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OPPD
Omaha Public Power District

444 South 16th Street Mall
Omaha NE 68102-2247

December 5, 2003
LIC-03-0158

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

References:
1. Docket No. 50-285
2. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1998 Edition (through 2000 Addenda)
3. ASME OM Code 1998 Edition (through 2000 Addenda), Code for Operation and Maintenance of Nuclear Power Plants
4. Letter from OPPD (R. T. Ridenoure) to NRC (Document Control Desk) dated November 5, 2002, Submittal of the Fort Calhoun Station (FCS) Inservice Inspection (ISI) Program Plan for the Fourth 120 Month Interval (2003-2013), (LIC-02-0123)

SUBJECT: Re-submittal of the Fort Calhoun Station (FCS) Inservice Testing (IST) Program Plan for the Fourth 120 Month Interval (2004-2013)

Pursuant to the requirements of 10 CFR 50.55a and the Reference 2 ASME Code, Omaha Public Power District (OPPD) is submitting Revision 1 of the FCS IST Program Plan previously submitted in Reference 4 for the plant's fourth 120-month inspection interval. The Revision 1 of FCS IST Program Plan incorporates the requirements of the ASME Section XI Code (1998 Edition, through 2000 Addenda) and the ASME OM Code (1998 Edition, through 2000 Addenda) for pump and valve testing. The Inservice Inspection Program, also submitted in Reference 4, is presently in NRC review and is not being revised by this submittal.

OPPD requests that the NRC complete review of the IST program prior to January 15, 2004. If the ISI program could also complete NRC review by January 15, 2004, OPPD would then implement the entire FCS ISI Program Plan for the fourth 120-month internal on February 15, 2004.

A047

No commitments are made to the NRC in this letter.

If you have any questions or require additional information, please contact Dr. R. L. Jaworski at (402) 533-6833.

Sincerely,

R. T. Ridenoure
Vice President

RTR/RLJ/rlj

Attachment: Pump and Valve Inservice Testing Program Plan - Fourth Ten-Year Interval (Revision 1)

c: B. S. Mallett, NRC Regional Administrator, Region IV (w/o enclosure)
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ATTACHMENT

Pump and Valve Inservice Testing Program Plan
–
Fourth Ten-Year Interval through September 25, 2013
Revision 1

Table of Contents

1.0 INTRODUCTION

1.1 Purpose

The purpose of this Program Plan is to provide the requirements for the performance and administration of assessing the operational readiness of pumps and valves whose specific functions are required in shutting down the reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident.

This Program Plan establishes the requirements for the implementing procedures for inservice testing and evaluation of pumps and valves.

1.2 Scope

The Program Plan incorporates and complies with the requirements of the 1998 Edition, through 2000 Addenda of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code).

Fort Calhoun Station Inservice Testing Plan incorporates and complies with the 1998 (through 2000 Addenda) ASME OM Code. This Code includes subsections ISTA-General Requirements, ISTB-Inservice Testing of Pumps, ISTC-Inservice Testing of Valves, and Mandatory Appendix I-Inservice Testing of Pressure Relief Devices.

This Program Plan will be in effect through the fourth 120 month interval (through September 25, 2013) and will be updated as required in accordance with 10CFR50.55a(f) and Technical Specifications.

Attachments 8 and 9 provide a complete listing of those pumps and valves included in the program per the requirements of ISTA, ISTB, ISTC and Mandatory Appendix I of the 1998 Edition (through 2000 Addenda) of the ASME OM Code.

1.3 Program Basis

The inservice testing (IST) program components were identified using the Fort Calhoun safety classifications along with the references listed in section 1.4. These boundaries were used to classify all IST components (ASME Class 1, 2, 3 and NC).

After all components were identified and classified, the safety functions for each component were determined. The safety function reference of each component was identified and documented in the IST Program Basis Document and database utilizing reference sources such as the USAR, Technical Specifications, and System Design Basis Documents, etc.

Valves included in the IST Program were categorized in accordance with ISTC Section 1300. Pumps included in the IST Program were identified as either centrifugal or

reciprocating in accordance with ISTB Section 1100, and then grouped as either Group A or Group B in accordance with ISTB Section 1300.

Subsequent to determining component safety function, classification and categorization, ISTB, ISTC and Appendix I were utilized to assign test type and test frequencies for each pump and valve identified. Assignment of test frequency was performed on a most limiting basis considering all Technical Specification, USAR and licensing commitments.

Technical Positions are outlined in Attachment 3 of this Plan.

1.4 References

1.4.1 Fort Calhoun Station Technical Specifications.
1.4.2 Fort Calhoun Station Updated Safety Analysis Report.
1.4.3 10CFR50.55a Codes and Standards.
1.4.4 10CFR50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Plants.
1.4.5 ASME OM Code 1998 Edition (through 2000 Addenda), Code for Operation and Maintenance of Nuclear Power Plants.
1.4.6 NRC Generic Letter No. 89-04, "Guidance on Developing Acceptable Inservice Testing Programs".
1.4.7 NRC NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants (for guidance only).
1.4.8 NRC Safety Evaluation Report on Revisions 3 and 4 of the Fort Calhoun Station's Inservice Inspection/Testing Program Plan (1983-1993), dated December 22, 1988 and July 3 1989, respectively.
1.4.9 Fort Calhoun Station Piping and Instrument Diagrams.
1.4.10 Fort Calhoun Station Inservice Testing Basis Document.

2.0 INSERVICE TESTING PLAN FOR PUMPS

2.1 Pump Inservice Testing Plan Description

This program plan establishes the requirements for the performance, administration, and implementation of the Inservice Testing Plan for selected pumps at the Fort Calhoun Station. This Plan includes those pumps which are provided with an emergency power source and are required in shutting down the reactor to the cold shutdown condition, maintaining the cold shutdown condition, or mitigating the consequences of an accident.

This program plan meets the requirements of the 1998 Code Edition through 2000 Addenda OM Code Subsection ISTB, with the exception of specific relief requests contained in Attachment 5.

