Note 42
								MT			60 sec. to close
								LT		LLRT	
								PI			
SA-V-413	2-A	Service Air Supply to Containment	62	2	GA	H	LC	LT		LLRT	Passive
CC-V-884	2-A	Neutron Shield Tank Fill Line	63	1.5	GA	H	LC	LT		LLRT	Passive
VS-TV-1848	2-A	Air Monitor Sample from Containment	64	1	GA	A	O	O		CS	See Note 5
								MT			60 sec. to close
								LT		LLRT	
								PI			
								FT			
VS-SOV-12-1	2-A	Air Monitor Sample from Containment	64	0.75	GA	SOL	O	O		CS	See Note 5
								MT	V-5		60 sec to close
								LT		LLRT	
								PI			
VS-CV-1104	2-AC	Air Monitor Sample to Containment	65	1	CK		O	CV	V-9	R	
								LT		LLRT	

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt	Remark
VS-CV-1103	2-AC	Air Monitor Sample to Containment	65	1	CK		O	CV LT	V-9	R LLRT	
CC-CV-731	2-AC	CC Water Supply to Drain Cooler	66	3	CK		C	CV LT	V-9	R LLRT	
CC-FCV-611	2-A	CC Water Supply from Drain Cooler	67	3	CONT	A	O	O MT LT PI		CS LLRT	See Note 44 60 sec to close
PW-CV-140	2-AC	Primary Water to Containment	68	2	CK		C	CV LT	V-9	R LLRT	
PW-CV-139	2-AC	Primary Water to Containment	68	2	CK		C	CV LT	V-9	R LLRT	
FH-CV-296	1-AC	Loop Fill Header Check	69	2	CK		C	CV LT	V-9	R LLRT	Cycle open and verify closed.

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
VH-V-522	2-A	Primary Vent Header	71	2	GL	H	LC	LT		LLRT	Pasive
VH-V-525	2-A	Primary Vent Header	71	2	GL	H	LC	LT		LLRT	Pasive
CH-CV-305D	1-AC	RCS Seal Water Supply	74	2	CK		O	CV LT	V-9	Q/R LLRT	Verify open and closed
CH-CV-305C	1-AC	RCS Seal Water Supply	75	2	CK		O	CV LT	V-9	Q/R LLRT	Verify open and closed
CH-CV-305B	1-AC	RCS Seal Water Supply	76	2	CK		O	CV LT	V-9	Q/R LLRT	Verify open and closed
CH-CV-305A	1-AC	RCS Seal Water Supply	77	2	CK		O	CV LT	V-9	Q/R LLRT	Verify open and closed

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P#	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DH-AOV-554	2-A	PRT Drain	78	2	GA	A	O	Q MT LT PI		CS LLRT 	60 sec to close
RH-MOV-31	2-A	Aux. Containment Spray From Fire System	80	8	GA	M	C	Q MT LT PI	V-13	R LLRT 	Passive
CN-V-1	2-A	Personnel Hatch Equalization Valve	P-A					Q LT		 LLRT	Passive
CN-V-2	2-A	Personnel Hatch Equalization Valve	P-A					Q LT		 LLRT	Passive
Personnel Hatch	2-A	Personnel Hatch	P-A					LT		LLRT	
Electrical Penetrations	2-A	Electrical Penetrations	P-B					LT		LLRT	

CONTAINMENT ISOLATION PENETRATIONS & VALVES
TABLE IWV-2

Valve Number	Class Category	Function	P #	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
Dome Hatch	2-A	Top Dome Vent Flange	P-D					LT		LLRT	
Dome Hatch	2-A	Side Dome Vent Flange	P-E					LT		LLRT	
Equipment Hatch Penetration	2-A	Equipment Hatch Access	P-FA P-FB					LT		LLRT	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
BA-FCV-112C	3-Passive	Boric Acid Blender outlet flow control valve	2	BALL	A	LC	
BA-V-342B	3-Passive	Boric Acid Tank supply isolation	2	BALL	H	O	
BA-V-347	3-Passive	Boric Acid Mix Tank drain to the Aerated Drains Tank	2	GL	H	LC	
BA-V-352	3-Passive	"A" BA Pump Suction Isol.	2	GA	H	LO	ET
BA-V-355	3-Passive	Boric Acid Isolation Valve from Blender to Charging Pumps	2	GL	H	C	
BA-V-359	3-Passive	"B" BA Pump Suction Isol.	2	GA	H	LO	ET
BA-V-360	3-Passive	BA Filter Inlet Isol.	2	GA	H	LO	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
BA-V-362	3-Passive	"B" BA Pump Disch. Isol.	1.5	GA	H	LO	ET
BA-V-363	3-Passive	Borated waste to RWST	2	GL	H	C	
BA-V-364	3-Passive	"A" BA Pump Disch. Isol.	1.5	GA	H	LO	ET
BA-CV-365	3-Passive	Boric Acid Blender outlet check valve to charging pumps	2	CK	C	C	
BA-V-369	3-Passive	Concentrate boric acid to Charging Pump isolation	2	GL	H	C	
BA-V-371	3-Passive	BA Filter Outlet Isol.	2	GL	H	LO	ET
BA-V-387	2-Passive	BA Filter Outlet Isol.	2	GA	H	LO	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
BA-V-388	3-Passive	Boric Acid Filter bypass	2	GL	H	C	
BA-V-389	3-Passive	Boric Acid Pump recirculation	2	GL	H	C	
BA-V-391	3-Passive	Borated waster to RWST isolation	2	GL	H	C	
BA-V-397	3-Passive	Boric Acid Blender header supply isolation	2	GA	H	O	
BA-V-399	3-Passive	BA Tank Outlet Isolation	2	GA	H	LO	ET
BD-V-102	2-Passive	No. 1 steam generator blowdown trip valve isolation	2	GA	H	O	
BD-V-202	2-Passive	No. 2 steam generator blowdown trip valve isolation	2	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
BD-V-302	2-Passive	No. 3 steam generator blowdown trip valve isolation	2	GA	H	O	
BD-V-402	2-Passive	No. 4 steam generator blowdown trip valve isolation	2	GA	H	O	
BD-V-501	2-Passive	No. 1 steam generator surface blowdown isolation	1.5	GA	H	O	
BD-V-502	2-Passive	No. 1 steam generator bottom blowdown isolation	2	GL	H	O	
BD-V-503	2-Passive	No. 1 steam generator bottom blowdown isolation	2	GL	H	O	
BD-V-504	2-Passive	No. 1 steam generator blowdown isolation	3	GA	H	O	
BD-V-505	2-Passive	No. 1 steam generator blowdown isolation		GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
BD-V-506	2-Passive	No. 1 steam generator 2" drain header isolation	2	GL	H	O	ET
BD-V-507	2-Passive	Main Feedwater	1.5		H	C	CIV-Boundary
BD-V-508	2-Passive	No.1 Steam Generator 2" drain header isolation	2	GA	H	O	
BD-V-509	2-Passive	No.2 Steam Generator surface blowdown isolation	1.5	GA	H	O	
BD-V-510	2-Passive	No.2 Steam Generator blowdown isolation	1.5	GA	H	O	
BD-V-511	2-Passive	No.2 Steam Generator bottom blowdown isolation	2	GL	H	O	
BD-V-512	2-Passive	No.2 Steam Generator blowdown isolation	2	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
BD-V-513	2-Passive	No.2 Steam Generator bottom blowdown isolation	2	GL	H	O	
BD-V-514	2-Passive	No. 2 Steam Generator Blowdown Drain	1.5	GA	H	O	CIV-Boundary
BD-V-515	2-Passive	S/G Blowdown CIV	2	GL	H	O	ET, CIV-Boundary
BD-V-517	2-Passive	No. 2 Steam Generator 2" drain header isolation	2	GA	H	O	
BD-V-518	2-Passive	No. 3 Steam Generator bottom blowdown isolation	2	GL	H	O	
BD-V-519	2-Passive	No. 3 Steam Generator blowdown isolation	2	GL	H	O	
BD-V-520	2-Passive	No. 3 Steam Generator bottom blowdown isolation	2	GL	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
BD-V-521	2-Passive	No. 3 Steam Generator blowdown drain isolation	1.5	GA	H	O	
BD-V-522	2-Passive	S/G Blowdown CIV	2	GL	H	O	ET, CIV-Boundary
BD-V-524	2-Passive	No. 3 Steam Generator 2" drain header isolation	2	GA	H	O	
BD-V-525	2-Passive	No. 4 Steam Generator blowdown isolation	2	GL	H	O	
BD-V-526	2-Passive	No. 4 Steam Generator bottom blowdown isolation	2	GA	H	O	
BD-V-527	2-Passive	No. 4 Steam Generator bottom blowdown isolation	2	GL	H	O	
BD-V-528	2-Passive	No. 4 Steam Generator blowdown drain isolation	1.5	GA	H	C	ET, CIV-Boundary

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
BD-V-529	2-Passive	S/G Blowdown CIV	2	GL	H	O	ET, CIV-Boundary
BD-V-531	2-Passive	No.4 Steam Generator 2" drain header isolation	2	GA	H	O	
BD-V-532	2-Passive	#1 S/G blowdown line temporary wet lay-up pump isolation	1.5	BALL	H	C	
BD-V-533	2-Passive	#2 S/G blowdown line temporary wet lay-up pump isolation	1.5	BALL	H	C	
BD-V-534	2-Passive	#3 S/G blowdown line temporary wet lay-up pump isolation	1.5	BALL	H	C	
BD-V-535	2-Passive	#4 S/G blowdown line temporary wet lay-up pump isolation	1.5	BALL	H	C	
CA-V-501	2-Passive	Instrument Air Supply Vent	1.5	GA	H	LC	ET, CIV-Boundary

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CC-V-760A	3-Passive	Isolate CC Water from HX	10	GA	H	LC	ET
CC-V-760B	3-Passive	Isolate CC Water from HX	10	GA	H	LC	ET
CC-V-764A	3-Passive	Isolate CC Water from HX	10	GA	H	LC	ET
CC-V-764B	3-Passive	Isolate CC Water from HX	10	GA	H	LC	ET
CC-V-801	2-Passive	Component Cooling Surge Tank to Containment suction	4	DIA	H	LO	ET
CC-CV-802	2-Passive	CCW from CCW Surge Tank	4	CV	C	O	CIV-Boundary
CD-MOV-10	2-Passive	Condensate makeup bypass to Condenser "B"	6	GA	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CD-V-628	2-Passive	Condenser E-23-1B makeup and Condensate pump suction line vent	2	GL	H	C	
CD-V-630	2-Passive	Condenser E-23-1B make-up line LCV-1317A inlet isolation	8	GA	H	O	
CD-V-632	2-Passive	Condenser make-up from DWST TK-25-1A	10	GA	H	O	
CD-V-633	2-Passive	Aux stm gen feed pump P-32-1C suction isolation from DWST	6	GA	H	O	
CD-V-636	2-Passive	Condensate pump P-35-1A & 1B outlet branch LCV outlet iso.	4	GA	H	O	
CD-V-638	2-Passive	Condensate pump P-35-1A suction isolation from DWST	10	GA	H	C	
CH-V-227	2-Passive	Filter FL-36-1A Drain Isolation	3	GA	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CH-V-230A	2-Passive	Seal Water Filter North Outlet Isolation (FL-59-1B)	2	GL	H	O	
CH-V-230B	2-Passive	Seal Water Supply South Filter (FL-59-1B) Inlet Isolation	2	Angle GL	H	O	
CH-V-236A	2-Passive	MOV-311 Isolation - #1 RCP Seal Water Return	2	GL	H	O	
CH-V-236B	2-Passive	MOV-312 Isolation - #2 RCP Seal Water Return	2	GL	H	O	
CH-V-236C	2-Passive	MOV-313 Isolation - #3 RCP Seal Water Return	2	GL	H	O	
CH-V-236D	2-Passive	MOV-314 Isolation - #4 RCP Seal Water Return	2	GL	H	O	
CH-V-237	2-Passive	Seal Water Return Header Manual Isolation	4	BALL	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CH-V-261	2-Passive	"A" Ch. Pump Suction Isol.	6	GA	H	LO	ET
CH-V-262A	2-Passive	Charging Pump Recirculation Isolation	2	DIA	H	LC	ET
CH-V-264	2-Passive	"A" Ch. Pump Disch. Isol.	3	GA	H	LO	ET
CH-V-265	2-Passive	Discharge to Fill Header	3	GA	H	LC	ET
CH-V-266	2-Passive	"A" Ch. Pump Disch. Isol.	2	Angle Orif	H	O	
CH-V-267	2-Passive	Recirculation Isolation P-18-1A	2	GL	H	LO	ET
CH-V-269	2-Passive	Suction Isolation (P-18-1A)	4	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CH-V-270	2-Passive	"B" Ch. Pump Suction Isol.	6	GA	H	LO	ET
CH-V-273	2-Passive	"B" Ch. Pump Disch. Isol.	3	GA	H	LO	ET
CH-V-274	2-Passive	P-18-1B Discharge to Charging Header	3	GA	H	LO	ET
CH-V-275	2-Passive	"B" Ch. Pump Recirc Orifice B/P to inlet side of Seal Water Ret Flt	2	Angle Orif	H	O	
CH-V-276	2-Passive	P-18-1B Recirculation Orifice Bypass	2	GL	H	LO	ET
CH-V-281	2-Passive	Bypass Isolation From P-11-1A Discharge to P-18-1A, 1B Disch.	2	GL	H	O	
CH-V-282	2-Passive	P-11-1A Disch. Header Isolation to Loop Leg Fill Header	2	GL	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CH-V-283	2-Passive	Charging Pump (P-18-1A, 1B) Disch. Bypass to RCP Seal Header	3	GL	H	C	
CH-V-284	2-Passive	Charging Flow Control Valve (CH-HCV-308) Bypass	3	GL	H	C	
CH-V-286	2-Passive	Charging Flow Control Valve (CH-FCV-110) Inlet Isolation	3	GA	H	O	
CH-V-286A	2-Passive	Flow Control Valve-110 Isolation	3	GA	H	O	
CH-V-286B	2-Passive	Charging Flow Control Valve Bypass Inlet Isolation	3	GA	H	O	
CH-V-286C	2-Passive	Charging Flow Control Valve Bypass Inlet Isolation	3	GA	H	O	
CH-MOV-290	1-Passive	Charging Valve Loop 4	3	GA	M	O	Valve not in service, blocked closed and wire lifted.