2.2 Pump Plan Table Description

The pumps included in the Fort Calhoun Station IST Plan are listed in Attachment 8. The information contained in these tables identifies those pumps required to be tested to the requirements of ISTB, the testing parameters and frequency of testing, and associated relief requests. The headings for the pump tables are delineated below:

Component – The unique pump number

Description – The name/description of the pump

P&ID – The Piping and Instrumentation Diagram on which the pump is shown

Class – The ASME Code classification of the pump (1, 2, 3, or NC for non-ASME)

Group – The ISTB pump group
A – Group A (those pumps in standby systems that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations)
B – Group B (those pumps in standby systems that are not operated continuously or routinely except for testing)

Type – The type of pump
Centrifugal
Positive Displacement
Vertical Line Shaft

Test – Test parameters measured
N – Speed
DP – Differential Pressure
P – Discharge Pressure

Q – Flow
V – Vibration

Frequency – Test frequency
Q – Quarterly
Y2 – Once every two years

RR - Pump Relief Request. Relief request numbers for pumps are prefixed with "E".

TP – Pump Technical Position (See Attachment 3).

2.3 Pump Inservice Test Requirements

2.3.1 Frequency and scheduling of Pump Inservice Testing

Pump Inservice tests are conducted on each pump in the Program each quarter (for Group A and B tests) and once every two years (for comprehensive pump tests) unless the pump is declared inoperable or is not required to be operable.

2.3.2 Test Parameters

Speed (N) – Pump speed is only measured for variable speed pumps

Differential Pressure (DP) – Differential pressure is calculated from suction and discharge pressure or obtained by direct differential pressure measurement.

Discharge Pressure (P) – Discharge pressure is measured for positive displacement pumps

Flow Rate (Q) – Flow rate is measured using a rate or quantity meter installed in the pump test circuit.

Vibration (V) – Pump bearing vibration (in/sec peak velocity).

3.0 INSERVICE TESTING PLAN FOR VALVES

3.1 Valve Inservice Testing Plan Description

This Program establishes the requirements for the performance, administration and implementation of the Inservice Testing Plan for valves at Fort Calhoun Station. This Plan includes those valves which are required to perform a specific function in shutting down the reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident.

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

This Plan establishes the test intervals and parameters to be measured. It meets the requirements of ISTC and Appendix I of the 1998, through 2000 Addenda of the ASME OM Code with the exception of the specific relief requests contained in Attachment 6.

Where the frequency requirements for valve testing have been determined to be impracticable, cold shutdown or refueling outage justifications have been identified and documented. These justifications are provided in Attachment 7.

3.2 Valve Plan Table Description

The valves included in the Fort Calhoun Station IST Plan are listed in Attachment 9. The information contained in these tables identifies those valves which are required to be tested to the requirements of ISTC and/or Appendix I, the test type, frequency of test, and any associated relief requests. Also included are any associated deferred testing justifications and technical position associated with the valve. Valves excluded per ISTC 1200 are not listed. The column headings for the valve tables are delineated below:

System – The system name for the valve.

Component – The unique valve number.

Description – Valve noun description/function.

P&ID - The Piping and Instrumentation Diagram on which the valve represented.

Coord - The coordinate location of the valve on the P&ID.

Size – The nominal pipe size for the valve in inches.

Type – The type of valve is indicated by the following abbreviations:

Valve Type	Description
CK	Check
BF	Butterfly
GT	Gate
GL	Globe
RV	Relief
DI	Diaphragm
3W	3 Way Solenoid
2W	2 Way Solenoid

Act – The valve actuator type is indicated by the following abbreviations:

Actuator	Description
MO	Motor Operated
AO	Air Operated
SO	Solenoid Operated
MA	Manual
SA	Self Actuated
HO	Hydraulic Operated

Class – The ASME Code classification of the valve (1, 2, 3, or NC for non-class).

Cat – The category assigned to the valve per the definitions of ISTC, 1300.

Category	Description
A	Valves with specific seat leakage requirement
B	Valves with no specific seat leakage requirement
C	Self actuating (check valves, relief valves)
D	Actuated by an energy source capable of only one operation

Norm Pos – The position(s) of the valve during normal power operations is indicated as follows:

Position	Description
O	Open
C	Closed
O/C	Open/Closed
SYS	System dependent
N/A	Not Applicable
NE	Normally Energized
ND	Normally Deenergized
LO	Locked Open
LC	Locked Closed
A	Automatic

Safe Pos – The safety function position(s) for valves is indicated as follows:

Position	Description
O	Open
C	Closed
O/C	Open/Closed

A/P – Active or Passive valve function as indicated below:

A/P	Description
Active	Active Valve Function
Passive	Passive Valve Function
N/A	Not Applicable

Test – The tests performed to fulfill the requirements of ISTC, 3500 as indicated below.

Test Type	Description
AT	Category A Seat Leakage Test
BTO	Category B Exercise Test Open
BTC	Category B Exercise Test Closed
CTO	Category C Exercise Test Open
CTC	Category C Exercise Test Closed
CTD	Category C Disassembly/Inspection
DT	Category D Test
PIT	Position Indication Test
RT	Relief Valve Test
FO	Fail Safe Open Test
FC	Fail Safe Closed Test
PC	Partial Exercise Test
DI	Disassemble/Inspect

Freq – The frequency at which the valve test is performed to fulfill the requirements of ISTC Section 3500. The following abbreviations are used for test frequencies:

Frequency	Description
Q	Quarterly
CS	Cold Shutdown
RF	Refueling
R3	Every 3rd Refueling
Y	Annual
Y2	Every Two Years
Y3	Every Three Years
Y5	Every Five Years
Y10	Every Ten Years
AJ	Appendix J
SAM	Sampling

RR/DTJ – A relief request number is listed when a specific code requirements is determined to be impracticable. Relief request numbers for valves are prefixed with "E". Deferred testing justifications refers to cold shutdown and refueling outage justifications. These justifications are listed when the test frequency is cold shutdown or refueling instead of quarterly and are prefixed with "J" (see Attachment 6 and 7).

Note/TP – A Program Plan Note or Technical Position is indicated when clarifying approaches and positions are presented. These positions are prefixed with "N" for Note and "TP" for Technical Position (see Attachment 3).

ATTACHMENT 1

Inservice Testing Plan System and P&ID Listing

Inservice Testing Plan System and P&ID Listing

Description	System	P&ID
Auxiliary Feedwater	AFW	11405-M-253
Compressed Air	CA	11405-M-13
Component Cooling Water	CCW	11405-M-10
Charging	CH	E-23866-210-120/121
Containment Spray	CS	E-23866-210-130
Demineralized Water	DW	11405-M-5
Diesel Generator Fuel Oil	FO	11405-M-262
Feedwater	FW	11405-M-253
Hydrogen Gas	HG	11405-M-42
Instrument Air	IA	11405-M-13
Main Steam	MS	11405-M-252
Nitrogen Gas	NG	11405-M-42
Reactor Coolant	RC	E-23866-210-110
Raw Water	RW	11405-M-100
Diesel Generator Starting Air	SA	B120F07001
Safety Injection	SI	E-23866-210-130
Primary Sample	SL	11405-M-12
Service Water	SW	11405-M-259
Ventilating Air	VA	11405-M-1
Waste Disposal	WD	11405-M-98

ATTACHMENT 2

Inservice Testing Plan General Notes

Inservice Testing Plan General Notes

1.0 Containment Isolation Valves

Containment isolation valves (CIV) falling within the scope of the Code are leakage tested in accordance with the ISTC 3620, Category A. The seat leakage testing performed on these valves meets the intent of Section XI, however the actual test procedures will be conducted in accordance with the 10CFR50, Appendix J, Type C, CIV test program. All CIV's have been categorized as A-Active or P-Passive, and will, as a minimum, be leakage tested per 10CFR50, Appendix J. Passive valves will in general have no other testing performed.

2.0 Pressure Isolation Valves

The purpose of the plant Pressure Isolation Valves (PIV's) is to reduce the possibility of an inter-system LOCA which would occur by pressurizing low pressure systems to pressures exceeding their design limits. These Category A valves will be leakage tested per ISTC 3630.

3.0 Solenoid Valves Associated With Power Operated Valves

Solenoid valves associated with air or hydraulic operated valves are excluded from the IST Program, however they are identified within the IST Program Basis Document. These solenoid valves are considered skid mounted components tested when the major component is tested in accordance with ISTA 2000 and ISTC 1200. These solenoid valves are considered to demonstrate their performance as part of the operation of the valve assembly. Stroke time testing of the air or hydraulic operated valve demonstrates the acceptable performance of the associated solenoid valve.

4.0 Exclusion of Selected Thermal Relief Valves

The O&M Code Section IST provides general requirements for periodic performance testing and monitoring of valves that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. These general requirements apply to pressure relief devices that protect systems or portions of systems that perform one or more of these functions. FCS has determined that some thermal relief valves on safety-related systems do not fall within the scope of Section IST. Many safety-related systems, particularly those with heat exchangers, have been provided with thermal relief valves that function to protect isolated components, systems or portions of systems from fluid expansion caused by changes in fluid temperature. Clarification regarding the applicability of IST requirements to thermal relief valves was provided in a NRC SER (Reference ?). The SER stated in part, "Thermal relief valves installed to protect portions of safety-related systems may be included in this expanded scope. The relief valves that may be involved are those that meet the following criteria:

a. they protect a portion of a safety-related system.
b. the protected piping and/or component may be isolated during a plant operating mode where credit is taken for operation of the safety-related system.
c. the protected section is subject to a mechanism that could over pressurize it when isolated, and
d. the integrity of the protected section(eg., the absence of a rupture or stuck open relief valve) is required for the system to meet its safety function.

The licensee should justify exclusion of these thermal relief valves that do not protect portions of a safety system, that may be isolated during a plant operating mode where credit is taken for operation of the safety-related system"

The following information addresses the justification for exclusion of certain thermal relief valves from the scope of IST testing. The justification for exclusion are:

1. The relief valve protects Class 1, 2 or 3 (Class Code) systems/components that are not required to shutdown the plant/reactor, maintaining the plant/reactor in the shutdown condition, or mitigate an accident.

   OR

2. The relief valve is installed on safety related system/components which are not isolated during the operating cycle and are therefore not subjected to a mechanism that that could cause over pressure. In addition, the integrity of the protected section (i.e., stuck open relief valve) is not required for the system to meet its safety function, nor will loss of integrity render the system inoperable.

   OR

3. The relief valve is installed on safety related systems/components, which are not subjected to any overpressure mechanism due to system design.

Justification for Exclusion from the FCS IST Program Plan:

AC-166, AC-167, AC-168, AC-169, AC-291, AC-292, AC-293, and AC-294

RCP RC-3A/B/C&D Seal Cooler CCW Inlet Relief Valves
RCP RC-3A/B/C&D Lube Oil Cooler CCW Inlet Relief Valves

Justification: 1

The Reactor Coolant Pumps (RCPs) are not required for safe shutdown of the plant. The USAR assumes that only natural circulation is available for the RCS to cool down. Hence, the portion of the CCW system protected by these relief valves is not required. Although this portion of the CCW system is isolable, this portion of the CCW system is never isolated with the RCPs in operation.

AC-170 and AC-183

Sample Heat Exchanger SL-8A and SL-8B CCW Inlet Relief Valve (Secondary)
Sample Heat Exchanger SL-3 CCW Inlet Relief Valve (Primary)

Justification: 1 & 2

These sample heat exchangers are not required for safe shutdown of the plant nor do they protect equipment which mitigate an accident. The inlet and. outlet isolation valves are administratively controlled open during the operating cycle.

AC-173 and AC-178

Waste Gas Compressor WD-28A & B Seal Water Heat Exchanger CCW Inlet Relief Valves

Justification: 1 & 2

The Waste Gas Compressors are not required for safe shutdown of the plant nor do they protect equipment which mitigate an accident. The inlet and outlet isolation valves are administratively controlled open during the operating cycle.