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CH-CV-291	1-Passive	Charging Line - Check Valve To CH-MOV-290	3	CK	C	O	
CH-CV-293	1-Passive	Charging header check valve to Loop #2 cold leg	3	CK	C	O	
CH-MOV-292A	1-Passive	Charging Line to Loop No. 2	3	GA	M	O	Valve not in service, blocked open and wire lifted.
CH-V-302A	2-Passive	#1 RCP (P-17-1) Seal Water Supply Isolation	2	GL	H	C	
CH-V-302B	2-Passive	#2 RCP (P-17-2) Seal Water Supply Isolation	2	GL	H	C	
CH-V-302C	2-Passive	#3 RCP (P-17-3) Seal Water Supply Isolation	2	GL	H	C	
CH-V-302D	2-Passive	#4 RCP (P-17-4) Seal Water Supply Isolation	2	GL	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CH-V-303	2-Passive	Seal Water Flow Control Valve (CH-HCV-308) Outlet Isolation	2	GL	H	O	
CH-V-304	2-Passive	Hand Control Vavle - 308 Up Stream Isolation	2	GL	H	O	
CH-HCV-308	2-Passive	Seal Water Supply Control To RCP's	2	GL	H	O	Non safety.
CH-V-309A	2-Passive	Seal Water Supply South Filter (FL-59-1B) Outlet Isolation	2	GL	H	O	
CH-V-309B	2-Passive	Seal Water Supply South Filter (FL-59-1B) Inlet Isolation	2	GL	H	O	
CH-V-324	2-Passive	Seal Water Heat Exchanger Bypass	3	GA	H	C	
CH-V-333	2-Passive	Seal Water Return Filter Bypass	3	GA	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
CH-V-339	2-Passive	Seal Water Filter Outlet Isolation	4	GA	H	O	
CH-V-339A	2-Passive	Seal Water Return Heat Exchanger (E-45-1A) Bypass to VCT	3	DIA	H	C	
CH-V-340	2-Passive	Seal Water Filter Outlet Isolation	4	GA	H	O	
CH-V-341	2-Passive	Seal Water Return Heat Exchanger Outlet Isolation	4	GA	H	O	
CH-V-383	2-Passive	Drain Cooler (E-52-1A) header to Seal Water FLT (E-36-1A) Isol.	2	GA	H	O	
CH-CV-383A	2-Passive	Drain Cooler (E-52-1A) header to RCP Seal WTR FLT Check	2	CK	C	O	
CH-V-397	2-Passive	Seal Water Filter Inlet Isolation	4	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
DH-V-313	2-Passive	Loop Drain Header to Drain Cooler E-52-1 Inlet Isolation	2	GL	H	O	
DH-V-315	2-Passive	Pressurizer Relief Tank drain vent	2	BALL	H	LC	ET, CIV-Boundary
DH-V-319	2-Passive	Inlet To Primary Drains Tank	2	DIA	H	LC	ET
DH-V-407	2-Passive	Cross Connection to Primary Drains Tank	2	DIA	H	LC	ET
DH-V-408	2-Passive	To Primary Drains Tank	2	BALL	H	C	
DH-V-502	2-Passive	Loop 4 Manual Drain	1.5	GL	H	LC	ET
DH-V-502A	2-Passive	Loop 4 Drain	1.5	GL	H	LC	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
DH-V-516	2-Passive	Loop 3 Manual Drain	1.5	GL	H	LC	ET
DH-V-516A	2-Passive	Loop 3 Drain	1.5	GL	H	LC	ET
DH-V-525	2-Passive	Loop 4 Refueling Reference Drain Valve	1.5	GL	H	C	
DH-V-529	2-Passive	Loop 2 Manual Drain	1.5	GL	H	LC	
DH-V-529A	2-Passive	Loop 2 Drain	1.5	GL	H	C	
DH-V-539	2-Passive	Loop 1 Manual Drain	1.5	GL	H	LC	
DH-V-539A	2-Passive	Loop 1 Drain	1.5	GL	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
DH-MOV-562	2-Passive	Pressurizer MOV Drain Drain Valve	1.5	GL	M	C	
DW-CV-507	2-Passive	Check valve to Demineralizer Water Storage Tank	3	CK	C	C	
DW-V-508	2-Passive	To DWST	3	DIA	M	O	
DW-V-525	2-Passive	Forwarding pump isolation P-39-1A & 1B	3	DIA	M	C	
DW-V-526A	2-Passive	Forwarding pump isolation P-39-1A & 1B	3	DIA	M	C	
DW-V-602A	2-Passive	DWST heater E-55-1A outlet isolation	1.25	GA	M	O	
DW-V-1633	2-Passive	Deaerator (D-1-1A) isolation to condensate bypass	3	DIA	M	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
DW-V-1634	2-Passive	Flow meter inlet isolation	2	BALL	H	O	
DW-V-1635	2-Passive	Flow meter outlet isolation	2	BALL	H	O	
DW-V-1636	2-Passive	Flow meter outlet drain isolation	2	GL	H	C	
DW-V-1637	2-Passive	Demin water to condensate isolation	3	DIA	H	C	
FH-V-294	2-Passive	Fill Header To Pressurizer Spray Isolation	1.5	GL	H	C	
FW-V-131A	2-Passive	1A feedwater heater outlet isolation valve	18	GA	H		
FW-V-131B	2-Passive	1B feedwater heater outlet isolation valve	18	GA	H		

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	al ...on	Remark
FW-V-136-1	2-Passive	No. 1 feedwater bypass inlet isolation	3	GA	H	O	
FW-V-136-2	2-Passive	No. 2 feedwater bypass inlet isolation	3	GA	H	O	
FW-V-136-3	2-Passive	No. 3 feedwater bypass inlet isolation	3	GA	H	O	
FW-V-136-4	2-Passive	No. 4 feedwater bypass inlet isolation	3	GA	H	O	
FW-V-137-1	2-Passive	No. 1 feedwater bypass outlet isolation	3	GA	H	O	
FW-V-137-2	2-Passive	No. 2 feedwater bypass outlet isolation	3	GA	H	O	
FW-V-137-3	2-Passive	No. 3 feedwater bypass outlet isolation	3	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
FW-V-137-4	2-Passive	No. 4 feedwater bypass outlet isolation	3	GA	H	O	
FW-V-142-1	2-Passive	No. 1 feedwater manual isolation stop valve	12	GA	H	O	
FW-V-142-2	2-Passive	No. 2 feedwater manual isolation stop valve	12	GA	H	O	
FW-V-142-3	2-Passive	No. 3 feedwater manual isolation stop valve	12	GA	H	O	
FW-V-142-4	2-Passive	No. 4 feedwater manual isolation stop valve	12	GA	H	O	
FW-V-149	2-Passive	DWST outlet isolation to auxiliary feed pump	6	GA	H	O	
FW-V-150	2-Passive	1A auxiliary feed pump suction isolation valve	6	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
FW-V-153	2-Passive	1A auxiliary feed pump discharge	3	GA	H	O	
FW-V-157	2-Passive	Auxiliary feed pump discharge isolation to containment	3	GA	H	O	
FW-V-157-1	2-Passive	Terry Turbine to No.1 feedwater line isolation	1.5	GL	H	O	
FW-V-157-2	2-Passive	Terry Turbine to No.2 feedwater line isolation	1.5	GL	H	O	
FW-V-157-3	2-Passive	Terry Turbine to No.3 feedwater line isolation	1.5	GL	H	O	
FW-V-157-4	2-Passive	Terry Turbine to No.4 feedwater line isolation	1.5	GL	H	O	
FW-V-181	2-Passive	Auxiliary feed pump isolation valve	3	GA	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
FW-V-183	2-Passive	1A auxiliary feed pump discharge	3	GA	H	O	
FW-V-190	2-Passive	1B auxiliary feed pump suction flow	6	GA	H	O	
FW-V-191	2-Passive	#4 steam generator auxiliary feedwater supply manual iso.	1.5	GA	H	O	
FW-CV-192	2-Passive	#4 steam generator auxiliary feedwater supply check valve	1.5	CK	C	O	
FW-V-193	2-Passive	#3 steam generator auxiliary feedwater supply manual iso.	1.5	GA	H	O	
FW-CV-194	2-Passive	#3 steam generator auxiliary feedwater supply check valve	1.5	CK	C	O	
FW-V-195	2-Passive	#2 steam generator auxiliary feedwater supply manual iso.	1.5	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
FW-CV-196	2-Passive	#2 steam generator auxiliary feedwater supply check valve	1.5	CK	C	O	
FW-V-197	2-Passive	#1 steam generator auxiliary feedwater supply manual iso.	1.5	GA	H	O	
FW-CV-198	2-Passive	#1 steam generator auxiliary feedwater supply check valve	1.5	CK	C	O	
FW-V-210	2-Passive	Aux feed pump suction header bypass from DWST	6	GA	H	O	
GW-V-901A	3-Passive	Gland seal pump P-58-1A suction isolation	2	GA	H	O	
GW-V-901B	3-Passive	Gland seal pump P-58-1A suction isolation	2	GA	H	O	
GW-CV-902A	3-Passive	Gland seal pump P-58-1A discharge check valve	1.5	CK	C	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
GW-CV-902B	3-Passive	Gland seal pump P-58-1B discharge check valve	1.5	CK	C	O	
GW-V-903A	3-Passive	Gland seal pump P-58-1A discharge isolation	1.5	CK	H	O	
GW-V-903B	3-Passive	Gland seal pump P-58-1B discharge isolation	1.5	CK	H	O	
HC-V-104	2-Passive	To demineralizer water storage tank	4	GA	H	C	
HS-V-383	2-Passive	Containment Space Heating Supply P-30	2	GA	H	LC	ET
LD-V-221	2-Passive	Manual Isolation Valve to Letdown Orifice	3	GA	H		
LD-V-229	2-Passive	Letdown Header Redudant Manual Isolation	3	GL	H		

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
MS-NRV-17	3-Passive	#1 Steam Generator main non return valve bypass	2	GL	H	C	CIV-Boundary
MS-NRV-27	3-Passive	#2 Steam Generator main non return valve bypass	2	GL	H	C	CIV-Boundary
MS-NRV-37	3-Passive	#3 Steam Generator main non return valve bypass	2	GL	H	C	CIV-Boundary
MS-NRV-47	3-Passive	#4 Steam Generator main non return valve bypass	2	GL	H	C	CIV-Boundary
MS-V-19	2-Passive	Main steam low point drain	1.5	GL	H	O	
MS-V-192	2-Passive	#1 Main steam drain line to trap	1.5	GL	H	O	
MS-V-29	2-Passive	Main steam low point drain	1.5	GL	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
MS-V-292	2-Passive	#2 Main steam drain line to trap	1.5	GL	H	O	
MS-V-39	2-Passive	Main steam low point drain	1.5	GL	H	O	
MS-V-392	2-Passive	#3 Main steam drain line to trap	1.5	GL	H	O	
MS-V-49	2-Passive	Main steam low point drain	1.5	GL	H	O	
MS-V-492	2-Passive	#4 Main steam drain line to trap	1.5	GL	H	O	
MS-V-501	2-Passive	"B" Terry Turbine inlet steam isolation	2	GA	H	O	
MS-V-930	2-Passive	Aux feed pump P-32-1A steam supply iso. from S/G E-6-1 & 2	1.5	GL	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
MS-V-1201A	2-Passive	#1 & 2 S/G header to atmosphere dump	3	GA	H	O	
MS-V-1201B	2-Passive	#3 & 4 S/G header to atmosphere dump	3	GA	H	O	
MS-CV-1302	2-Passive	#1 & 2 S/G header CV to atmospher dump	4	CK	C	O	
MS-CV-1304	2-Passive	#3 & 4 S/G header CV to atmospher dump	3	CK	C	O	
MS-V-1305	2-Passive	Atmosphere dump isolation	2.5	GA	H	O	
MS-V-1306	2-Passive	Terry Turbine steam header cross-connect isolation	3	GA	H	C	
MS-V-1307	2-Passive	Terry Turbine steam header cross-connect isolation	3	GA	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
PR-V-573A	2-Passive	Pressurizer Spray Valve (PR-AOV-573) Outlet Isolation	2	GL	H	O	
PR-V-573B	2-Passive	Pressurizer Spray Valve (PR-AOV-573) Inlet Isolation	2	GL	H	O	
PR-V-574A	2-Passive	Pressurizer Spray Valve (PR-AOV-574) Outlet Isolation	2	GL	H	O	
PR-V-574B	2-Passive	Pressurizer Spray Valve (PR-AOV-574) Inlet Isolation	2	GL	H	O	
PR-MOV-596	2-Passive	Pressurizer Relief Isolation	3	GA	M	O	
PR-MOV-597	2-Passive	Pressurizer Relief Isolation	3	GA	M		
PR-MOV-598	2-Passive	Pressurizer Relief Isolation	3	GA	M		

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
PR-MOV-599	2-Passive	Pressurizer Relief Isolation	3	GA	M		
PU-V-243	2-Passive	Refueling Cavity Purification Vent	3	GA	H	LC	ET, CIV-Boundary
PU-V-261	2-Passive	Purification pump suction from RHR	4	DIA	H	C	
PU-V-261A	2-Passive	Purification pump suction from RWST	3	DIA	H	O	
PU-V-261B	2-Passive	RHR outlet ot purification pump	3	DIA	H	C	
PU-V-264	2-Passive	Purification pump discharge to RWST	2.5	GA	H	C	
PU-V-275	2-Passive	Purification pump discharge to RWST	2.5	GA	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
PW-FCV-112A	2-Passive	Primary Water pressure control valve to Boric Acid Blender	2	GL	H		
PW-V-342A	2-Passive	Primary Water to Boric Acid Tank	2	GL	H	C	
PW-CV-358	2-Passive	Primary Water to Boric Acid Tank	2	Swing CK	H		
PW-V-820	2-Passive	Primary Water to Spent Fuel	2	Ball	H	C	
RC-MOV-510	2-Passive	Loop 4 Bypass	6	GL	M	C	No safety function.
RC-MOV-515	2-Passive	Loop 3 Main Coolant Bypass	6	GL	M	C	No safety function.
RC-MOV-528	2-Passive	Loop 2 Main Coolant Bypass	6	GL	M	C	No safety function.

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
RC-MOV-577	2-Passive	Loop 1 Main Coolant Bypass	6	GL	M	C	No safety function.
RC-V-579	2-Passive	Loop 3 Relief Isolation	1.5	GL	H	O	
RC-V-580	2-Passive	Loop 4 Relief Isolation	1.5	GL	H	LO	ET
RC-V-581	2-Passive	Loop 1 Relief Isolation	1.5	GL	H	LO	ET
RC-V-582	2-Passive	Loop 2 Pressure Relief Isolation	1.5	GL	H	LO	
RH-V-23A	2-Passive	Containment Spray Isolation	8	GA	H	LO	ET
RH-V-29A	2-Passive	Charcoal Filter Spray Manual Isolation	3	GA	H	LO	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
RH-CV-35	2-Passive	Fire Header Check Valve to Containment Spray	8	CK	C		
RH-V-239A	2-Passive	Charcoal Filter Spray Manual Isol.	3	GA	H		
RH-FCV-602	2-Passive	RHR HX Bypass Flow Control	8	BFLY	A	LC	ET
RH-V-724	2-Passive	RHR to RWST	6	GA	H	LO	ET
RH-V-783	2-Passive	RHR HX	6	GA	H	LO	ET
RH-CV-784	2-Passive	RWST to RHR pump suction	10	CK	C		
RH-V-785A	2-Passive	"A" RHR Pump Suction Isol.	8	GA	H	LO	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
RH-V-785B	2-Passive	"B" RHR Pump Suction Isol.	8	GA	H	LO	ET
RH-V-789A	2-Passive	"A" RHR Pump Discharge Isol.	8	GA	H	LO	ET
RH-V-789B	2-Passive	"B" RHR Pump Discharge Isol.	8	GA	H	LO	ET
RH-V-791A	2-Passive	"A" RHR HX Supply Isol.	8	GA	H	LO	ET
RH-V-791B	2-Passive	"B" RHR HX Supply Isol.	8	GA	H	LO	ET
RH-V-794A	2-Passive	"A" RHR HX Return Isol.	8	GA	H	LO	ET
RH-V-794B	2-Passive	"B" RHR HX Return Isol.	8	GA	H	LO	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
RH-FCV-796	2-Passive	RHR HX Flow Control	10	BFLY	A	LO	ET
RH-V-808	2-Passive	Containment Sump to RHR Suction Vent	8	GA	H	LC	ET, CIV-Boundary
RH-V-874A	2-Passive	RHR supply isolation to Purification Pump (P-12-1A)	4	GL	H		
SF-V-124	2-Passive	Spent Fuel Pit Pump Drain to Heat Exchanger	2	DIA	H	O	
SF-CV-809	2-Passive	Suction check valve in spent fuel pool	4	CK	C	C	
SF-V-810	2-Passive	Spent Fuel Pit Top Suction Isolation	4	GA	H	O	
SF-V-811	2-Passive	Spent Fuel Pit Bottom Suction Isolation	4	GA	H	LC	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SF-V-813	2-Passive	Spent Fuel Pit Pump Discharger Throttle to Heat Exchanger	4	GL	H	O	
SF-V-818	2-Passive	Spent Fuel Pit Heat Exchanger E-10-1A Discharge Header Iso.	4	GA	H	O	
SF-V-837	2-Passive	Spent Fuel Pit Purification ReTurn Throttle	2	GL	H	O	
SF-V-850	2-Passive	Spent Fuel Pit Heat Exchanger E-10-1B Outlet Isolation	6	BFLY	H	C	
SF-V-851	2-Passive	Spent Fuel Pit Heat Exchanger E-10-1B Discharge	4	BFLY	H	C	
SF-V-852	2-Passive	Spent Fuel Cooling Pump P-21-1B Inlet Isolation	4	BFLY	H	C	
SF-V-853	2-Passive	Spent Fuel Cooling Pump P-21-1A Inlet Isolation	4	BFLY	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SF-V-854	2-Passive	Spent Fuel Heat Exchanger E-10-1B Inlet Isolation	6	BFLY	H	C	
SF-V-855	2-Passive	Spent Fuel Cooling Pump P-21-1B Discharge Isolation	4	BFLY	H	C	
SF-V-856	2-Passive	Spent Fuel Pump P-21-1A to P-21-1B Cross Connect Iso.	4	BFLY	H	C	
SF-V-857	2-Passive	Spent Fuel Pump P-21-1A Discharge Isolation	4	BFLY	H	C	
SF-V-863	2-Passive	Spent Fuel Pit Heat Exchanger E-10-1B to 1A Cross Conn Iso.	4	BFLY	H	C	
SF-CV-864	2-Passive	Spent Fuel Heat Exchangers E-10-1A, 1B Cross Connect	4	CK	C	C	
SF-CV-865	2-Passive	Spent Fuel Heat Exchangers E-10-1A Outlet Check Valve	4	CK	C	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SI-V-102	2-Passive	LPSI Discharge to RHR System	10	GA	H	LO	ET
SI-V-104A	2-Passive	"A" LPSI Pump Suction Isol.	12	GA	H	LO	ET
SI-V-104B	2-Passive	"B" LPSI Pump Suction Isol.	12	GA	H	LO	ET
SI-V-105A	2-Passive	"A" LPSI Pump Discharge Isol.	10	GA	H	LO	ET
SI-V-105B	2-Passive	"B" LPSI Pump Discharge Isol.	10	GA	H	LO	ET
SI-V-106A	2-Passive	"A" LPSI Pump Recirc to RWST	2	GL	H	LO	ET
SI-V-106B	2-Passive	"B" LPSI Pump Recirc to RWST	2	GL	H	LO	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SI-MOV-854A	2-Passive	HPIS Suction	8	GA	M	LC	See note 48
SI-MOV-854B	2-Passive	HPIS Suction	8	GA	M	LC	See note 48
SI-MOV-873	2-Passive	RHR to Core Deluge System	6	GA	M	LO	See note 48
SI-V-854A	2-Passive	"A" HPSI Pump Suction Isol.	8	GA	H	LO	ET
SI-V-854B	2-Passive	"B" HPSI Pump Discharge Isol.	8	GA	H	LO	ET
SI-V-855A	2-Passive	"A" HPSI Pump Discharge Isol.	6	GA	H	LO	ET
SI-V-855B	2-Passive	"B" HPSI Pump Discharge Isol.	6	GA	H	LO	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SI-V-864	2-Passive	Purification to HPSI pump safety injectin header isolation	2.5	GA	H	C	
SI-CV-864A	2-Passive	Purification to HPSI pump safety injectin header check valve	2.5	CK	C	C	
SI-V-878	2-Passive	RWST Recirc Inlet Isolation	6	GA	H	LO	ET
SI-V-879	2-Passive	RWST Drain Isolation	2	GA	H	C	
SI-V-900	2-Passive	RHR to HPSI Crosstie Manual Isolation	8	GA	H	O	
SI-MOV-901	2-Passive	RHR to "A" HPSI Pump Crosstie Isolation	8	GA	M	C	See Note 48
SI-MOV-902	2-Passive	RHR to "B" HPSI Pump Crosstie Isolation	8	GA	M	C	See Note 48