AC-258

Letdown Heat Exchanger CH-7 CCW Inlet Relief Valve

Justification: 1 & 2

The Letdown Heat Exchanger is not required for safe shutdown of the plant nor is it utilized in mitigation of an accident. In addition, the portion of the system remains in service during the operating cycle and therefore is not subjected to an overpressurization mechanism.

AC-336, AC-337, and AC-338

Charging Pump CH-1A, B, & C Oil Cooler CCW Inlet Relief Valves

Justification: 2

This portion of the CCW system remains inservice during the operating cycle. Hence this section of the CCW system are administratively controlled open on the inlet and

outlet piping of the cooler to the rest of the CCW system. This section of piping is not subjected to an overpressurization mechanism.

AC-1026, AC-1027 and AC-1059

Shutdown Cooling Heat Exchanger AC-4A & B CCW Relief Valves
Spent Fuel Pool Heat Exchanger AC-8 CCW Relief Valve

Justification: 3

Due to the design of the isolation/flow control valves, these components and piping are not subjected to an overpressurization mechanism. The inlet isolation/flow control valves are Fisher Model 7620 series valves. The type 7600 series butterfly valve is a heavy-duty valve suitable for general control applications where extreme low leakage rates are not required. This valve design is not equipped with a valve seat.

CH-178, CH-179, and CH-180

Charging Pump CH-1A, B & C Suction Relief Valves

Justification: 2

This portion of the CVCS Charging system remains inservice during the operating cycle. If the charging pump is not inservice at the time, then the charging pumps remain unisolated and in the standby condition. These pumps are taken out of service routinely for maintenance due to the nature of positive displacement charging pumps. However, when the charging pump is isolated to be tagged out of service, the tagout requires that the system be drained and vented. Reference Computerized Tagging System for tagout of a charging pump. Hence this section of the CVCS Charging system remains open on the inlet and outlet piping of the charging pumps to the rest of the CVCS system. This section of piping is not subjected to an overpressurization mechanism.

CH-202

Reactor Coolant System Loop Charging System Bypass Valve/Thermal Relief

Justification: 2

CH-202 is the Bypass valve around CH-238. The Charging system loop injection headers into loop 1A and 1B are open during the operating cycle with at least 40 gpm charging flow. This system is not taken out of service. Hence, there is no overpressurization mechanism which requires CH-202 to open. Failure of this spring loaded check valve to the open position would not prevent this system from performing it's design function.

CH-219

Charging Pumps Suction Relief Valve on Common Suction Header from VCT

Justification: 2

This piping is continually in service during the operating cycle. There is no overpressurization mechanism which will challenge this relief valve.

CH-159, CH-223, and CH-224

VCT CH-14 Outlet Relief Valve
Regenerative Heat Exchanger CH-6 Letdown Relief Valve
Letdown Heat Exchanger CH-7 Letdown Relief Valve

Justification: 1

The letdown portion of the CVCS system is not required to shutdown the plant, maintain the plant shutdown, or mitigate an accident. Therefore, these thermal relief valves do not meet the requirements of Section XI.

JW-4-1 and JW-4-2

Expansion Tank JW-1-1 and JW-2-1 Pressure Caps

Justification: 3

These caps were not installed until 1988. There is no operational significance for these caps. The jacket water system runs at atmospheric pressure. These caps were installed to prevent the jacket water from burping onto the floor after the diesel generator is shutdown. If these caps would stick in the open or closed position, there would be no effect on the operation/operability of the cooling system. Based on this lack of safety significance and affect these caps have of the jacket water system, there is no applicability to the Section XI Program.

SI-222, SI-311 and SI-411

Safety Injection Tanks Fill/Drain Line Relief Valve
SIRWT SI-5 Return Line Relief Valve
Penetration M-22 Relief

Justification: 1

These portions of the Safety Injection system are not required to shutdown the plant, maintain the plant shutdown, or mitigate an accident. Therefore, these relief valves do not meet the requirements of Section XI.

SI-278, SI-279, SI-280, and SI-281

Safety Injection Tank (SIT) SI-6A/B/C & D Outlet Relief Valves

Justification: 3

These relief valves have a setpoint of 395 psig and are located on the discharge piping downstream of the Safety Injection Tanks (SIT) outlet isolation valves, (HCV-2914, HCV-2934, HCV-2954 and HCV-2974). The SIT valves are locked open during the operating cycle. Therefore overpressure protection is provided by the SIT relief valves (SI-209, SI-213, SI-217, and SI-221) which are set at a lower pressure of 275 psig. These relief valves are tested in the Section XI Program. There is no overpressure mechanism that subjects this portion of outlet piping to exceed the design pressure.

Alternate Testing:

Tests and test frequency for thermal relief valves not included will be controlled under the FCS Preventive Maintenance (PM) Program and be conducted in a similar manner as the FCS IST Program Plan.

ATTACHMENT 3

Inservice Testing Plan Technical Positions and Table Notes

Inservice Testing Plan Technical Position Index

Technical Position	Description
TP 01	Bi-directional Testing Of Check Valves
TP 02	Valves With Both Active And Passive Safety Functions
TP 03	Skid Mounted Components
TP 04	Solenoid Valves
TP 05	Fail Safe Testing
TP 06	Pump Categories In Accordance With ISTB

TECHNICAL POSITION
NUMBER: TP 01

COMPONENT IDENTIFICATION/FUNCTION

Bi-directional Check Valve Testing

POSITION

Fort Calhoun Station IST Program Plan lists the safety position for all valves. The test type specifies the exercise direction for each exercise test performed. For check valves, verification of the open and closed functions is performed regardless of safety function. In accordance with ISTC 5220, the following testing is performed:

1. Check valves having a safety function in both the Open and Closed directions

   The check valve is exercised to the full open or to the position required to fulfill its function with flow, and verified that the obturator has traveled to the seat on cessation or reversal of flow.

2. Check valves having a safety function in only the Open direction

   The check valve is exercised to the full open or to the position required to fulfill its function with flow and verified to close.

3. Check valves having a safety function in only the Closed direction

   The check valve is exercised to at least the partial open position (normal or expected system flow) with flow, and verified that the obturator has traveled to the seat on cessation or reversal of flow.

Observations are made by observing direct indicators or by other positive means. Check valves will be tested at an interval where it is practicable to perform both the open and closed tests.

TECHNICAL POSITION
NUMBER: TP 02

COMPONENT IDENTIFICATION/FUNCTION

Testing of valves with both active and passive safety functions.

HCV-344	Containment Spray Header Isolation Valve
HCV-383-3	Containment Sump Recirculation Isolation Valve
HCV-383-4	Containment Sump Recirculation Isolation Valve
HCV-385	SIRW Tank Recirculation Valve
HCV-386	SIRW Tank Recirculation Valve
LCV-218-3	Charging Pump Suction Header Isolation Valve
LCV-383-1	SIRW Tank Outlet Level Control Valve
LCV-383-2	SIRW Tank Outlet Level Control Valve

POSITION

The IST Program requires valves to be exercised to the position(s) required to fulfill their safety functions(s). In addition, valves with remote position indication shall have their position indication verified. The Code does not restrict position indication to active valves.

Several valves included in the plant are designed to perform passive safety functions during accident conditions and then, based on plant accident response, are designed to change positions to perform another (active) function. Once in their final position, there exists no conditions in which they would be required to be placed in their original passive position.

These valves are typically emergency core cooling system valves which require changing position during different phases of the accident. After the original passive safety function (e.g. provide flow path) is performed the valves are repositioned to perform the active safety function(e.g. provide containment isolation). These valves are not required to return to their original position.

Based on ASME Inquiry OMI 98-07, these valves with passive function in one direction and active in the other, will be exercised to only their active position. If these valves have position indication, the position indication verification will include verification of both positions.

TECHNICAL POSITION
NUMBER: TP 03

COMPONENT IDENTIFICATION/FUNCTION

Skid Mounted Valves

SA-141, SA-142, SA-145, SA-146, SA-147, SA-148, SA-191, SA-192,, SA-195, SA-196, SA-197, SA-198, SA-202, SA-203, SA-252, SA-253

POSITION

These valves are considered skid mounted and/or component subassemblies of a safety related major component (Diesel Generator). These valves will be verified operational based on satisfactory operational testing on the major component. Corrective actions will be in accordance with the Technical Specification Limiting Condition For Operation (LCO) for the major component. These components are excluded from the Inservice Testing program in accordance with ASME OM Code 1998, through 2000 Addenda ISTA 2000 and ISTC 1200.

TECHNICAL POSITION
NUMBER: TP 04

COMPONENT IDENTIFICATION/FUNCTION

Solenoid Valves

POSITION

Solenoid-operated valves used to control an air-operated valve are excluded from the Inservice Testing Program in accordance with ASME OM Code 1998, through 2000 Addenda ISTA 2000 and ISTC 1200. These valves are considered skid-mounted and are integral to or support operation of the major component. These valves are tested as part of the major component test plan.

These valves do not have position indication and are used only to control air to/from the main valve's control air system. Degradation and/or failure of these valves is assessed during operability testing of the main valve. Although these solenoid valves are not individually stroke timed, their periodic exercising is performed when the main valve is tested.

TECHNICAL POSITION
NUMBER: TP 05

COMPONENT IDENTIFICATION/FUNCTION

Fail Safe testing of Category A and B valves

DESCRIPTION

Fort Calhoun Station, IST Program valves that fail open or closed upon loss of actuator power use the fail-safe mechanism to stroke the valve to its safety position. For example, an air-operated valve that fails closed may use air to open the valve against spring force. When the actuator control switch is placed in the closed position, air is vented from the diaphragm and the spring moves the obturator to the closed position.

For fail-safe valves, since placing the control switch in the OPEN position for fail-open valves, and the CLOSED position for fail-closed valves, results in a loss of actuator power, the fail-safe testing requirements of ASME OM Code 1998, through 2000 Addenda ISTC 3560 will be satisfied during stroke testing of the valve.

TECHNICAL POSITION
NUMBER: TP 06

COMPONENT IDENTIFICATION/FUNCTION

Pump Categories per ISTB 1300

POSITION

Fort Calhoun Station has grouped the pumps tested in the IST Program in accordance with the requirements of ISTB 1300.

Group A pumps are those pumps in standby systems that are operated *continuously* or *routinely* during normal operation, cold shutdown, or refueling operations. The following pumps are categorized as Group A at Fort Calhoun Station:

AC-3A	Component Cooling Water Pump
AC-3B	Component Cooling Water Pump
AC-3C	Component Cooling Water Pump
CH-1A	Charging Pump
CH-1B	Charging Pump
CH-1C	Charging Pump
AC-10A	Raw Water Pump
AC-10B	Raw Water Pump
AC-10C	Raw Water Pump
AC-10D	Raw Water Pump
SI-1A	Low Pressure Safety Injection Pump
SI-1B	Low Pressure Safety Injection Pump
SI-3A	Containment Spray Pump
SI-3B	Containment Spray Pump
SI-3C	Containment Spray Pump
CH-4A	Boric Acid Pump
CH-4B	Boric Acid Pump

External recirculation flow (minimum flow recirculation line) is not measured during quarterly testing of Group A pumps. The recirculation flow has a fixed resistance.

Group B pumps are those pumps in standby systems that are not operated routinely except for testing. The following pumps are categorized as Group B at Fort Calhoun Station:

FW-6	Auxiliary Feedwater Pump – Motor Driven
FW-10	Auxiliary Feedwater Pump – Turbine Driven
FO-4A-1	Diesel Generator Fuel Oil Transfer Pump
FO-4A-2	Diesel Generator Fuel Oil Transfer Pump
FO-4B-1	Diesel Generator Fuel Oil Transfer Pump
FO-4B-2	Diesel Generator Fuel Oil Transfer Pump
SI-2A	High Pressure Safety Injection Pump
SI-2B	High Pressure Safety Injection Pump
SI-2C	High Pressure Safety Injection Pump

INSERVICE TESTING PROGRAM PLAN
TABLE NOTES

NOTE #1 (N 1) These valves are check valves associated with the Instrument Air (IA) accumulators attached to process valves that are specified for testing within the IST Program Plan. The IA check valves will be tested on the same schedule as the process valve to which it is attached.