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SI-V-905	2-Passive	Loop #1 SI Throttle Valve	3	GL	H	O	
SI-V-906	2-Passive	Loop #2 SI Throttle Valve	3	GL	H	O	
SI-V-907	2-Passive	Loop #3 SI Throttle Valve	3	GL	H	O	
SI-V-908	2-Passive	Loop #4 SI Throttle Valve	3	GL	H	O	
SI-HCV-1881	2-Passive	HPSI Recirc Isolation	2	GL	H	LC	
SW-V-5A	2-Passive	Service water isolation	10	BFLY	H	LO	ET
SW-V-6A	2-Passive	Service water isolation	10	BFLY	H	LO	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-101A	2-Passive	Service water pump A discharge isolation	16	BFLY	H	C	
SW-V-101B	2-Passive	Service water pump B discharge isolation	16	BFLY	H	C	
SW-V-101C	2-Passive	Service water pump C discharge isolation	16	BFLY	H	C	
SW-V-101D	2-Passive	Service water pump D discharge isolation	16	BFLY	H	C	
SW-V-102	2-Passive	Service water header cross connection	16	BFLY	H	C	
SW-V-103A	2-Passive	North header to screenwash header	6	GA	H	O	
SW-V-103B	2-Passive	South header to screenwash header	6	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-104A	2-Passive	North header to heating condensate heater	2	GL	H	C	
SW-V-104B	2-Passive	South header to heating condensate heater	2	GL	H	O	
SW-V-109A	2-Passive	Service water header isolation at screenwell	24	BFLY	H		
SW-V-109B	2-Passive	Service water header isolation at screenwell	24	BFLY	H		
SW-V-110A	2-Passive	Service water header drain isolation	2	GL	H	C	
SW-V-110B	2-Passive	Service water header drain	2	GL	H	C	
SW-V-111A	2-Passive	North header to service water filters	2	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-111B	2-Passive	Isolation from south header to service water filters	2	GA	H	O	
SW-V-112A	2-Passive	Isolation from north header to HP ejector and SW filters	2	GA	H	O	
SW-V-112B	2-Passive	Isolation from south header to SW fitlers and HP ejector	2	GA	H	O	
SW-V-140	2-Passive	Diesel generator "A" inlet isolation	4	GA	H	LO	ET
SW-V-141	2-Passive	Diesel generator "B" inlet isolation	4	GA	H	LO	ET
SW-V-144A	2-Passive	Service water to DG A heaver isolation	6	GA	H	LO	ET
SW-V-146B	2-Passive	Service water to DG A header isolation	6	GA	H	LO	ET

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-147	2-Passive	Service water to diesel generators cross conn.	4	GA	H		
SW-V-216	2-Passive	Drain isolation from FL-53-1B (Adams filter)	3	GA	H		
SW-V-217	2-Passive	South component cooling heat exchanger E-4-1A supply	16	BFLY	H	C	
SW-V-218	2-Passive	South component cooling heat exchanger E-4-1A supply	16	BFLY	H	C	
SW-V-219	2-Passive	North component cooling heat exchanger E-4-1B supply	16	BFLY	H	C	
SW-V-220	2-Passive	CC heat exchanger E-4-1B supply iso. from "B" Adams filter inlet	16	BFLY	H	C	
SW-V-224A	2-Passive	Service water to boric acid tank vent condenser E-78-1A	2	GL	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-225A	2-Passive	Service water to distillate cooler E-15-1A	2	GA	H	O	
SW-V-226	2-Passive	Flow indicator isolation off filter header	1.5	GL	H	O	
SW-V-227	2-Passive	Flow indicator isolation off filter header	1.5	GL	H	O	
SW-V-228	3-Passive	Evaporator overhead condenser E-14-1A supply	8	GA	H	O	
SW-V-229	3-Passive	Evaporator overhead condenser E-14-1A supply	8	GA	H	O	
SW-V-230	3-Passive	Evaporator overhead condenser E-14-1A supply	8	GA	H	O	
SW-V-231	3-Passive	SW-PRCV-1G02 inlet isolation	8	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-232	3-Passive	SW-PRCV-1002 outlet isolation	8	GA	H	O	
SW-V-233	3-Passive	SW-PRCV-1002 bypass	8	GL	H	O	
SW-V-234	2-Passive	Primary plant service water filter FL-53-1B inlet isolation	16	BFLY	H	C	
SW-V-235	2-Passive	Primary plant service water filter FL-53-1A inlet isolation	16	BFLY	H		
SW-V-236	2-Passive	To re[illegible] containment recirc. air [illegible] coils	12	BFLY	H	C	
SW-V-237	2-Passive	To [illegible] containment recirc. air cooling coils	12	BFLY	H	C	
SW-V-238	2-Passive	Service water to spent fuel pit HX E-10-1A&1B header isolation	6	GA	H	O	

VALVES IN IST BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE SWV-2A

Valve Number	Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-[illegible]	2-Passive	Service water to spent fuel pit HX E-10-1A&1B header isolation	6	GA	H	O	
[illegible]	[illegible]ssive	Drain isolation from FL-53-1A (Adams filter)	3	GA	H	C	
SW-V-247	3-Passive	Distillate Cooler E-15-1A inlet isolation	2	GA	H	O	
SW-V-249	3-Passive	Distillate Cooler E-15-1A outlet isolation	2	GA	H	O	
SW-V-250A	3-Passive	SW Outlet from RHR HX	10	BFLY	H	LO	ET
SW-V-250B	3-Passive	SW Outlet from RHR HX	10	BFLY	H	LO	ET
SW-V-263	2-Passive	Unit #4 fan cooling inlet	6	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-264	2-Passive	Reactor containment recirc cooling coils to header	6	BALL	H	O	
SW-V-265	2-Passive	Unit #3 fan cooling inlet	6	GA	H	O	
SW-V-266	2-Passive	#2 car fan service water return header penetration isolation	6	BALL	H	O	
SW-V-267	2-Passive	Unit #2 fan cooling inlet	6	GA	H	O	
SW-V-268	2-Passive	Reactor containment recirc cooling coils to header	6	BALL	H	O	
SW-V-269	2-Passive	Unit #1 fan cooling inlet	6	GA	H	O	
SW-V-270	2-Passive	Reactor containment recirc cooling coils to header	6	BALL	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-271A	2-Passive	Service Water for CAR Cooling			H		CIV-Boundary
SW-V-271B	2-Passive	Service Water for CAR Cooling			H		CIV-Boundary
SW-V-271C	2-Passive	Service Water for CAR Cooling			H		CIV-Boundary
SW-V-271D	2-Passive	Service Water for CAR Cooling			H		CIV-Boundary
SW-V-281	2-Passive	Fire pump discharge to service water header isolation	10	GA	H		
SW-CV-282	2-Passive	Fire pump discharge to service water header check valve	10	Swing CK	C	C	
SW-V-300	2-Passive	Spent fuel pit heat exchanger E-10-1A inlet isolation	6	BFLY	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-301	2-Passive	Spent fuel pit heat exchanger E-10-1B inlet-outlet crossover	6	BFLY	H	C	
SW-V-302	2-Passive	Spent fuel pit heat exchanger E-10-1B bypass	6	BFLY	H	C	
SW-V-303	2-Passive	Spent fuel pit heat exchanger E-10-1B outlet isolation	6	BFLY	H	C	
SW-V-304	2-Passive	Spent fuel pit heat exchanger E-10-1B inlet isolation	6	BFLY	H	C	
SW-V-401A	2-Passive	North header supply to E-90-1A & 1B	6	GA	H	O	
SW-V-401B	2-Passive	South header supply to E-90-1A & 1B	6	GA	H	O	
SW-V-437	3-Passive		2		H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-602	2-Passive	Screenwash booster pump P-102 inlet isolation	10	GA	H		
SW-V-603	2-Passive	Screenwash booster pump P-102-1A discharge header iso.	6	GA	H		
SW-PCV-606	3-Passive		6		A	C	
SW-V-615	2-Passive	Vent	2	GA	H	C	
SW-V-616	2-Passive	Vent	2	GA	H	C	
SW-V-708	2-Passive	Vent	2	GA	H	C	
SW-V-709	2-Passive	Vent	2	GA	H	C	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-733	2-Passive	South RHR inlet to primary sample chiller	1.5	GA	H	O	
SW-V-735	2-Passive	North RHR inlet to primary sample chiller	1.5	GA	H	O	
SW-V-771A	2-Passive	#1 Car fan moter cooler E-77-1 SW inlet isolation	2	GA	H	O	
SW-V-771B	2-Passive	#1 Car fan moter cooler E-77-1 SW outlet isolation	2	GA	H	O	
SW-V-771-A1	2-Passive	Service Water for CAR Cooling			H	C	CIV-Boundary
SW-V-771-B1	2-Passive	Service Water for CAR Cooling			H	C	CIV-Boundary
SW-V-772A	2-Passive	#2 Car fan moter cooler E-77-1 SW inlet isolation	2	GA	H	O	

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-772B	2-Passive	#1 Car fan moter cooler E-77-1 SW outlet isolation	2	GA	H	O	
SW-V-772-A1	2-Passive	Service Water for CAR Cooling			H	C	CIV-Boundary
SW-V-772-B1	2-Passive	Service Water for CAR Cooling			H	C	CIV-Boundary
SW-V-773A	2-Passive	#3 Car fan moter cooler E-77-1 SW inlet isolation	2	GA	H	O	
SW-V-773B	2-Passive	#1 Car fan moter cooler E-77-1 SW outlet isolation	2	GA	H	O	
SW-V-773-A1	2-Passive	Service Water for CAR Cooling			H	C	CIV-Boundary
SW-V-773-B1	2-Passive	Service Water for CAR Cooling			H	C	CIV-Boundary

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-774A	2-Passive	#2 Car fan moter cooler E-77-1 SW inlet isolation	2	GA	H	O	
SW-V-774B	2-Passive	#1 Car fan moter cooler E-77-1 SW outlet isolation	2	GA	H	O	
SW-V-774-A1	2-Passive	Service Water for CAR Cooling			H	C	CIV-Boundary
SW-V-774-B1	2-Passive	Service Water for CAR Cooling			H	C	CIV-Boundary
SW-V-785	2-Passive	Service water isolation	1.5	BALL	H		
SW-V-786	2-Passive	Service water isolation	1.5	BALL	H		
SW-V-787	2-Passive	Service water isolation	1.5	BALL	H		

VALVES IN ISI BOUNDARY NOT SUBJECT TO TESTING (>1")
TABLE IWV-3A

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Remark
SW-V-788	2-Passive	Service water isolation	1.5	BALL	H		
SW-PRCV-1002	3-Passive	Boron Recovery Evap. Overhead Condenser E-14-1A outlet	6	GL		O	
SW-TCV-1023	2-Passive	Distukkate Cooler E-15-1A	1.5			O	
SW-FCV-1412	2-Passive	Spent fuel pit heat exchanger E-10-1A discharge control	6	GA	A	O	
SW-FCV-112	2-Passive	Screenwash booster pump isolation	8	BFLY	H	C	

VALVE NOT TESTED (1" AND UNDER)
TABLE IWV-3B

BA-CV-350
BA-FCV-112B
BA-V-201
BA-V-245
BA-V-245A
BA-V-289
BA-V-350
BA-V-351
BA-V-356
BA-V-393
BA-V-398
BA-V-398A
BA-V-400
BA-V-567
BD-V-101
BD-V-201
BD-V-301
BD-V-401
BD-V-507A
BD-V-516
BD-V-523
BD-V-530
CA-V-502
CC-V-761A
CC-V-761B
CC-V-765A
CC-V-765B
CC-V-766A
CC-V-766B
CC-V-767A
CC-V-767B
CC-V-768A
CC-V-768B
CC-V-842
CC-V-852A
CC-V-857A
CC-V-884A
CD-V-629
CD-V-1331
CH-CV-326
CH-CV-327A
CH-CV-327B
CH-CV-327C
CH-CV-327D
CH-V-229A
CH-V-229B
CH-V-229C
CH-V-229D
CH-V-229E
CH-V-229F
CH-V-229G
CH-V-230B
CH-V-230C
CH-V-230D
CH-V-230E
CH-V-238
CH-V-239
CH-V-259
CH-V-260A
CH-V-261A
CH-V-262B
CH-V-270A
CH-V-271A
CH-V-271B
CH-V-271C
CH-V-271D
CH-V-285
CH-V-286D
CH-V-286E
CH-V-287
CH-V-288
CH-V-300A
CH-V-300B
CH-V-300C
CH-V-300D
CH-V-300E
CH-V-300F
CH-V-300G
CH-V-300H
CH-V-301
CH-V-301B
CH-V-301C
CH-V-301D
CH-V-301E
CH-V-301F
CH-V-301G
CH-V-301H
CH-V-306A
CH-V-306B
CH-V-306C
CH-V-306D
CH-V-307A
CH-V-307B
CH-V-307C
CH-V-307D
CH-V-309B
CH-V-309C
CH-V-309D
CH-V-309E
CH-V-315
CH-V-318A
CH-V-318B
CH-V-319A
CH-V-319B
CH-V-319C
CH-V-319D
CH-V-319E
CH-V-319F
CH-V-319G
CH-V-319H
CH-V-319J
CH-V-319K
CH-V-325
CH-V-328A
CH-V-328B
CH-V-328C
CH-V-328D
CH-V-329A
CH-V-329B
CH-V-329C
CH-V-329D
CH-V-329E
CH-V-329F
CH-V-329G
CH-V-329H
CH-V-330
CH-V-335
CH-V-336
CH-V-338
CH-V-343A
CH-V-343B
CH-V-343C
CH-V-343D
CH-V-343E
CH-V-343F

VALVE NOT TESTED (1" AND UNDER)
TABLE IWV-3B

CH-V-343G
CH-V-343H
CH-V-345A
CH-V-345B
CH-V-345C
CH-V-345D
CH-V-346
CH-V-380
CH-V-380A
CH-V-394A
CH-V-394A
CH-V-394B
CH-V-398A
CH-V-398A
CH-V-398B
CH-V-401
CH-V-402
CH-V-403
CH-V-404
CH-V-405
CH-V-405
CH-V-406
CH-V-407
CH-V-410
CH-V-411
CH-V-412
CH-V-413
CH-V-414
CH-V-415
CH-V-416
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CH-V-418
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CH-V-432
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CH-V-460
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CH-V-470
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CH-V-472
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CH-V-495
CH-V-496
CH-V-497
CH-V-498
CH-V-499
CH-V-500
CH-V-501
DH-V-101
DH-V-108
DH-V-312
DH-V-313A
DH-V-314
DH-V-315
DH-V-316B
DH-V-316C
DH-V-317
DH-V-318
DH-V-587A
DH-V-874
DMV-1307A
DMV-1307B
DW-V-527
FH-V-297
FH-V-345
FH-V-348
FH-V-349
FH-V-381
FH-V-382
FW-CV-180
FW-CV-521
FW-CV-522
FW-CV-523
FW-CV-524
FW-V-1201-1

VALVE NOT TESTED (1" AND UNDER)
TABLE IWV-3B

FW-V-1201-2
FW-V-1201-3
FW-V-1201-4
FW-V-1301-10
FW-V-1301-11
FW-V-1301-12
FW-V-1301-5
FW-V-1301-6
FW-V-1301-7
FW-V-1301-8
FW-V-1301-9
FW-V-1321-2
FW-V-1321-3
FW-V-1322
FW-V-1326
FW-V-1327
FW-V-138-1
FW-V-138-2
FW-V-138-3
FW-V-138-4
FW-V-139-1
FW-V-139-2
FW-V-139-3
FW-V-139-4
FW-V-140-1
FW-V-140-2
FW-V-140-3
FW-V-140-4
FW-V-141-1
FW-V-141-2
FW-V-141-3
FW-V-141-4
FW-V-144-1
FW-V-144-2
FW-V-144-3
FW-V-144-4
FW-V-145-1
FW-V-145-2
FW-V-145-3
FW-V-145-4
FW-V-146-1
FW-V-146-2
FW-V-146-3
FW-V-146-4
FW-V-147-1
FW-V-147-2
FW-V-147-3
FW-V-147-4
FW-V-148-1
FW-V-148-2
FW-V-148-3
FW-V-148-4
FW-V-151
FW-V-152
FW-V-154
FW-V-155
FW-V-156
FW-V-157A
FW-V-159
FW-V-181A
FW-V-185A
FW-V-186
FW-V-187
FW-V-188
FW-V-189
FW-V-190A
FW-V-300
FW-V-302
FW-V-304
FW-V-306
FW-V-402
FW-V-533-1
FW-V-533-2
FW-V-533-3
FW-V-533-4
FW-V-1321-1
GW-PCV-1341
GW-V-904
GW-V-905
GW-V-1332
GW-V-1334
GW-V-1336
GW-V-1337
HC-V-212B
HS-V-296
LD-V-217
LD-V-384B
LD-V-384C
LD-V-385A
LD-V-385B
LD-V-385C
LM-V-713
LM-V-716
LM-V-717
LM-V-718
LM-V-719
LM-V-720
LM-V-721
LM-V-722
MS-NRV-17
MS-NRV-27
MS-NRV-37
MS-NRV-37
MS-NRV-47
MS-V-101
MS-V-102
MS-V-102A
MS-V-103
MS-V-104
MS-V-105
MS-V-105A
MS-V-106
MS-V-106A
MS-V-106B
MS-V-1202-11
MS-V-1202-12
MS-V-1202-21
MS-V-1202-22
MS-V-1202-31
MS-V-1202-32
MS-V-1202-41
MS-V-1202-42
MS-V-1301
MS-V-1303
MS-V-1308
MS-V-1309
MS-V-15
MS-V-16
MS-V-191
MS-V-193
MS-V-201
MS-V-202
MS-V-202A
MS-V-203
MS-V-204

VALVE NOT TESTED (1" AND UNDER)
TABLE IWV-3B

MS-V-205
MS-V-205A
MS-V-206
MS-V-25
MS-V-26
MS-V-291
MS-V-293
MS-V-301
MS-V-302
MS-V-302A
MS-V-303
MS-V-304
MS-V-305
MS-V-305A
MS-V-306
MS-V-35
MS-V-36
MS-V-391
MS-V-391A
MS-V-391C
MS-V-393
MS-V-401
MS-V-402
MS-V-402A
MS-V-403
MS-V-404
MS-V-405
MS-V-405A
MS-V-406
MS-V-45
MS-V-46
MS-V-49
MS-V-491
MS-V-493
MS-V-494
MS-V-494A
MS-V-503A
MS-V-503AA
MS-V-503B
MS-V-504A
MS-V-504B
MS-V-506
MS-V-506A
MS-V-927
MS-V-928
MS-V-929
MS-V-931
MS-V-931A
NG-V-471
PR-V-400
PR-V-401
PR-V-402
PR-V-406
PR-V-407
PR-V-408
PR-V-409
PR-V-410
PR-V-411
PR-V-412
PR-V-413
PR-V-414
PR-V-415
PR-V-416
PR-V-417
PR-V-419
PR-V-420
PR-V-421
PR-V-422
PR-V-423
PR-V-425
PR-V-551A
PR-V-551B
PR-V-553
PR-V-563
PR-V-564
PR-V-565
PR-V-566
PR-V-570
PR-V-572
PR-V-575
PR-V-581
PR-V-582
PR-V-583
PR-V-585A
PR-V-588
PU-V-259
PU-V-263
PW-V-600
RC-CV-589
RC-CV-590
RC-CV-591
RC-CV-592
RC-CV-593
RC-CV-594
RC-CV-595
RC-CV-596
RC-SOV-547
RC-SOV-548
RC-V-500
RC-V-549
RC-V-587B
RC-V-597
RC-V-600
RC-V-601
RC-V-602
RC-V-603
RC-V-604
RC-V-605
RC-V-606
RC-V-607
RC-V-608
RC-V-609
RC-V-610
RC-V-611
RC-V-612
RC-V-613
RC-V-614
RC-V-615
RC-V-616
RC-V-617
RC-V-618
RC-V-619
RC-V-620
RC-V-621
RC-V-622
RC-V-623
RC-V-624
RC-V-625
RC-V-626
RC-V-627
RC-V-628
RH-V-101
RH-V-25A
RH-V-26A
RH-V-27A

VALVE NOT TESTED (1" AND UNDER)
TABLE IWV-3B

RH-V-28A
RH-V-30
RH-V-36
RH-V-38
RH-V-39
RH-V-40
RH-V-41
RH-V-42
RH-V-600
RH-V-778
RH-V-779
RH-V-780
RH-V-781
RH-V-782
RH-V-787A
RH-V-787B
RH-V-792A
RH-V-792B
RH-V-793A
RH-V-793B
RH-V-793C
RH-V-793D
RH-V-798A
RH-V-799A
RH-V-799B
RH-V-800
RH-V-805
RH-V-806
RH-V-807
RH-V-879
RH-V-882
RH-V-883
RH-V-884
RH-V-885
RH-V-886
RH-V-887
SF-V-133
SF-V-134
SF-V-135
SF-V-136
SF-V-812
SF-V-814B
SF-V-814C
SF-V-818A
SF-V-825B
SF-V-846
SF-V-849
SF-V-854A
SF-V-858
SF-V-859
SF-V-860
SI-CV-862A
SI-CV-862B
SI-CV-862C
SI-CV-862D
SI-CV-895
SI-V-108A
SI-V-108B
SI-V-109A
SI-V-109B
SI-V-110A
SI-V-110B
SI-V-111
SI-V-112
SI-V-113
SI-V-116
SI-V-117A
SI-V-117B
SI-V-201
SI-V-202
SI-V-203
SI-V-204
SI-V-205
SI-V-206
SI-V-208
SI-V-211
SI-V-560
SI-V-560B
SI-V-561
SI-V-561B
SI-V-851
SI-V-853A
SI-V-853B
SI-V-857A
SI-V-857B
SI-V-858A
SI-V-858B
SI-V-858C
SI-V-358D
SI-V-859A
SI-V-859B
SI-V-859C
SI-V-859D
SI-V-865
SI-V-866
SI-V-868
SI-V-869
SI-V-873A
SI-V-873B
SI-TV-875
SI-V-876A
SI-V-876B
SI-V-876C
SI-V-877A
SI-V-877A
SI-V-877B
SI-V-877B
SI-V-881
SI-V-882
SI-V-883
SI-V-884
SI-V-896
SI-V-898A
SI-V-909
SI-V-910
SI-V-911
SI-V-912
SI-V-913
SI-V-914
SI-V-917
SI-V-917
SI-V-918
SI-V-918
SS-V-151
SS-V-152
SS-V-153
SS-V-154
SS-SOV-164
SS-SOV-165
SS-SOV-168
SS-SOV-169
SS-V-218
SS-V-724
SS-V-725
SS-V-731

VALVE NOT TESTED (1" AND UNDER)
TABLE IWV-3B

SS-V-732
SS-V-954
SS-V-959
SS-V-964
SS-V-971A
SS-V-971B
SS-V-978
SS-V-979
SS-V-991
SS-V-991A
SS-V-992
SS-V-992A
SS-V-993
SS-V-998B
SW-V-107
SW-V-107C
SW-V-108A
SW-V-108B
SW-V-108C
SW-V-138A
SW-V-139A
SW-V-1422A
SW-V-1422B
SW-V-1424A
SW-V-1424B
SW-V-1424C
SW-V-1425A
SW-V-1425B
SW-V-1426-AA
SW-V-1426A
SW-V-1426B
SW-V-1427
SW-V-1428
SW-V-1429-1
SW-V-1429-2
SW-V-1429-3
SW-V-1429-4
SW-V-142B
SW-V-143B
SW-V-1443A
SW-V-1443B
SW-V-240
SW-V-247D
SW-V-259
SW-V-260
SW-V-283A
SW-V-283B
SW-V-284A
SW-V-284B
SW-V-285A
SW-V-285B
SW-V-286A
SW-V-286B
SW-V-303A
SW-V-303B
SW-V-303C
SW-V-303D
SW-V-305
SW-V-306
SW-V-307
SW-V-308
SW-V-310
SW-V-311
SW-V-433A
SW-V-433B
SW-V-434
SW-V-435A
SW-V-435B
SW-V-501B
SW-V-503A
SW-V-503B
SW-V-504A
SW-V-504B
SW-V-532
SW-V-533
SW-V-550
SW-V-551
SW-V-552
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SW-V-585
SW-V-586
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SW-V-590
SW-V-591
SW-V-592
SW-V-608
SW-V-642
SW-V-643
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SW-V-645
SW-V-646
SW-V-647
SW-V-648
SW-V-649
SW-V-650
SW-V-663
SW-V-664
SW-V-665
SW-V-666
SW-V-701A
SW-V-701B
SW-V-702A
SW-V-702B
SW-V-704
SW-V-705
SW-V-706
SW-V-707
SW-V-710

VALVE NOT TESTED (1" AND UNDER)
TABLE IWV-3B

SW-V-711
SW-V-713
SW-V-714
SW-V-717
SW-V-718
SW-V-719
SW-V-724
SW-V-725
SW-V-726
SW-V-729
SW-V-736
SW-V-740
VH-V-503
VH-V-504
VH-V-505
VH-V-506
VH-V-511
VH-V-514
VH-V-517
VH-V-518
VH-V-519
VH-V-520
VH-V-523
VH-V-524
VH-V-530
VH-V-531
VH-V-532
VH-V-533
VH-V-540
VH-V-541
VH-V-542
VH-V-543
VH-V-576
VS-V-154
VS-V-166
WD-V-172
WD-V-174
WG-V-136

PRESSURE ISOLATION VALVES
TABLE IWV-4

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SI-MOV-861A	1-A	Loop 1 Safety Injection Isol.	3	GA	M	C	Q		CS	See Note 12
							MT			15 sec. to open
							LT			Tech Spec 4.3-B.3
							PI			
SI-MOV-861B	1-A	Loop 2 Safety Injection Isol.	3	GA	M	C	Q		CS	See Note 12
							MT			15 sec. to open
							LT			Tech Spec 4.3-B.3
							PI			
SI-MOV-861C	1-A	Loop 3 Safety Injection Isol.	3	GA	M	C	Q		CS	See Note 12
							MT			15 sec. to open
							LT			Tech Spec 4.3-B.3
							PI			
SI-MOV-861D	1-A	Loop 4 Safety Injection Isol.	3	GA	M	C	Q		CS	See Note 12
							MT			15 sec. to open
							LT			Tech Spec 4.3-B.3
							PI			
SI-CV-862A	1-AC	Loop 1 SI Isolation Check - P3	3	CK		C	CV	V-2	Q/R	
							LT		CS	Tech Spec 4.3-F

PRESSURE ISOLATION VALVES
TABLE IWV-4

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SI-CV-862B	1-AC	Loop 2 SI Isolation Check - P3	3	CK		C	CV LT	V-2	Q/R CS	Tech Spec 4.3-F
SI-CV-862C	1-AC	Loop 3 SI Isolation Check - P3	3	CK		C	CV LT	V-2	Q/R CS	Tech Spec 4.3-F
SI-CV-862D	1-AC	Loop 4 SI Isolation Check - P3	3	CK		C	CV LT	V-2	Q/R CS	Tech Spec 4.3-F
SI-V-863A	2-A	Loop 1 SI Test Recirc to RWST - P-24D	0.75	GL	H	LC	LT			Passive
SI-V-863B	2-A	Loop 1 SI Test Recirc to RWST - P-24C	0.75	GL	H	LC	LT			Passive

PRESSURE ISOLATION VALVES
TABLE IWV-4

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SI-V-863C	2-A	Loop 1 SI Test Recirc to RWST - P-24B	0.75	GL	H	LC	LT			Passive
SI-V-863D	2-A	Loop 1 SI Test Recirc to RWST - P-24A	0.75	GL	H	LC	LT			Passive
SI-MOV-871A	1-A	Core Deluge to RV Head	6	GA	M	C	Q		CS	Tech Spec 4.3-B.3
							MT			15 sec. to open
							LT	V-6		
							PI			
SI-MOV-871B	1-A	Core Deluge to RV Head	6	GA	M	C	Q		CS	Tech Spec 4.3-B.3
							MT			15 sec. to open
							LT	V-6		
							PI			
SI-CV-872A	1-AC	Core Deluge to Head Check	6	CK		C	CV	V-3	F,	
							LT			Tech Spec 4.3-F

PRESSURE ISOLATION VALVES
TABLE IWV-4

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
SI-CV-872B	1-AC	Core Deluge to Head Check	3	CK		C	CV	V-3	R	
							LT			Tech Spec 4.3-F
RH-MOV-780	1-A	Inboard Stop - RCS Loop #1	10	GA	M	C	Q		CS	See Note 16
							MT			40 sec to open
							LT			
							PI			
RH-MOV-781	1-A	Outboard Stop - RCS Loop #1	10	GA	M	C	Q		CS	See Note 16
							MT			40 sec to open
							LT			
							PI			
RH-MOV-803	1-A	Outboard Stop - RCS Loop #2	10	GA	M	C	Q		CS	See Note 16
							MT			40 sec to open
							LT			
							PI			
RH-MOV-804	1-A	Inboard Stop - RCS Loop #2	10	GA	M	C	Q		CS	See Note 16
							MT			40 sec to open
							LT			
							PI			

PRESSURE ISOLATION VALVES
TABLE IWV-4

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DH-MOV-310	1-A	Drain Header Remote Throttle	2	GA	M	C	O		CS	See Note 27
							MT			Passive
							LT			
							PI			
DH-V-311	1-AC	Drain Header	2	GA	H	C	LT			Passive

SAFETY/RELIEF VALVE SETPOINTS
TABLE IWV-5

Valve Number	Class Category	Function	Design Code	Size (Inches)	Valve Type	Set Point	Tolerance	Remark
PR-SV-584	1-C	Pressurizer Safety Valve	ASME I	3	REL	2485	+/- 1%	
PR-SV-585	1-C	Pressurizer Safety Valve	ASME I	3	REL	2535	+/- 1%	
PR-SV-586	1-C	Pressurizer Safety Valve	ASME I		REL	2585	+/- 1%	
SI-RV-870	2-C	RWST Recirculation	ASME VIII	1	REL	1500	+/- 3%	
RH-RV-715	2-C	Relief to RWST	ASME VIII	3	REL	500	+/- 3%	
SW-RV-309	2-C	Service Water to SF HX	ASME VIII	2	REL	150	+/- 3%	
MS-SV-11	2-C	SG No.1 Main Steam Safety	ASME VIII	6	REL	985	+/- 10 psi	
MS-SV-12	2-C	SG No.1 Main Steam Safety	ASME VIII	6	REL	1015	+/- 1%	

SAFETY/RELIEF VALVE SETPOINTS
TABLE IWV-5

Valve Number	Class Category	Function	Design Code	Size (Inches)	Valve Type	Set Point	Tolerance	Remark
MS-SV-13	2-C	SG No.1 Main Steam Safety	ASME VIII	6	REL	1025	+/- 1%	
MS-SV-14	2-C	SG No.1 Main Steam Safety	ASME VIII	6	REL	1034	+/- 1%	
MS-SV-21	2-C	SG No.2 Main Steam Safety	ASME VIII	6	REL	985	+/- 10 psi	
MS-SV-22	2-C	SG No.2 Main Steam Safety	ASME VIII	6	REL	1015	+/- 1%	
MS-SV-23	2-C	SG No.2 Main Steam Safety	ASME VIII	6	REL	1025	+/- 1%	
MS-SV-24	2-C	SG No.2 Main Steam Safety	ASME VIII	6	REL	1034	+/- 1%	
MS-SV-31	2-C	SG No.3 Main Steam Safety	ASME VIII	6	REL	985	+/- 10 psi	
MS-SV-32	2-C	SG No.3 Main Steam Safety	ASME VIII	6	REL	1015	+/- 1%	