NOTE #2 (N 2) These valves are check valves associated with the Instrument Air (IA) accumulators on bubblers that are part of the level indication/control system for the Safety Injection Refueling Water Tank. The IST Program Plan addresses only the testing of the check valve in this system.

NOTE #3 (N 3) These valves are check valves associated with the Instrument Air (IA) accumulators attached to HCV-238 and HCV-239 (located inside containment). The process valves are remotely stroke tested each quarter, but due to inaccessibility, the check valves (IA-HCV-238-C and IA-HCV-239-C) will be exercised at cold shutdown.

NOTE #4 (N 4) These valves are check valves associated with the Instrument Air (IA) accumulators attached to PCV-6680A-1, PCV-6680A-2, PCV-6680B-1, PCV-6680B-2 and PCV-6682. The valves are located in Room 81. The dampers are not required to be tested; however, the IA accumulator check valves are required to be tested at cold shutdown.

NOTE #5 (N 5) These valves are check valves on Instrument Air (IA) accumulators attached to HCV-480 and HCV-481. These check valves are exercised open and closed quarterly.

ATTACHMENT 4

Inservice Testing Plan Relief Requests and Deferred Testing Justifications Index

Inservice Testing Plan Relief Requests and Deferred Testing Justification Index

Pump Relief Requests

Valve Relief Requests

Deferred Testing Justification Index

Deferred Testing Justification Index (continued)

J24 Main Steam Isolation Check Valve Testing during Cold Shutdown
J25 Main Steam Isolation Bypass Valve Testing during Cold Shutdown
J26 Feedwater Isolation Valve Testing during Cold Shutdown
J27 Instrument Air Containment Isolation Valves Testing during Cold Shutdown
J28 Instrument Air Supply Check Valves Testing during Cold Shutdown
J29 IA Accumulator Check Valve and SIRWT Minimum Recirculation Isolation Valves Testing during Cold Shutdown
J30 Volume Control Tank Outlet Check Valve Testing during Cold Shutdown
J31 Containment Spray Pumps Discharge Check Valves Testing during Cold Shutdown
J32 Instrument Air Supply Header Check Valves Testing during Cold Shutdown
J33 Main Steam Stop Check Valves Disassembly and Examination
J34 Safety Injection/Instrument Air Valves Testing during Cold Shutdown
J35 Nitrogen Supply to SIT Check Valves Testing during Cold Shutdown
J36 Pressurizer Spray Check Valve Testing during Refueling
J37 Nuclear Detector CCW Isolation Valves Exercise and Fail Safe Testing during Cold Shutdown
J38 Containment Purge Inlet/Exhaust Isolation Valves Exercise and Fail Safe Testing during Cold Shutdown
J39 LPSI/CS Pumps Minimum Recirculation Header Check Valve Disassembly and Examination

ATTACHMENT 5

Pump Relief Requests

PUMP RELIEF REQUEST
NUMBER: E1

System: Various

Pumps: Raw Water Pumps AC-10A, AC-10B, AC-10C, AC-10D
Low Pressure Safety Injection Pumps SI-1A, SI-1B
High Pressure Safety Injection Pumps SI-2A, SI-2B, SI-2C
Containment Spray Pumps SI-3A. SI-3B, SI-3C
Boric Acid Pumps CH-4A, CH-4B

Class: 2, 3

Impracticable Test Requirement: ISTB 5100 and Table ISTB-3000-1, Measurement of pump inlet and differential pressure.

Basis for Relief: The system design does not include instrumentation for direct measurement of inlet and differential pressure.

Alternative Testing: The Raw Water pump inlet pressure will be calculated based on the river level and the elevation of the pump suction bells. The pump differential pressure will then be calculated based on the measured discharge pressure and the calculated inlet pressure. Since (1) the river provides the required positive pressure at the suction of the pumps, (2) the river level does not change when a pump is started, and (3) at least one pump is usually in service, the calculated inlet pressure prior to starting a pump is the same as with a pump running.

The LPSI, HPSI and CS pumps take their suction directly from the Safety Injection and Refueling Water Tank and have inlet pressures due to the level of water in the tank above the pump inlets. The pump inlet pressures will be calculated based on the tank level and the difference in elevation between the tank and the pump inlets. Pump differential pressures will then be calculated by subtracting the calculated inlet pressure from the measured discharge pressures. Since the Safety Injection and Refueling Water Tank provides the required positive pressure at the suction of the pumps and since the tank level does not significantly change when a pump is started, the calculated pump inlet pressure prior to starting a pump is the same as with a pump running. Flow losses through the suction piping of these pumps are negligible. Since the losses would be the same from test to test, not including them in the test would still enable pump degradation to be identified.

The Boric Acid Pumps take their suction directly from the Boric Acid Tanks and have an inlet pressure due to the level of acid in the tanks above the pump inlet. The pump inlet pressure will be calculated based on the Boric Acid Storage Tank level and the elevation difference between the tank level and the pump inlet. Pump differential pressure will then be calculated by subtracting the calculated inlet pressure from the measured discharge pressure.

Pump Relief Request E1 is necessary to allow FCS to use current measurement methods (with increased accuracy) until potential plant modifications can be evaluated for feasibility to provide suction and/or differential pressure indications for subject pumps. These potential modifications will be initiated and evaluated within one refueling cycle (18 mo.)

FCS requests interim relief for a period of one refueling cycle for this item. Additional actions will be required after completion of the evaluations.

PUMP RELIEF REQUEST
NUMBER: E2

This relief request (E2) has been deleted.

PUMP RELIEF REQUEST
NUMBER: E3

This relief request (E3), was deleted in the 3Rd Interval IST Program Plan submittal.

PUMP RELIEF REQUEST
NUMBER: E4

System: Component Cooling Water and Raw Water

Pumps: Component Cooling Water Pumps AC-3A, AC-3B, AC-3C
Raw Water Pumps AC-10A. AC-10B, AC-10C, AC-10D

Class: 3

Impracticable Test Requirement: ISTB 5000, System resistance shall be varied until either the measured differential pressure or flow rate equals the corresponding reference value.

Basis for Relief: The Raw Water (RW) and Component Cooling Water (CCW) systems at Fort Calhoun Station (FCS) are designed such that the total pump flow cannot be adjusted to one specific value for the purpose of testing without adversely affecting the system flow balance and technical specification operability requirements. Therefore, the RW and CCW pumps must be tested in a manner that the RW and CCW loops remain properly flow balanced during and after the testing. In addition, certain supplied loads (e.g., cooling of Control Element Drive Mechanisms) must remain fully operable per Technical Specifications to maintain the required level of plant safety during power operation.

The RW and CCW systems loops are not designed with full flow test lines with single throttle valves. Therefore, the flow cannot be throttled to a fixed reference value every time a pump test is performed. Total pump flow rate can only be measured using the total flow indication as installed and read on the supply headers. There are no valves available in any of the loops, on either the supply or return lines, for the purpose of throttling total RW or CCW system flows. Only the flow of the served components are able to be individually throttled. The main loops of RW and CCW are piped in parallel with each other. Many loads are throttled to flow ranges specified in the FCS Design Basis Documents (DBD). All loads are aligned in parallel, and receive RW and CCW flow when the RW and CCW pumps are running regardless of which served components are in service. During power operation, certain loops of RW/CCW are required to be operable per Technical Specifications. Specific loops/components of RW/CCW cannot be taken out of service for testing without entering an action statement for a Limiting Condition for Operation (LCO). Also, exceeding certain individual component flows/temperatures (e.g., reactor coolant pump seals) can require plant shutdown in two hours, depending on the load in question.

Certain RW/CCW loops are flow balanced during each refueling outage (at a nominal 18-month frequency) to ensure that all loads are adequately supplied. Flow ranges are specified for these loads in order to balance flows against each other. Once properly flow balanced, minimal flow adjustment can be made for any one particular load without adversely impacting the operability of the remaining loads (i.e., increasing flow for one load reduces flow for all of the others). Each time the system is flow balanced, proper individual component flows are produced, but this in turn does not necessarily result in one specific value for total flow. Because certain loads have an acceptable flow range, overall system full flow (the sum of the individual component flows) also has a range. Consequently, the Code requirements to quarterly adjust RW/CCW loop flow to one

specific flow value for the performance of inservice testing conflicts with FCS system design and component operability requirements (i.e., flow balance) as required by Technical Specifications.

Alternative Testing: As discussed above in the Basis for Relief section, it is extremely difficult to return to a specific value of flow rate or differential pressure for testing of these pumps. Multiple reference points could be established according to the Code, but obtaining reference values at every possible point, even over a small range is not feasible. An alternative to the testing requirements of ISTB 5000, is to base the acceptance criteria on a reference pump curve. Flow rate and differential pressure are measured/calculated during inservice testing and compared to an established baseline reference curve. In addition, trending is accomplished by taking the ratio of the reference curve differential pressure versus flow and the actual differential pressure versus flow.

The following elements are used in developing and implementing the reference pump curves:

1. A reference pump curve (differential pressure vs. flow) has been established for RW pumps AC-10A, AC-10B, AC-10C, and AC-10D, and for CCW pumps AC-3A, AC-3B, and AC-3C from data taken on these pumps when they were known to be operating acceptably. These pump curves represent pump performance close to the original manufacturer's pump test data. All subsequent test results are compared to these reference values.

2. Pump curves are based on four or more test points whenever possible and has at least one data point for each 20% of the maximum pump curve range. The range of the curves is adequate to bound the points of operation expected during subsequent testing. Rated capacities of these pumps are 6,000 - 7,000 gpm for the RW pumps and 4,500 - 5,500 gpm for the CCW pumps.

3. The reference baseline pump curves are compared to the manufacturer's pump curves validated during plant preoperational testing.

4. Review of the pump hydraulic data trend plots indicates close correlation with established pump reference curves, thus validating the adequacy of the pump curves to assess the pumps' operational readiness.

5. When a reference curve may have been affected by repair, replacement or servicing of a pump, a new reference curve shall be determined or the previous curve reconfirmed by an inservice test run before declaring the pump operable. Deviations between the previous and new reference curves shall be identified, and verification that the new curves represent acceptable pump operations shall be placed in the record of tests.

6. Only a small portion of the established reference curve is being used to accommodate flow rate variance due to flow balancing of various system loads.

7. Review of recent vibration data trend plots indicates that the change in vibration readings over the range of the pump curves being used is insignificant, therefore, only one fixed reference value has been assigned for each vibration measurement

location.

8. If test results fall in the alert range the frequency of testing is doubled until the cause of the deviation is determined and the condition corrected. If test results fall in the required action range, the pump shall be declared inoperable until the cause of the deviation has been determined and the cause corrected. Evaluations for deviations in the alert and required action ranges may be done graphically.

9. The design of the FCS RW and CCW systems and the Technical Specification requirements make it impracticable to adjust system flows to a fixed reference value for inservice testing without adversely affecting the system flow balance and Technical specification operability requirements. Proposed alternate testing using a reference pump curve for each pump provides adequate assurance and accuracy in monitoring pump condition to assess pump operational readiness and will adequately detect pump degradation. The proposed alternate testing will have no adverse impact on plant or public safety.

PUMP RELIEF REQUEST

NUMBER: E5

System: Low Pressure Containment Injection and Containment Spray

Pumps: Low Pressure Safety Injection Pumps SI-1A, SI- 1B
Containment Spray Pumps SI-3A, SI- 3B, SI 3C

Class: 2

Impracticable Test Requirement: ISTB 5221(e), Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Table ISTB-5200-1.

Basis for Relief: Analysis of previous quarterly pump tests while operating with minimum recirculation flow found that the Low Pressure Safety Injection Pumps and the Containment Spray Pumps consistently exceed the >0.325 ips Alert Range limit when they are known to be operating acceptably. Based on analysis of the pump design and discussions with the pump vendor, pump experts and another utility with identical pumps, OPPD has concluded that the installed pumps are not designed to meet this vibration criteria when operation with only minimum recirculation flow.