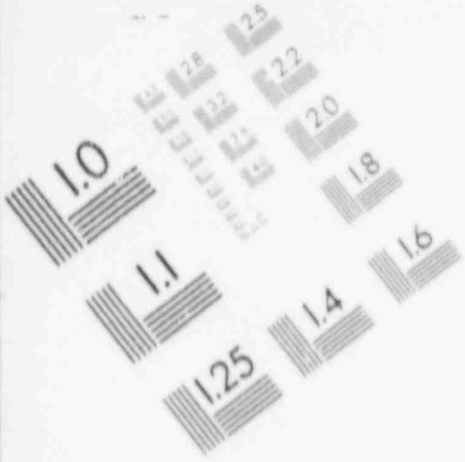
SAFETY/RELIEF VALVE SETPOINTS
TABLE IWV-5

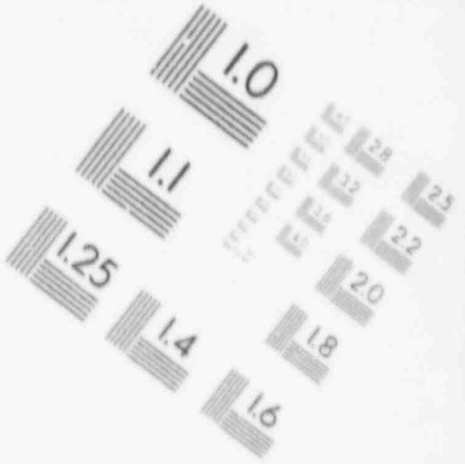
Valve Number	Class Category	Function	Design Code	Size (Inches)	Valve Type	Set Point	Tolerance	Remark
MS-SV-33	2-C	SG No.3 Main Steam Safety	ASME VIII	6	REL	1025	+/- 1%	
MS-SV-34	2-C	SG No.3 Main Steam Safety	ASME VIII	6	REL	1035	+/- 1%	
MS-SV-41	2-C	SG No.4 Main Steam Safety	ASME VIII	6	REL	985	+/- 10 psi	
MS-SV-42	2-C	SG No.4 Main Steam Safety	ASME VIII	6	REL	1015	+/- 1%	
MS-SV-43	2-C	SG No.4 Main Steam Safety	ASME VIII	6	REL	1025	+/- 1%	
MS-SV-44	2-C	SG No.4 Main Steam Safety	ASME VIII	6	REL	1034	+/- 1%	
MS-SV-1216A	3-C	SV for Aux. Feed Pump "A"	ASME VIII	3	REL	650	+/- 3%	
MS-SV-1216B	3-C	SV for Aux. Feed Pump "B"	ASME VIII	3	REL	650	+/- 3%	

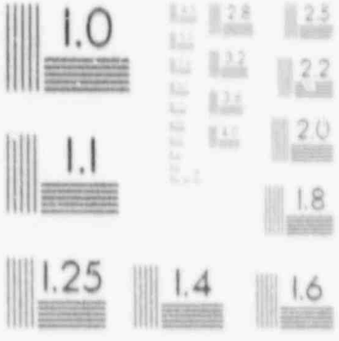
SAFETY/RELIEF VALVE SETPOINTS
TABLE IWV-5

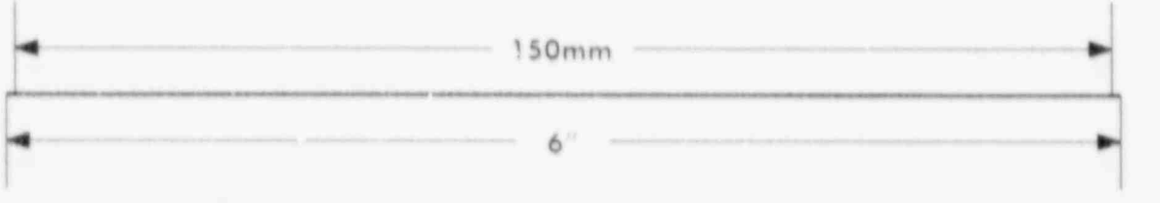
Valve Number	Class Category	Function	Design Code	Size (Inches)	Valve Type	Set Point	Tolerance	Remark
PR-RV-587	2-C	Low Pressure Pressurizer Relief	ASME III Class 2	3	REL	380	+/- 10 psig	
PR-RV-588	2-C	Low Pressure Pressurizer Relief	ASME III Class 2	3	REL	380	+/- 10 psig	
DH-RV-1847	2-C	SV for Drain Header	ASME VIII	2	REL	150	+/- 3%	
CH-RV-332	2-C	Seal Water Return Line Relief	ASME VIII	3	REL	140	+/- 3%	
BA-RV-279	3-C	Meter Pump Suction Line Relief	ASME VIII	0.5	REL	150	+/- 3%	
CA-RV-838A	3-C	PR-AOV-568 Control Air	ASME III Class 3	0.25	REL	100	+/- 3%	
CA-RV-838B	3-C	PR-AOV-570 Control Air	ASME III Class 3	0.25	REL	100	+/- 3%	
CA-RV-719	3-C	Containment Instrument Air		0.25	REL	145	+/-5 psig	See V-19

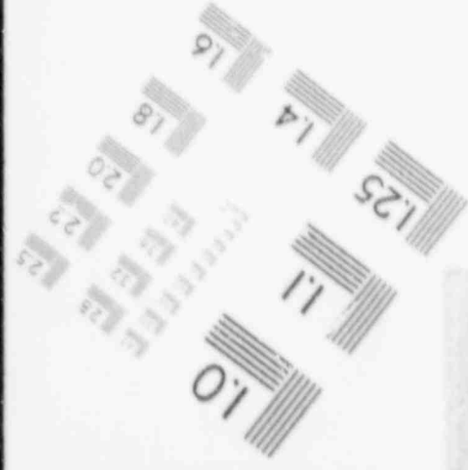
IMAGE EVALUATION
TEST TARGET (MT-3)

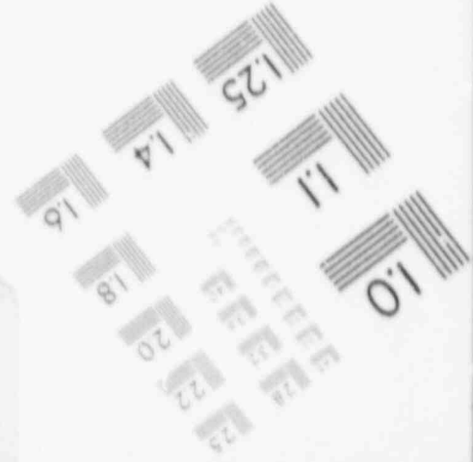












SAFETY/RELIEF VALVE SETPOINTS
TABLE IWV-5

Valve Number	Class Category	Function	Design Code	Size (Inches)	Valve Type	Set Point	Tolerance	Remark
CC-RV-720	3-C	Containment Instrument Air		0.25	REL	145	+/-5 psig	See V-19
CC-RV-721	3-C	Containment Instrument Air		0.25	REL	145	+/-5 psig	See V-19
CA-RV-829	3-C	Containment Instrument Air		0.5	REL	170	+/-3 psig	
CC-RV-763A	3-C	SW/Component Cooling to RHR	ASME VIII	1.5	REL	150	+/-3 %	
CC-RV-763B	3-C	SW/Component Cooling to RHR	ASME VIII	1.5	REL	150	+/-3 %	
CH-RV-280	2-C	Meter Pump Discharge	ASME VIII	1.5	REL	2735	+/-3 %	
CA-RV-241A	2-C	MSTV Accumulator Relief	ASME III Class 3	0.5	REL	135	+/-4 psig	
CA-RV-950	2-C	Containment Control Air Receiver	ASME VIII	1	REL	140	+0/-4 psig	

SAFETY/RELIEF VALVE SETPOINTS
TABLE IWV-5

Valve Number	Class Category	Function	Design Code	Size (Inches)	Valve Type	Set Point	Tolerance	Remark
CD-RV-1317	3-C	DWST TK-25-1A inlet/outlet relief to Discharge Canal		4	REL			
CH-RV-408	2-C	Seal water return relief		3	REL	140	+0/-4.2 psig	
LD-RV-205	1-C	Letdown Relief	ASME VIII	2	REL	500	+/-3 %	
PU-RV-1844	2-C	Relief valve off reactor cavity water header		0.5	REL	150	+/-4.5 psig	
RH-RV-1846	2-C	Purification pump suction relief		3	REL	150	+/-4.5 psig	

10.0 VALVE NOTES

NOTE NUMBER: Note 1

SYSTEM: Residual Heat Removal

VALVES: RH-CV-788A & B

CLASS/CATEGORY: 2C

FUNCTION: RHR Pump Discharge Check Valves

TEST REQUIREMENT: Check valves shall be exercised at least once every three months.

ALTERNATE TEST: Partially exercised to open position every three months on recirculation flow. Verified closed every three months by checking for RHR pump reverse rotation. Exercised to open position during Cold Shutdown (CS).

BASIS FOR ALTERNATE TEST: Full flow through these valves is not possible except at cold shutdown at which time the system is in operation.

NOTE NUMBER: Note 2

SYSTEM: Safety Injection System

VALVES: S1-MOV-24

CLASS/CATEGORY: 2B

FUNCTION: RWST Outlet Isolation. Valve must go closed during High Head Recirc.

TEST REQUIREMENT: S1-MOV-24 shall be exercised at least once every three months.

ALTERNATE TEST: Partial stroke exercise every three months full-stroke exercise during cold shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to exercise this valve during normal operation. Failure of valve S1-MOV-24 in the nonconservative position would result in the loss of safety injection availability. Partial stroke exercise every three months and full-stroke exercise each cold shutdown effectively demonstrates proper valve operability.

NOTE NUMBER: Note 3

SYSTEM: MS-TV-1211-1, 2, 3, and 4

CLASS/CATEGORY: 2-BC

FUNCTION: Main Steam Line Trip Valves designed to close on a steam line break incident.

TEST REQUIREMENT: Main Steam Trip Valves shall be exercised at least once every three months.

ALTERNATE TEST: Partial stroke exercise every three months (manual). Full-stroke exercise during cold shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to full-stroke exercise this valve during plant operation. Closure of valves will cause the plant to trip. An approximately one inch partial stroke (manually) is performed each quarter and full-stroke exercised each cold shutdown which effectively demonstrates proper valve operability.

NOTE NUMBER: Note 4

SYSTEM: Component Cooling Water

VALVES: CC-CV-225A, 225B

CLASS/CATEGORY: 3-C

FUNCTION: RHR Pump Seal Cooler

TEST REQUIREMENT: Check valves shall be exercised at least once every three months.

ALTERNATE TEST: Exercised to open position and verified closed during cold shutdowns.

BASIS FOR ALTERNATE TEST: Full flow testing through the check valves are only possible when RHR is in service.

NOTE NUMBER: Note 5

SYSTEM: Containment Isolation Valves

VALVES: VS-SOV-12-1; VS-TV-1848
CLASS/CATEGORY: 2A
FUNCTION: Air Monitor Isolation

VALVES: LM-TV-1811A AND B
CLASS/CATEGORY: 2A
FUNCTION:

VALVES: DH-TV-1842A and B
CLASS/CATEGORY:
FUNCTION: Valve Stem Leakoff

VALVES: WD-HICV-1840, WD-TV-1846
CLASS/CATEGORY:
FUNCTION: Containment Sump Discharge Isolation

VALVES: DH-TV-1843
CLASS/CATEGORY:
FUNCTION: Vapor Seal Head Tank Isolation

VALVES: DH-TV-1847
CLASS/CATEGORY: 2-A
FUNCTION: Drain Header Isolation

VALVES: DH-TV-1844
CLASS/CATEGORY: 2-A
FUNCTION: Vapor Seal Head Relief Tank Drain Isolation

TEST REQUIREMENT: Valves shall be exercised at least once every three months.

ALTERNATE TEST: Full-stroke exercise during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to exercise these valves during operation because to test the valves requires opening states blocks (loss of power to valve) which could result in the loss of system function and render the system inoperable.

NOTE NUMBER: Note 6

SYSTEM: Reactor Coolant System

VALVES: PR-AOV-568 and 570

CLASS/CATEGORY: 1-B

FUNCTION: Pressurizer Power Operated Relief Valves (PORVs)

TEST REQUIREMENT: PORV valves shall be exercised at least once every three months.

ALTERNATE TEST: Full-stroke exercise (open and close) during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to test these valves during normal operation. It is desired to minimize the opening of the PORVs because the valves are not isolatable and if stuck open could cause a plant shutdown.

NOTE NUMBER: Note 7

SYSTEM: Reactor Coolant System

VALVES: PR-AOV-573 AND 574

CLASS/CATEGORY: 1-B

FUNCTION: Pressurizer Spray Valves

TEST REQUIREMENT: Spray valves shall be exercised at least once every three months.

ALTERNATE TEST: Full-stroke exercise (open and close) during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to test these valves during normal operations. Cycling these valves at full power could disrupt pressure which could lead to a shutdown.

NOTE NUMBER: Note 8

SYSTEM: Reactor Coolant System

VALVES: RC-MOV-501, 512, 513, 524, 526, 537, 538, and 546

CLASS/CATEGORY: 1-B

FUNCTION: RCS Loop Isolation Valves

TEST REQUIREMENT: Valves shall be exercised at least once every three months.

ALTERNATE TEST: Valves will be full-stroke exercised during Cold Shutdowns when the Reactor Coolant Pumps are not running.

BASIS FOR ALTERNATE TEST: It is not practical to exercise these valves during normal operation. Operation of these valves could cause flow to be lost in the loop and would isolate a steam generator, causing a plant shutdown and loss of a heat sink.

NOTE NUMBER: Note 9

SYSTEM: Reactor Coolant System

VALVES: RC-CV-509, 523, 536, 545

CLASS/CATEGORY: 1-C

FUNCTION: Loop Pressure Equalization Valves

TEST REQUIREMENT: Spring check valve shall be exercised at least once every three months.

ALTERNATE TEST: Valves will be exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to test these valves during normal operations. The test configuration requires a delta pressure across the valve which is done when the pressurizer is vented.

NOTE NUMBER: Note 10

SYSTEM: Containment Air System

VALVES: CA-SOV-752 and 754

CLASS/CATEGORY: 3-B

FUNCTION: PORV Air Supply Solenoid Valves

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves shall be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: These valves are tested in conjunction with the PORVs. It is not practical to exercise these valves during normal operation. Failure of these valves could cause the PORVs to be in a nonconservative position which could cause a shutdown.

NOTE NUMBER: Note 11

SYSTEM: Containment Air System

VALVES: CA-CV-825 and 826

CLASS/CATEGORY: 3-AC

FUNCTION: PORV Air Supply Isolation Check Valves

TEST REQUIREMENT: Leak test shall be conducted at least once every 18 months (Tech. Spec. 3.3.4.1). Check valves shall be exercised at least once every three months.

ALTERNATE TEST: Check valves shall be verified closed during Cold Shutdowns not to exceed 18 months.

BASIS FOR ALTERNATE TEST: These valves insure that the emergency air supply to the PORVs is isolated from the remainder of the air system if system pressure falls below accumulated pressure. It is not practical to perform this test during normal operations. The test requires the PORV system to be out of service.

NOTE NUMBER: Note 12

SYSTEM: Safety Injection System

VALVES: SI-MOV-861A, B, C, and D

CLASS/CATEGORY: 1-A

FUNCTION: Loop Safety Injection Isolation

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves shall be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: The inability to check the closed integrity of SI-CV-862A, B, C, and D prior to exercising SI-MOV-861B, C, and D. These valves interface directly with the RCS at operating pressure.

NOTE NUMBER: Note 13

SYSTEM: Safety Injection System

VALVES: SI-MOV-871A and B

CLASS/CATEGORY: 1-A

FUNCTION: Core Deluge to RV Head

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves shall be full-stroke exercised during Cold Shutdowns (Tech. Spec. 4.3-B.3).

BASIS FOR ALTERNATE TEST: The inability to check the closed integrity of the SI-CV-872A and B valves prior to exercising SI-MOV-871A and B. These valves interface directly with the RCS at operating pressure. The valves will be verified closed (local position indication) each refueling utilizing MOVATs).

NOTE NUMBER: Note 14

SYSTEM: Residual Heat Removal System

VALVES: RH-MOV-23, RH-MOV-34

CLASS/CATEGORY: 2-B

FUNCTION: Containment Spray Isolation

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves shall be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: The containment spray system is set up such that opening either RH-MOV-23 or 34 will initiate flow. By entering the containment and closing manual valve RH-V-23A, the valves could be "no flow" stroked, but technical specifications 3.11 prevent this, as it would be disabling the containment spray system.

NOTE NUMBER: Note 15

SYSTEM: Residual Heat Removal

VALVES: RH-MOV-33A and B

CLASS/CATEGORY: 2-B

FUNCTION: RHR to CVCS Cross Connect

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves shall be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: RH-MOV-33A/B provide a flow path from the RHR system to the charging pump suction header. Stroking these valves varies the suction header pressure in the charging system and could cause charging pump flow oscillations.

NOTE NUMBER: Note 16

SYSTEM: Residual Heat Removal

VALVES: RH-MOV-780, 781
CLASS/CATEGORY: 1-A
FUNCTION: Inboard and Outboard Stops - RCS Loop 1

VALVES: RH-MOV-803, 804
CLASS/CATEGORY: 1-A
FUNCTION: Inboard and Outboard Stops - RCS Loop 2

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TESTING: These valves are interlocked with reactor coolant system such that operation is not possible unless the RCP pressure is less than 375 psig.

NOTE NUMBER: Note 17

SYSTEM: Reactor Coolant System

VALVES: PR-SOV-552A, B, C, D
CLASS/CATEGORY: 1-B
FUNCTION: Pressurizer Head Vent

VALVES: RC-SOV-596A, B, C, D
CLASS/CATEGORY: 1-B
FUNCTION: RPV Head Vent

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves shall be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to exercise these valves during normal operations. Failure in the nonconservative position could cause a shutdown.

NOTE NUMBER: Note 18

SYSTEM: Chemical and Volume Control

VALVES: BA-MOV-32

CLASS/CATEGORY: 2-B

FUNCTION: RWST to charging pump suction

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Cycling this valve could potentially cause a highly borated solution to reach the RCS, via the charging system, which is in continuous service.

NOTE NUMBER: Note 19

SYSTEM: Chemical and Volume Control

VALVES: CH-MOV-257, CH-SOV-242

CLASS/CATEGORY: 2-B

FUNCTION: VCT Outlet to Charging Pump Suction

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Closing these normally open valves would cause the charging pumps to cavitate. Part stroke testing is not possible (no jog control on valve operator).

NOTE NUMBER: Note 20

SYSTEM: Chemical and Volume Control

VALVES: CH-FCV-110, 110A

CLASS/CATEGORY: 2-B

FUNCTION: Charging Flow Control Valves

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercise during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: These valves are arranged in parallel flow paths, such that either valve can be utilized to control charging flow to the RCS. The valves are normally open and modulate to control flow. Exercising these valves full-stroke during normal operations would cause flow and pressure transients in the charging system.

NOTE NUMBER: Note 21

SYSTEM: Chemical and Volume Control

VALVES: BA-CV-320

CLASS/CATEGORY: 2-C

FUNCTION: Boric Acid Supply to Charging Pumps

TEST REQUIREMENT: Check valves shall be exercised every three months.

ALTERNATE TEST: Check valves shall be exercised to the open position during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Exercising this valve to the open position must be done by passing flow through it and this could potentially cause a concentrated boric acid solution to reach the reactor via the charging system.

NOTE NUMBER: Note 22

SYSTEM: Chemical and Volume Control

VALVES: BA-MOV-366

CLASS/CATEGORY: 2-B

FUNCTION: Boric Acid to Charging System

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Operation of this valve while the plant is at power could potentially cause a concentrated boric acid solution to reach the reactor via the charging system.

NOTE NUMBER: Note 23

SYSTEM: Chemical and Volume Control

VALVES: BA-CV-372, BA-MOV-373

CLASS/CATEGORY: 2-C

FUNCTION: RWST to Charging Pump Suction Check Valve

TEST REQUIREMENT: These valves shall be exercised every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Operation of these valves while the plant is at power could cause boric acid solution to reach the reactor via the charging system.

NOTE NUMBER: Note 24

SYSTEM: Chemical and Volume Control

VALVES: BA-CV-387

CLASS/CATEGORY: 3-C

FUNCTION: Boric Acid Pump Discharge to Charge Pump

TEST REQUIREMENT: Check valve shall be exercised every 3 months.

ALTERNATE TEST: This valve will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Exercising this valve to the open position must be done by passing flow through it. This could potentially cause a concentrated boric acid solution to reach the reactor via the charging system.

NOTE NUMBER: Note 25

SYSTEM: Chemical and Volume Control

VALVES: BA-MOV-373

CLASS/CATEGORY: 2-B

FUNCTION: RWST to Charging Pump Suction Isolation

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: Operation of this valve while the plant is at power could potentially cause boric acid solution to reach the reactor.

NOTE NUMBER: Note 26

SYSTEM: Chemical and Volume Control

VALVES: CH-MOV-331

CLASS/CATEGORY: 2-B

FUNCTION: Seal Water Return Line Trip Valve

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: In order to cycle this valve, reactor coolant system pressure must be greater than 100 psig, but less than 1,000 psig. Cycling this valve at full power will disrupt RCP seal flow which may result in damaging the #1 seal on the RCPs.

NOTE NUMBER: Note 27

SYSTEM: Chemical and Volume Control

VALVES: DH-MOV-310

CLASS/CATEGORY: 1-A

FUNCTION: Drain Header Remote Throttle Valve

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: DH-MOV-310 is a normally closed valve. This system is used for draining the loops; however, this system could be used for alternate letdown. Exercising this valve could cause overpressurization of the loop drain system.

NOTE NUMBER: Note 28

SYSTEM: Chemical and Volume Control

VALVES: FH-MOV-508, 522, 535, 578

CLASS/CATEGORY: 1-B

FUNCTION: RCS Loop Fill Isolation

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: The inability to check the closed integrity of the FH-CV-296 prior to exercising these MOVs.

These valves interface directly with the RCS at operating pressure.

This system is normally used to fill the RCS during refueling.

NOTE NUMBER: Note 29

SYSTEM: Chemical and Volume Control

VALVES: FH-MOV-507, 521, 534, 544

CLASS/CATEGORY: 1-B

FUNCTION: RCS Loop Drain Isolation

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: These valves interface directly with the RCS operating pressure. This system is normally used to drain the RCS during refueling.

NOTE NUMBER: Note 30

SYSTEM: Chemical and Volume Control

VALVES: CH-MOV-311, 312, 313, 314

CLASS/CATEGORY: 2-B

FUNCTION: Reactor Coolant Pump Seal Injection Isolation

TEST REQUIREMENT: Power operated valve shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Cycling these valves at full power would disrupt RCP seal flow which could cause a failure of the RCP's seals.

NOTE NUMBER: Note 31

SYSTEM: Chemical and Volume Control

VALVES: CH-MOV-298

CLASS/CATEGORY: 1-B

FUNCTION: Charging to Pressurizer Spray

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroked exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Cycling this valve at full power would disrupt pressurizer pressure which could lead to a shutdown.

NOTE NUMBER: Note 32

SYSTEM: Chemical and Volume Control

VALVES: LD-MOV-200

CLASS/CATEGORY: 1-B

FUNCTION: Letdown Isolation from RCS

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Closing this normally open valve to check operability would disrupt letdown flow. This would cause flow/pressure transients in the charging and letdown systems.

NOTE NUMBER: Note 33

SYSTEM: Main Steam

VALVES: MS-NRV-11, 21, 31, 41

CLASS/CATEGORY: 2-BC

FUNCTION: Steam Generator

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during Cold Shutdowns.

BASIS FOR ALTERNATE TEST: Failure of the valve in a nonconservative position would cause a loss of system function.

NOTE NUMBER: Note 34

SYSTEM: Feedwater System

VALVES: FW-CV-153, 184, 182

CLASS/CATEGORY: 3-C

FUNCTION: Aux Feedpump Discharge to S.G. Checks

TEST REQUIREMENT: Check valves shall be exercised every three months.

ALTERNATE TEST: FW-CV-153 and 184 will be exercised opened and verified closed during cold shutdowns. FW-CV-182 will be exercised opened during cold shutdowns.

BASIS FOR ALTERNATE TEST: Full or partial stroke testing of these valves requires that an auxiliary feedpump be started and flow be established to the steam generators. This test is undesirable while the reactor is at power because of the steam generator thermal shock potential. The pumps take suction on the demineralized water storage tank (cold water).

NOTE NUMBER: Note 35

SYSTEM: Feedwater

VALVES: FW-CV-156-1, 2, 3, 4

CLASS/CATEGORY: 2-C

FUNCTION: Aux Feedwater Supply to S.G. checks

TEST REQUIREMENT: Check valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be verified open during cold shutdowns.

BASIS FOR ALTERNATE TEST: Full or partial stroke testing of these valves requires that an auxiliary feedpump be started and flow be established to the steam generators. This test is undesirable while the reactor is at power because of the steam generator thermal shock potential. The pumps take suction on the demineralized water storage tank (cold water).

NOTE NUMBER: Note 36

SYSTEM: Feedwater

VALVES: FW-FCV-1301-1, 2, 3, 4

CLASS/CATEGORY: 2-B

FUNCTION: Steam Generator Feedwater Reg. Valves

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: Failure of valve in nonconservative position would cause loss of system function.

NOTE NUMBER: Note 37

SYSTEM: Feedwater

VALVES: BD-TV-1312-1, 2, 3, 4

CLASS/CATEGORY: 2-B

FUNCTION: Steam Generator Blowdown

TEST REQUIREMENT: Valves shall be leak tested at least once every two years.

ALTERNATE TEST: No Leak Test performed.

BASIS FOR ALTERNATE TEST: These valves are Containment Isolation Valves. Appendix J, Section II.H.4, excludes Type C testing of this closed system which does not rupture as a result of a LOCA.

NOTE NUMBER: Note 38

SYSTEM: Feedwater

VALVES: FW-MOV-11, 12, 13, 14

CLASS/CATEGORY: 2-B

FUNCTION: Steam Generator FW Reg. Valve Isolation

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: Failure of these valves in a closed or partially closed condition would cause loss of system function. Valves cannot be partially stroke tested.

NOTE NUMBER: Note 39

SYSTEM: Feedwater

VALVES: BD-TV-1312-1, 2, 3, 4

CLASS/CATEGORY: 2-B

FUNCTION: Steam Generator Blowdown Trip Valves

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to exercise these valves during operation because to test the valves requires opening states blocks (loss of power to valve) which could result in the loss of system function and render the system inoperable.

NOTE NUMBER: Note 40

SYSTEM: Service Water

VALVES: SW-MOV-1, 4
CLASS/CATEGORY: 3-B
FUNCTION: East and West Header Isolation

VALVES: SW-MOV-3, 1
CLASS/CATEGORY: 3-B
FUNCTION: Component Cooling Heat Exchanger "A" and "B" Discharge

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: These valves control service water cooling to several essential plant loads. Failure of valves in a nonopen position could cause overheating of these loads, resulting in loss of generation.

NOTE NUMBER: Note 41

SYSTEM: Main Steam

VALVES: CA-CV-239, 902

FUNCTION: Main Steam Trip Valve Accumulator Checks

TEST REQUIREMENT: Leak test shall be conducted at least once every 18 months. Check valves shall be exercised at least once every three months.

ALTERNATE TEST: Check valves shall be verified closed during cold shutdowns, not to exceed 18 months.

BASIS FOR ALTERNATE TEST: Operability test performed using leak test. This test requires system to be out of service. Loss of air could cause a MSTV trip.

NOTE NUMBER: Note 42

SYSTEM: Containment Isolation (P-60)

VALVES: CC-TV-1831, CC-TV-917, CC-TV-920

CLASS/CATEGORY: 2-A

FUNCTION: CCW to and from Neutron Shield Tank (NST) Cooler ISO.

TEST REQUIREMENT: These valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: The NST cooler cools the contents of the Neutron Shield tank and closing these valves would isolate flow and temporarily cause a loss of system function.

NOTE NUMBER: Note 43

SYSTEM: Containment Isolation (P-38)

VALVES: CC-TV-912, CC-TV-913

CLASS/CATEGORY: 2-A

FUNCTION: CCW to RCP Thermal Barrier ISO

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to test these valves during operation. Stroking these valves will stop CCW flow to the RCP thermal barrier which may cause damage to the RCP seals.

NOTE NUMBER: Note 44

SYSTEM: Containment Isolation (P-67)

VALVES: CC-FCV-611

CLASS/CATEGORY: 2-A

FUNCTION: CCW from Drain Cooler

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: This valve will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to test this valve during operation. Exercising this valve will stop CCW flow to the Drain Header Cooler and may cause RCS pressure fluctuations.

NOTE NUMBER: Note 45

SYSTEM: Containment Isolation (P-4)

VALVES: WG-AOV-558, WG-TV-1845

CLASS/CATEGORY: 2-A

FUNCTION: Pressurizer Relief Tank Vent Trip Valves

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to exercise these valves during operation since closing these valves may cause a plant transient.

NOTE NUMBER: Note 46

SYSTEM: Containment Isolation

VALVES: LD-AOV-202, 203, 204

CLASS/CATEGORY: 1-A

FUNCTION: Letdown Orifice Control

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke exercised during cold shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to test these valves during operation. Isolating Letdown may cause RCS pressure fluctuations.

NOTE NUMBER: Note 47

SYSTEM: Containment Isolation (P-7)

VALVES: CH-TV-240, CH-TV-241

CLASS/CATEGORY: 2-A

FUNCTION: RCP Seal Water Return Line Trip

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be full-stroke tested during cold shutdown.

BASIS FOR ALTERNATE TEST: It is not practical to test these valves during operation. Shutting the valves will stop seal water to the RCP seals which may damage seals.

NOTE NUMBER: Note 48

SYSTEM: Safety Injection

VALVES: SI-MOV-854A, B, SI-MOV-873, SI-MOV-901, SI-MOV-902

FUNCTION: Cross tie between RHR and HPSI so that during sump recirculation the RHR pump can take suction from containment sump and feed the suction of HPSI pumps for high pressure sump recirculation.

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: None

BASIS FOR ALTERNATE TEST: The MOVs will not be energized until the 1989 refueling outage. The switchgear modification will provide the necessary power.

NOTE NUMBER: Note 49

SYSTEM: Feedwater

VALVES: FW-NRV-521, 522, 523, 524

FUNCTION: Feedwater MOV Stop Check Valves

TEST REQUIREMENT: Check valves shall be exercised at least once every three months.

ALTERNATE TESTING: These valves will be tested during cold shutdowns.

BASIS FOR ALTERNATE TESTING: It is not practical to test these valves during operation since the test requires the feedwater system to be out of service.

NOTE NUMBER: Note 50

SYSTEM: NA

VALVES: Miscellaneous

FUNCTION: NA

DESCRIPTION: Valves tested (nonsafety) which are not required to perform a specific function in shutting down a reactor to the cold shutdown condition or in mitigating the consequences of an accident.

NOTE NUMBER: Note 51

SYSTEM: Charging

VALVES: CH-CV-326

FUNCTION: Charging Pressure Equalization Spring Check

TEST REQUIREMENT: Check valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be tested during cold shutdowns.

BASIS FOR ALTERNATE TEST: It is not practical to test these valves during operation since the test requires the charging system to be out of service.

NOTE NUMBER: Note 52

SYSTEM: MSTV Emergency Air System

VALVES: CA-SOV-1211 - 1A, 2A, 3A, 4A

FUNCTION: Solenoid to MSTV

TEST REQUIREMENT: Power operated valves shall be exercised at least once every three months.

ALTERNATE TEST: These valves will be tested during cold shutdowns.

BASIS FOR ALTERNATE TEST: These valves are tested in conjunction with the Main Steam Trip Valves (MSTVs). Failure of these valves during operation could cause a shutdown.

11.0 VALVE RELIEF REQUEST

NUMBER: V-1

SYSTEM: Residual Heat Removal

VALVES: RH-CV-783, RH-CV-808A

CLASS/CATEGORY: 2C

FUNCTION: Containment Sump Discharge Check Valves

TEST REQUIREMENT: Check valves shall be exercised at least once every three months except as provided by IWV-3522.

BASIS FOR RELIEF: These valves are located in piping which is normally drained and do not function unless water is present in the containment sump, as would be the case during a LOCA. It is not practicable to flood the containment floor and sump to hydraulically exercise these valves. In order to test these valves during refueling, it would require that the RHR system be taken out of service. To take the RHR system out of service requires the core to be unloaded. It is not practical to offload the core solely to support the disassembly and inspection of these checks based on:

- There is an inherent risk of damaging/dropping a fuel assembly every time it is transferred from one location to another.
- Core offload increases the wear of the fuel assembly transfer system, a critical plant component.
- If the core is offloaded, the outage duration is increased and the refueling crew radiation exposure increases.

Failure of both RHR pump check valves is extremely remote. CY has never experienced a failure of these valves. A NPRD's data search in the industry shows no failure to open (safety function).

ALTERNATE TESTING: Both of these valves will be disassembled and inspected to determine interior condition and operability whenever the core is unloaded and at each 10 year ISI interval.

NUMBER: V-2

SYSTEM: Safety Injection System

VALVES: SI-CV-856A&B; SI-CV-862A&B&C&D

CLASS/CATEGORY: 2-C; 1-AC

FUNCTION: HPSI Discharge Check Valves and SI Loop Isolations

TEST REQUIREMENT: Check valves shall be exercised at least once every three months except as provided by IWV-3522.

BASIS FOR RELIEF: In order to full-stroke these check valves, flow must be established into the reactor vessel from the refueling water storage tank using the HPSI pumps. System pressure downstream of these valves does not allow flow during normal operation. During cold shutdown, available volume in the reactor vessel is insufficient to accommodate flow required for exercising these valves. Introduction of RWST water to the reactor coolant system requires additional waste liquid processing which is time consuming and delays start-up.

ALTERNATE TESTING: CYAPCO performs a system flow test each refueling to full-stroke exercise these valves. The water will be pumped from the RWST to the reactor vessel. The flow will be determined by measuring the discharge and suction head. CY calculates the pump head to find the corresponding flow from the pump curve that indicates valve performance.

Each check valve is partially stroked each quarter during the HPSI Pump Operational Tests (SUR 5.1-4). SI-CV-856A and B are also verified closed each quarter during the HPSI pump test.

NUMBER: V-3

SYSTEM: Safety Injection System

VALVES: SI-CV-103; SI-CV-107A&B; SI-CV-872A & B

CLASS/CATEGORY:

FUNCTION: LPSI Discharge to RHR; LPSI Pump Discharge Checks; Core Deluge to Head Checks

TEST REQUIREMENT: Check valves shall be exercised at least once every three months except as provided by IWV-3522.

BASIS FOR RELIEF: Full or partial valve exercising requires that flow be established into the reactor vessel from the refueling water storage tank, using the LPSI pumps. System pressure downstream of these valves does not allow flow during normal operations. During cold shutdown, available volume in the reactor vessel is insufficient to accommodate flow required for exercising these valves. Introduction of RWST water to the reactor coolant system requires additional waste liquid processing which is time consuming and delays start-up.

ALTERNATE TESTING: CYAPCO performs a system flow test each refueling to exercise these valves. The water will be pumped from the RWST to the reactor vessel. The flow will be determined by measuring the discharge and suction head. CY will calculate the pump head to find the corresponding flow from the pump curve that indicates valve performance.

SI-CV-107A and B are also verified closed each quarter during LPSI pump operational test (SUR 5.1-4).

NUMBER: V-4

SYSTEM: Reactor Coolant System

VALVES: PR-SOV-552A, B, C, & D

CLASS/CATEGORY: 1-B

FUNCTION: Pressurizer Head Vent Valves

VALVES: RC-SOV-596A, B, C, & D

CLASS/CATEGORY: 1-B

FUNCTION: Reactor Head Vent Valves

TEST REQUIREMENT: Valves shall be exercised at least once every three months except as provided by IWV-3412(a), IWV-3415, and IWV-3416. For power operated valves the limiting value of full-stroke time shall be specified by the Owner in accordance with IWV-3413.

BASIS FOR RELIEF: Relief is requested from IWV-3417(a) "If, for power operated valves an increase in stroke time of 25 percent or more from previous test for valves with full-stroke times greater than 10 seconds, or 50 percent or more for valves with full-stroke times less than or equal to 10 seconds is observed, test frequency shall be increased to once per month until corrective action is taken at which time the original test frequency shall be resumed."

Trending the stroke-time of solenoid valves is not practical because times are less than or equal to one second. The error involved with timing these valves can easily exceed 50 percent; therefore, each valve that exceeds a two second full-stroke time will be declared degraded.

ALTERNATE TESTING: Valve exceeding the two second full-stroke time shall be immediately declared degraded.

NUMBER: V-5

SYSTEM: Containment Isolation

VALVES: SS-SOV-150A, B, C, & D; SS-SOV-151A, B, C, & D
CLASS/CATEGORY: 1-A
FUNCTION: Hydrogen Sample Line Isolation

VALVES: NG-SOV-470
CLASS/CATEGORY: 2-A
FUNCTION: Nitrogen Supply to Pressurizer Relief Tank Isolation

VALVES: LM-TV-1811A
CLASS/CATEGORY: 2-A
FUNCTION: Containment Leak Monitor Isolation

VALVES: VS-SOV-12-1
CLASS/CATEGORY: 2-A
FUNCTION: Air Monitor Sample from Containment Isolation

BASIS FOR RELIEF: Relief is requested from IWV-3427(a) "If, for power operated valves, an increase in stroke time of 25 percent or more from previous test for valves with full-stroke times greater than 10 seconds, or 50 percent or more for valves with full-stroke times less than or equal to 10 seconds is observed, test frequency shall be increased to once per month until corrective action is taken at which time the original test frequency shall be resumed."

Trending the stroke time of solenoid valves is not practical because times are less than or equal to one second. The error involved with timing these valves can easily exceed 50 percent; therefore, each valve that exceeds a two second full-stroke time will be declared degraded.

ALTERNATE TESTING: Valve exceeding the two second full-stroke time shall be immediately declared degraded.

NUMBER: V-6

SYSTEM: Safety Injection System

VALVES: SI-MOV-871A & B

CLASS/CATEGORY: 1-A

FUNCTION: Core Deluge to RV Head Pressure Isolation

TEST REQUIREMENT: Category A valves shall be leak tested at least once every two years.

BASIS FOR RELIEF: There is no way to perform a proper leakage test on these valves. They are welded directly to SI-CV-872A and B (on the upstream side of the MOVs). Each refueling of the valve shall be verified fully closed by utilizing MOVATs. A leakage test is performed each cold shutdown on SI-CV-872A and B verifying the leakage integrity of the Core Deluge to RV Head.

ALTERNATE TESTING: None

NUMBER: V-7

SYSTEM: Feedwater

VALVES: FW-CV-135-1, 2, 3, 4

CLASS/CATEGORY: 2-AC

FUNCTION: FW Header Isolation Check Valve

TEST REQUIREMENT: Check valves shall be exercised at least once every three months.

BASIS FOR RELIEF: These valves are verified closed by performing leak tests. It is not practical to perform this test during operation or cold shutdown because it requires the Feedwater System to be out of service.

ALTERNATE TESTING: These normally closed check valves will be verified closed by performing a leak test each refueling outage.

NUMBER: V-8

SYSTEM: Containment Isolation Valve (P-60)

VALVES: CC-CV-885

CLASS/CATEGORY: 2-AC

FUNCTION: CCW to Neutron Shield TK Cooler Iso.

TEST REQUIREMENT: This valve shall be exercised at least once every 3 months and leak tested at least once every 2 years.

BASIS FOR RELIEF: The penetration P-60 was modified in 1987 and removed CC-CV-885 from the system. The new design incorporated two new air operated gate valves, CC-TV-917 and CC-TV-920, which now service as the P-60 Containment Isolation Valves. CC-TV-917 and CC-TV-920 have been added into the IST program.

ALTERNATE TESTING: None.

NUMBER: V-9

SYSTEM: Containment Isolation Check Valves

VALVES: VS-CV-1103, VS-CV-1104
CLASS/CATEGORY: 2-AC
FUNCTION: Air Monitor Sample to Containment Check Valves

VALVE: CC-CV-853
CLASS/CATEGORY: 2-AC
FUNCTION: CCW to RCP Oil Cooler Iso. Check Valve

VALVES: CC-CV-140, CC-CV-139
CLASS/CATEGORY: 2-AC
FUNCTION: Primary Water to Containment

VALVE: FH-CV-296
CLASS/CATEGORY: 1-AC
FUNCTION: Loop Fill Header Check Valve

VALVE: NG-CV-557
CLASS/CATEGORY: 2-AC
FUNCTION: Nitrogen Supply to Pressure Relief Tank

VALVE: CH-CV-305A, B, C, D
CLASS/CATEGORY: 1-AC
FUNCTION: RCP Seal Water Supply Iso. Check Valve

TEST REQUIREMENT: Check valves shall be exercised at least once every 3 months.

BASIS FOR RELIEF: These valves are locally leak tested each refueling in accordance with IWV and Appendix J requirements. An acceptable leak test is the means of verifying valve closure. The local leak test and periodic Integrated Leak Rate Test should give reasonable assurance of check valve closure.

ALTERNATE TESTING: These valves will be verified closed each refueling.

NUMBER: V-10

SYSTEM: Containment Isolation Valve (P-38)

VALVES: CC-CV-721

CLASS/CATEGORY: 2-AC

FUNCTION: CCW to RCP Thermal Barrier Check Valve Iso.

TEST REQUIREMENT: This valve shall be exercised at least once every 3 months and leak tested at least once every 2 years.

BASIS FOR RELIEF: The penetration (P-38) was modified in 1987 and eliminated CC-CV-721 as a containment isolation valve. The new design incorporated 2 newly installed air operated globe CIVs (CC-TV-912 and CC-TV-913) which have been included in the IST Program. CC-CV-721 is not in a class boundary and does not perform a specific function in shutting down the reactor or mitigate the consequences of an accident.

ALTERNATE TESTING: None.

NUMBER: V-11

SYSTEM: Containment Isolation (P-23B)

VALVES: LM-TV-1812

CLASS/CATEGORY: 2-A

FUNCTION: Closed Bulb Leak Monitoring

TEST REQUIREMENT: This valve shall be exercised at least once every 3 months and leak tested at least once every 2 years.

BASIS FOR RELIEF: This penetration was modified during the 1987 refueling outage. The system piping was cut both inside and outside containment and capped. The valve is no longer required and need not be locally leak or stroke tested. LM-TV-1812 is no longer a CIV.

ALTERNATE TESTING: None required.

NUMBER: V-12

SYSTEM: Containment Isolation (P-30)

VALVES: HS-CV-295, HS-CV-295A

CLASS/CATEGORY: 2-AC

FUNCTION: Containment Space Heating Supply

TEST REQUIREMENT: Check valves shall be exercised at least once every 3 months and leak tested at least once every 2 years.

BASIS FOR RELIEF: Penetration P-30 was modified during the 1987 refueling outage. The modification eliminated HS-CV-295 and HS-CV-295A as Containment Isolation Valves. The new design included removing HS-CV-295 from the system and installing a double O-Ring blank flange in its place. The internals were removed from VS-CV-295A. Two new air operated gate valves (HS-TV-380 and HS-TV-381) were installed and now serve as the CIVs for P-30. HS-TV-380 and HS-TV-381 and blank flange have been included in the revised IST program.

ALTERNATE TESTING: None required.

NUMBER: V-13

SYSTEM: Containment Isolation (P-80)

VALVES: RH-MOV-31

CLASS/CATEGORY: 2-A

FUNCTION: Auxiliary Containment Spray from Fire System

TEST REQUIREMENT: Power operated valves shall be exercised at least once every 3 months.

BASIS FOR RELIEF: RH-MOV-31 is normally closed and its safety function is to go closed; therefore, it is passive. However, the system could be used as a backup to Containment Spray if necessary, and, therefore, it is stroke tested.

During previous stroke tests sand/silt had become lodged between the seat and disk which caused valve leakage. Flushing the piping does not provide a reliable long term fix. To eliminate the possibility of creating a leaking valve, CY requires an LLRT after each stroke test of RH-MOV-31.

ALTERNATE TESTING: This valve will be full-stroke exercised during refuelings.

NUMBER: V-14

SYSTEM: Containment Isolation (P-7)

VALVES: CH-TV-334

CLASS/CATEGORY: 2-A

FUNCTION: RCP Seal Water Return Line Iso.

TEST REQUIREMENT: This valve shall be leak tested at least once every 2 years.

BASIS FOR RELIEF: Penetration P-7 was modified during the 1987 refueling outage. The modification eliminated CH-RV-332, CH-CV-2, and CH-TV-334 as CIVs. The new design included two new air operated CIV valves CH-TV-240 and CH-TV-241. The new valves have been included in the IST program.

ALTERNATE TESTING: No leak test required.

NUMBER: V-15

SYSTEM: Containment Isolation (P-41)

VALVES: DH-RV-1847

CLASS/CATEGORY: 2-AC

FUNCTION: Drain Header Relief Valve

TEST REQUIREMENT: This valve shall be leak tested at least once every 2 years.

BASIS FOR RELIEF: Penetration P-41 was modified during the 1987 refueling outage. The modification eliminated DH-RV-1847 as a CIV.

ALTERNATE TESTING: No leak test required.

NUMBER: V-16

SYSTEM: Containment Isolation (P-8)

VALVES: CH-CV-399

CLASS/CATEGORY: 1AC

FUNCTION: RCS Charging

TEST REQUIREMENT: Check valve shall be exercised at least once every 3 months and leak tested every 2 years.

BASIS FOR RELIEF: CYAPCO had previously requested an exemption from the Type C testing requirements of Appendix J for the reactor coolant charging (P-8) penetration. This previous report was based on the seismic design of system piping inside containment and the proposed seismic qualification of system piping from the isolation valves of Penetration P-8 to its water source. Subsequent evaluations determined such qualification to be a lengthy and costly effort. Although Penetration P-8 is not currently Type C tested, the isolation valves in this penetration are exposed to water subjected to containment pressure through the vented reactor coolant system during the CILRT.

The valves are exposed to containment pressure in the direction of accident pressure with the back side of the valves depressurized. Further, the portion of the system outside containment is checked for liquid leakage in accordance with Administrative Technical Specification 3.14; system leakage is accounted for in off-site dose consequence calculations, per 10CFR100. Such leak testing provides additional assurance that the potential for significant containment atmosphere leakage through this penetration is minimized.

ALTERNATE TESTING: Integrated Leak Rate Test (ILRT)

NUMBER: V-17

SYSTEM: Containment Isolation (P-3)

VALVES: SI-V-860

CLASS/CATEGORY: 1AC

FUNCTION: Safety Injection to Sump

TEST REQUIREMENT: This valve shall be leak tested at least once every 2 years.

BASIS FOR RELIEF: Valve SI-V-860 is a 3" locked close manual gate valve that isolates the cavity fill line. The cavity fill line branches off the high pressure safety injection header inside containment. This valve is not LLRT tested but is tested during the ILRT in the accident direction with air on the containment side of the valve. The downstream side of the valve is covered with liquid but vented during the ILRT. This is consistent with expected post-LOCA conditions because valve SI-V-860 is in a vertical run with liquid trapped above it due to testing of the high pressure safety injection system.

The PRA analysis of the penetration resulted in a total risk (due to noncompliance with Appendix J) of 0.9 man-rem over the life of the plant. Of the total risk, 0.3 man-rem is due to valve SI-V-860 not being tested. It is assumed that SI-V-860 leaks 5 percent of the containment air volume per day, which is greater than twice the worst measured containment isolation valve as-found leakage at the plant. Clearly, the risk due to this untested valve is very small. Since the ILRT does leak test this valve, the actual risk will be much less than 0.3 man-rem.

ALTERNATE TESTING: None.

NUMBER: V-18

SYSTEM: Containment Isolation (P-23D)

VALVES: VH-V-588

CLASS/CATEGORY: 2-A

FUNCTION: Air Monitor Purge

TEST REQUIREMENT: This valve shall be leak tested at least once every 2 years.

BASIS FOR RELIEF: Penetration P-23D was modified during the 1987 refueling outage. The system piping was cut both inside and outside containment and capped. The valve is no longer required and need not be locally leak tested.

NUMBER: V-19

SYSTEM: Containment Instrument Air

VALVES: CA-RV-719, 720, 721

CLASS/CATEGORY: 3-C

BASIS FOR RELIEF: This system was modified during the 1987 refueling outage eliminating CA-RV-719, 720, and 721 relief valves. CA-RV-950 was added in their place and has been added to the IST program.

CONNECTICUT YANKEE IN-SERVICE PUMP TESTING FOR DIESEL GENERATOR AUXILIARY SYSTEMS

TABLE IWP-DG

Pumps	Speed Control	Inlet Pressure	Differential Pressure	Flow	Vibration	Lubrication	Bearing Temperature	Frequency
Fuel Oil System								
Transfer pumps	Note 1	B-Yes A-RR #4P	B-Yes A-RR #4P	RR #4P	Yes	RR #10P	RR #4P	Quarterly
Engine-driven pumps	RR #1P	RR #4P	RR #4P	RR #4P	RR #7P	RR #10P	RR #4P	Quarterly
Electric pumps	Note 1	RR #4P	RR #4P	RR #4P	RR #7P	RR #10P	RR #4P	Quarterly
Lube Oil System								
Main lube oil pumps	RR #2P	RR #5P	RR #5P	RR #5P	RR #8P	RR #11P	RR #5P	Quarterly
Piston oil pumps	RR #2P	RR #5P	RR #5P	RR #5P	RR #8P	RR #11P	RR #5P	Quarterly
Scavenging oil pumps	RR #2P	RR #5P	RR #5P	RR #5P	RR #8P	RR #11P	RR #5P	Quarterly
Circulating oil pumps	Note 1	RR #5P	RR #5P	RR #5P	Yes	RR #11P	RR #5P	Quarterly
Turbocharger oil pumps	Note 1	RR #5P	RR #5P	RR #5P	Yes	RR #11P	RR #5P	Quarterly
Cooling Water System								
Cooling water pumps	RR #3P	RR #6P	RR #6P	RR #6P	RR #9P	RR #12P	RR #6P	Quarterly

Note 1--Per Table IWP-3100-1, only variable speed pumps require speed measurement.

Relief Request #1P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Fuel Oil

AFFECTED PUMPS: Engine-driven fuel oil pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure the speed of variable speed pumps.

BASIS FOR RELIEF: The above listed pumps are variable speed in that they are driven by the diesel engine and, therefore, change speed as the diesel does. However, at the time of testing, the diesel will be of a procedurally specified constant load and speed. Therefore, for the purposes of this testing, these pumps are considered constant speed.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #2P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Lube Oil

AFFECTED PUMPS: Main lube oil pumps
Piston oil pumps
Scavenging oil pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure the speed of variable speed pumps.

BASIS FOR RELIEF: The above listed pumps are variable speed in that they are driven by the diesel engine and, therefore, change speed as the diesel does. However, at the time of testing, the diesel will be a procedurally specified constant load and speed. Therefore, for the purposes of this testing, the pumps are considered constant speed.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #3P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Cooling Water

AFFECTED PUMPS: Cooling water pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure the speed of variable speed pumps.

BASIS FOR RELIEF: The above listed pumps are variable speed in that they are driven by the diesel engine and, therefore, change speed as the diesel does. However, at the time of testing, the diesel will be a procedurally specified constant load and speed. Therefore, for the purposes of this testing, the pumps are considered constant speed.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #4P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Fuel Oil

AFFECTED PUMPS: Transfer pumps
Engine-driven pumps
Electric pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure the following quantities:

Inlet pressure
(before pump startup and during test)
Differential pressure
Flow rate
Bearing temperature

BASIS FOR RELIEF: At this time, there is no installed instrumentation to measure any of the above parameters.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #5P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Lube Oil

AFFECTED PUMPS: Main Lube Oil Pumps
Piston Oil Pumps
Scavenging Oil Pumps
Circulating Oil Pumps
Turbocharger Oil Pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure the following quantities:

Inlet pressure
(before pump startup and during test)
Differential pressure
Flow rate
Bearing temperature

BASIS FOR RELIEF: At this time, there is no installed instrumentation to measure any of the above parameters.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #6P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Cooling Water

AFFECTED PUMPS: Cooling Water Pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure the following quantities:

Inlet pressure
(before pump startup and during test)
Differential pressure
Flow rate
Bearing temperature

BASIS FOR RELIEF: At this time, there is no installed instrumentation to measure any of the above parameters.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #7P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Fuel Oil

AFFECTED PUMPS: Engine-driven fuel oil pumps
Electric-driven fuel oil pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure vibration amplitude.

BASIS FOR RELIEF: The above listed pumps are mounted to the diesel engine or connected support structures. All meaningful vibration readings will be overwhelmed by the vibration of the diesel engine itself.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #8P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Lube Oil

AFFECTED PUMPS: Main lube oil pumps
Piston oil pumps
Scavenging oil pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure vibration amplitude.

BASIS FOR RELIEF: The above listed pumps are mounted to the diesel engine or connected support structures. All meaningful vibration readings will be overwhelmed by the vibration of the diesel engine itself.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #9P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Cooling Water

AFFECTED PUMPS: Cooling water pumps

TEST REQUIREMENT: Per Table IWP-3100-1, measure vibration amplitude.

BASIS FOR RELIEF: The above listed pumps are mounted to the diesel engine or connected support structures. All meaningful vibration readings will be overwhelmed by the vibration of the diesel engine itself.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #10P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Fuel Oil

AFFECTED PUMPS: Transfer pumps
Engine-driven pumps
Electric pumps

TEST REQUIREMENT: Per Table IWP-3100-1, observe proper lubricant level or pressure.

BASIS FOR RELIEF: The above listed pumps are equipped with sealed bearings and not supplied by observable lubrication systems. Presently, instrumentation does not exist to monitor lubricant level or pressure.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #11P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Lube Oil

AFFECTED PUMPS: Main lube oil pumps
Piston oil pumps
Scavenging oil pumps
Circulating oil pumps
Turbocharger oil pumps

TEST REQUIREMENT: Per Table IWP-3100-1, observe proper lubricant level or pressure.

BASIS FOR RELIEF: The above listed pumps are equipped with sealed bearings and not supplied by observable lubrication systems. Presently instrumentation does not exist to monitor lubricant level or pressure.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

Relief Request #12P
Inservice Test Program (IWP)
Emergency Diesel Generator Auxiliary Systems
Connecticut Yankee

SYSTEM: Cooling Water

AFFECTED PUMPS: Cooling water pumps

TEST REQUIREMENT: Per Table IWP-3100-1, observe proper lubricant level or pressure.

BASIS FOR RELIEF: The above listed pumps are equipped with sealed bearings and not supplied by observable lubrication systems. Presently, instrumentation does not exist to monitor lubricant level or pressure.

ALTERNATE TESTING: The affected pumps and systems will be monitored during diesel engine operation using procedural specifications to assure satisfactory performance.

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-V-1A	* / B Passive	Compressor Outlet	1.5	GL	H	O	None			
DA-V-1B	* / B Passive	Compressor Outlet	1.5	GL	H	O	None			
DA-V-2A	* / B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-2B	* / B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-3A	* / B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-3B	* / B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-4A	* / B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-4B	* / B Passive	Receiver Inlet	1.5	GA	H	O	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-V-5A	*B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-5B	*B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-6A	*B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-6B	*B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-7A	*B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-7B	*B Passive	Receiver Inlet	1.5	GA	H	O	None			
DA-V-8A	*B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-8B	*B Passive	Receiver Outlet	1.5	GA	H	O	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-V-9A	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-9B	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-10A	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-10B	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-11A	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-11B	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-12A	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-12B	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-V-13A	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-13B	* / B Passive	Receiver Outlet	1.5	GA	H	O	None			
DA-V-14A	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-14B	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-15A	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-15B	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-16A	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-16B	* / B Passive	Receiver Drain	0.75	GL	H	O	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-V-17A	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-17B	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-18A	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-18B	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-19A	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-19B	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-20A	* / B Passive	Receiver Drain	0.75	GL	H	O	None			
DA-V-20B	* / B Passive	Receiver Drain	0.75	GL	H	O	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-V-21A	* / B Passive	Header Outlet	1.5	GA	H	LO	None			
DA-V-21B	* / B Passive	Header Outlet	1.5	GA	H	LO	None			
DA-V-22A	* / B Passive	Strainer Drain	0.5	GL	H	C	None			
DA-V-22B	* / B Passive	Strainer Drain	0.5	GL	H	C	None			
DA-V-23A	* / B Passive	Header Outlet	1.5	GA	H	O	None			
DA-V-23B	* / B Passive	Header Outlet	1.5	GA	H	O	None			
DA-V-24A	* / B Passive	Strainer Drain	0.5	GL	H	C	None			
DA-V-24B	* / B Passive	Strainer Drain	0.5	GL	H	C	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-V-25A	* / B Passive	Instrument Air Supply	0.75	GA	H	LO	None			
DA-V-25B	* / B Passive	Instrument Air Supply	0.75	GA	H	LO	None			
DA-V-26A	* / B Passive	Instrument Air Line Drain	0.375	Needle	H	C	None			
DA-V-26B	* / B Passive	Instrument Air Line Drain	0.375	Needle	H	C	None			
DA-PRV-27A	* / B (Note 1)	Instrument Air Press Reg	0.375	Reg.	H	LO	None			
DA-PRV-27B	* / B (Note 1)	Instrument Air Press Reg	0.375	Reg.	H	LO	None			
DA-V-29A	* / B Passive	Air Dryer Drain	0.5	Ball	H	C	None			
DA-V-29B	* / B Passive	Air Dryer Drain	0.5	Ball	H	C	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-CV-30A	*/C	Compressor Outlet Check	1.5	CK		O	Press Decay			
DA-CV-30B	*/C	Compressor Outlet Check	1.5	CK		O	Press Decay			
DA-V-40B	*/B Passive	Receiver Inlet Line Drain	0.375	GL	H	C	None			
DA-ASV-1A	*/B	Air Start Valve	1.5	GL	A	C	Q	RR#1V		RR#1V
DA-ASV-1B	*/B	Air Start Valve	1.5	GL	A	C	Q	RR#1V		RR#1V
DA-ASV-2A	*/B	Air Start Valve	1.5	GL	A	C	Q	RR#1V		RR#1V
DA-ASV-2B	*/B	Air Start Valve	1.5	GL	A	C	Q	RR#1V		RR#1V
DA-ARV-3A	*/B	Air Relay Valve	0.375	GL	A	C	Q	RR#1V		RR#1V

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DA-ARV-3B	* / B	Air Relay Valve	0.375	GL	A	C	Q	RR#1V		RR#1V
DA-ARV-4A	* / B	Air Relay Valve	0.375	GL	A	C	Q	RR#1V		RR#1V
DA-ARV-4B	* / B	Air Relay Valve	0.375	GL	A	C	Q	RR#1V		RR#1V
DA-SOV-133	* / B	Air Start Solenoid	0.375	GL	E	C	Q	RR#1V		RR#1V
DA-SOV-134	* / B	Air Start Solenoid	0.375	GL	E	C	Q	RR#1V		RR#1V
DA-SOV-135	* / B	Air Start Solenoid	0.375	GL	E	C	Q	RR#1V		RR#1V
DA-SOV-136	* / B	Air Start Solenoid	0.375	GL	E	C	Q	RR#1V		RR#1V
No Number	* / C	Air Start Check	0.375	CK		C	CV	RR#2V		RR#2V

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
No Number	* / C	Air Start Check	0.375	CK		C	CV	RR#2V		RR#2V
No Number	* / C	Air Start Check	0.375	CK		C	CV	RR#2V		RR#2V
No Number	* / C	Air Start Check	0.375	CK		C	CV	RR#2V		RR#2V
FO-CV-137A	* / C	Transfer Pump Suction Check	1.5	CK		O	CV	RR#4V		RR#4V
FO-CV-137B	* / C	Transfer Pump Suction Check	1.5	CK		O	CV	RR#4V		RR#4V
FO-CV-139A	* / C	Transfer Pump Discharge Check	1.5	CK		O	CV	RR#4V		RR#4V
FO-CV-139B	* / C	Transfer Pump Discharge Check	1.5	CK		O	CV	RR#4V		RR#4V
FO-V-140A	* / B Passive	Transfer Pump Disch Isolation	1.5	Ball	H	LO	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FO-V-140B	* / B Passive	Transfer Pump Disch Isolation	1.5	Ball	H	LO	None			
FO-V-141A	* / B Passive	Transfer Pump Cross-Connect	1	GA	H	LC	None			
FO-V-141B	* / B Passive	Transfer Pump Cross-Connect	1	GA	H	LC	None			
FO-V-142A	* / B Passive	Isolation Valve to Day Tank	1	GA	H	LO	None			
FO-V-142B	* / B Passive	Isolation Valve to Day Tank	1	GA	H	LO	None			
FO-V-143A	* / B Passive	Pump Discharge Line Drain	0.375	GL	H	C	None			
FO-V-143B	* / B Passive	Pump Discharge Line Drain	0.375	GL	H	C	None			
FO-V-144A	* / B Passive	Priming Line Isolation	0.25	GA	H	O	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valve.

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FO-V-144B	* / B Passive	Priming Line Isolation	0.25	GA	H	O	None			
FO-SOV-147A	* / B	Priming Solenoid	0.5	SOL	ELECT	C	Q	RR#3V		RR#3V
FO-SOV-147B	* / B	Priming Solenoid	0.5	SOL	ELECT	C	Q	RR#3V		RR#3V
FO-V-201A	* / B Passive	Engine-driven Pump Suction Cutoff	1	GL	H	O	None			
FO-V-201B	* / B Passive	Engine-driven Pump Suction Cutoff	1	GL	H	O	None			
FO-CV-202A	* / C	Engine Driven Pump Discharge Check	0.5	CK		O	CV	RR#4V		RR#4V
FO-CV-202B	* / C	Motor Driven Pump Discharge Check	0.5	CK		O	CV	RR#4V		RR#4V
FO-CV-202C	* / C	Engine Driven Pump Discharge Check	0.5	CK		O	CV	RR#4V		RR#4V

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FO-CV-202D	* / C	Motor Driven Pump Discharge Check	0.5	CK		O	CV	RR#4V		RR#4V
FO-RV-204A	* / C	Engine Driven Pump 10# Relief	N/A	Reg.		O	None			
FO-RV-204B	* / C	Motor Driven Pump 10# Relief	N/A	Reg.		O	None			
FO-RV-204C	* / C	Engine Driven Pump 10# Relief	N/A	Reg.		O	None			
FO-RV-204D	* / C	Motor Driven Pump 10# Relief	N/A	Reg.		O	None			
FO-CV-205A	* / C	Engine Driven Pump Return Check	0.75	CK		O	CV	RR#4V		RR#4V
FO-CV-205B	* / C	Motor Driven Pump Return Check	0.75	CK		O	CV	RR#4V		RR#4V
FO-CV-205C	* / C	Engine Driven Pump Return Check	0.75	CK		O	CV	RR#4V		RR#4V

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
FO-CV-205D	* / C	Motor Driven Pump Return Check	0.75	CK		O	CV	RR#4V		RR#4V
FO-RV-206A	* / C	Engine Driven Pump 1# Relief	0.5	Reg.		O	None			
FO-RV-206B	* / C	Motor Driven Pump 1# Relief	0.5	Reg.		O	None			
FO-RV-206C	* / C	Engine Driven Pump 1# Relief	0.5	Reg.		O	None			
FO-RV-206D	* / C	Motor Driven Pump 1# Relief	0.5	Reg.		O	None			
FO-RV-207A	* / C	Motor Driven Pump 30#	0.5	Reg.		O	None			
FO-RV-207B	* / C	Motor Driven Pump 30#	0.5	Reg.		O	None			
DFW-TCV-1A	* / C	Temperature Control Valve (TCV)	6	Reg.	Temp.	O	None			

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-9G

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DFW-TCV-1B	* / C	Temperature Control Valve (TCV)	6	Reg.	Temp.	O	None			
FO-V-2A	* / B	Drain Valve	1.25	Ball	H	C	None			
FO-V-2B	* / B	Drain Valve	1.25	Ball	H	C	None			
DLO-V-1A	* / B	Pump Inlet	1	Ball	H	O	None			
DLO-V-1B	* / B	Pump Inlet	1	Ball	H	O	None			
DLO-V-2A	* / B	Filter Drain	1	GL	H	C	None			
DLO-V-2B	* / B	Filter Drain	1	GL	H	C	None			
DLO-CV-3A	* / C	Circulating Oil Pump Discharge Check	1	CK		C	CV	RR#4V		RR#4V

HADDAM NECK INSERVICE VALVE TESTING FOR DIESEL
TABLE IWV-DG

*Noncode class valves

Valve Number	Class Category	Function	Size (inches)	Valve Type	Actuation	Normal Position	Test Required	Relief Request	Test Alt.	Remark
DLO-CV-3B	* / C	Circulating Oil Pump Discharge Check	1	CK		C	CV	RR#4V		RR#4V
DLO-CV-4A	* / C	Turbo Oil Pump Discharge Check	1	CK		C	CV	RR#4V		RR#4V
DLO-CV-4B	* / C	Turbo Oil Pump Discharge Check	1	CK		C	CV	RR#4V		RR#4V

SAFETY/RELIEF VALVE SETPOINT FOR DIESEL
TABLE IWV-DGRV

*Noncode class valves

Valve Number	Class Category	Function	Design Code	Size (Inches)	Valve Type	Set Point	Tolerance	Remark
DA-RV-32A	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-32B	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-33A	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-33B	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-34A	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-34B	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-35A	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-35B	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	

SAFETY/RELIEF VALVE SETPOINT FOR DIESEL
TABLE IWV-DGRV

*Noncode class valves

Valve Number	Class Category	Function	Design Code	Size (Inches)	Valve Type	Set Point	Tolerance	Remark
DA-RV-36A	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-36B	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DA-RV-37A	* / C	Air Receiver Relief		0.5	REL	22`	+/- 3%	
DA-RV-37B	* / C	Air Receiver Relief		0.5	REL	220	+/- 3%	
DLO-RV-5A	* / C	Lube Oil Relief			REL	40	+/- 2 psi	
DLO-RV-5B	* / C	Lube Oil Relief			REL	40	+/- 2 psi	
FO-RV-203A	* / C	Fuel Oil Relief		0.5	REL	60	+/- 2 psi	
FO-RV-203B	* / C	Fuel Oil Relief		0.5	REL	60	+/- 2 psi	

SAFETY/RELIEF VALVE SETPOINT FOR DIESEL
TABLE IWV-DGRV

*Noncode class valves

Valve Number	Class Category	Function	Design Code	Size (inches)	Valve Type	Set Point	Tolerance	Remark
FO-RV-203C	* / C	Fuel Oil Relief		0.5	REL	60	+/- 2 psi	
FO-RV-203D	* / C	Fuel Oil Relief		0.5	REL	60	+/- 2 psi	