Alternative Testing: During comprehensive pump testing, the requirements of ISTB 5221(e) will be fully implemented. During Group A quarterly testing, the >0.325 ips Alert Range limit and the >0.70 ips Required Action Limit will be replaced with an Alert Range limit of >0.80 ips and a Required Action Limit of >1.1 ips.

ATTACHMENT 6

Valve Relief Requests

VALVE RELIEF REQUEST
NUMBER: E1

Deleted

VALVE RELIEF REQUEST
NUMBER: E2

Deleted

VALVE RELIEF REQUEST
NUMBER: E3

Deleted

VALVE RELIEF REQUEST
NUMBER: E4

System: Safety Injection

Valves: S1-207, SI-208, SI-211, SI-212, SI-215, SI-216, SI-219, SI-220

Class: 1

Function: Safety Injection Tank Check Valves

Impracticable Test Requirement: ISTC 5221, Valve Obturator Movement ... valve shall be exercised by initiating flow and observing that the obturator has traveled to either the full open position or to the position required to perform its intended function(s) and verify closure.

Basis for Relief: These valves cannot be exercised during power operation because a flow path does not exist due to the higher RCS pressure. The Safety Injection Tank pressure is less than RCS pressure during power operation. Also, these check valves cannot be exercised during Cold Shutdowns because the RCS does not contain sufficient volume to accept the flow required and a low temperature overpressure condition of the RCS could result.

Alternative Testing: These check valves will be full-stroke exercised in the open direction during Refueling Outages by "dumping" the Safety Injection Tanks to the Reactor Vessel. Test parameters such as SI tank level decrease vs. time, SI tank pressure, valve differential pressure, flow rate etc. are used to determine a flow coefficient. The minimum flow coefficient was determined using the safety analysis data provided by the NSSS vendor. Comparing this minimum flow coefficient as acceptance criteria to the flow coefficient determined by testing, assures FCS that the valve is able to perform its safety function. This method of testing the check valves complies with the guidance provided in Generic Letter 89-04, Attachment 1, Position 1.

Closure verification of these check valves will be performed in conjunction with their respective leakage test, performed each refueling.

Additionally, valves SI-208, SI-212, SI-216 and SI-220 will be partial-stroke exercised at Cold Shutdown frequency in the open direction using Shutdown Cooling flow.

VALVE RELIEF REQUEST
NUMBER: E6

Deleted

ATTACHMENT 7

Deferred Testing Justifications

DEFERRED TESTING JUSTIFICATION
NUMBER: J1

System: Safety Injection

Valve(s): SI-100, SI-113

Category: C

Class: 2

Function: High Pressure Safety Injection (HPSI) Pump Suction Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves cannot be full-stroke exercised open Quarterly during plant operation or during Cold Shutdowns, since to do so would require a flow path to the Reactor Coolant System (RCS). That flow path cannot be utilized during power operation because the High Pressure Safety Injection (HPSI) pumps do not develop sufficient discharge pressure to overcome RCS pressure. This same flow path cannot be utilized during Cold Shutdowns because there is insufficient volume in the RCS to accommodate the flow required and a low temperature overpressure condition of the RCS could result.

Alternative Testing Frequency: These check valves will be partial-stroke exercised open, using the minimum recirculation flow path Quarterly during normal operations, and full-stroke exercised open and closed during Refueling Outages.

This method of partial-stroke exercising open Quarterly and full-stroke exercising open/close during Refueling Outages is in accordance with the requirements set forth in ISTC-3522.

DEFERRED TESTING JUSTIFICATION
NUMBER: J2

System: Reactor Coolant

Valve(s): PCV-102-1, PCV-102-2

Category: B

Class: 1

Function: Pressurizer Power Operated Relief Valves (PORV)

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: These valves can only be opened or closed when there is a pressure differential across the valve. The valves have solenoid pilot valves that control their actuation. Since valves of this type have a history in the industry of sticking open and the PORV's are not credited in the safety analysis for overpressure protection during power operations, it is impracticable to exercise these valves or perform the fail safe test Quarterly during power operation. These valves cannot be partial-stroke exercised since based on the valve design, it is either fully open or fully closed.

Alternative Testing Frequency: The PORV's will be stroke-timed exercised in the open and closed direction and fail safe tested during the transition to Cold prior to entering Mode 4. The PORV's will be tested during the transition from Hot Shutdown to Cold Shutdown (as defined by FCS Technical Specifications) whenever practical, i.e., normal plant shutdown. During a Technical Specification mandated shutdown, the PORV's will be tested during plant startup prior to entering Mode 2.

DEFERRED TESTING JUSTIFICATION
NUMBER: J3

System: Safety Injection

Valve(s): SI-102, SI-108, SI-115

Category: C

Class: 2

Function: HPSI Pump Discharge Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves cannot be full-stroke or partial-stroke exercised open or closed during plant operation, Quarterly or during Cold Shutdowns, since to do so would require a flow path to the RCS. That flow path cannot be utilized during power operation because the HPSI pumps do not develop sufficient discharge pressure to overcome RCS pressure. This same flow path cannot be utilized during Cold Shutdowns because there is insufficient volume in the RCS to accommodate the flow required, and a low temperature overpressure condition of the RCS could result. Additionally, these valves cannot be exercised during Quarterly pump tests or minimum flow because the minimum flow lines branch off upstream of the check valves and no flow occurs through these valves.

Alternative Testing Frequency: These check valves will be full-stroke exercised open and closed during Refueling Outages when the Reactor Vessel head is removed. This will provide an expansion volume to accommodate the flow required.

DEFERRED TESTING JUSTIFICATION
NUMBER: J4

System: Safety Injection

Valve(s): SI-121, SI-129

Category: C

Class: 2

Function: LPSI Pump Discharge Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These check valves cannot be partial-stroke or full-stroke exercised in the open or closed direction Quarterly during power operation because there is no flow path available except during shutdown cooling. Additionally, these valves cannot be exercised open or closed during Quarterly pump tests or using the minimum flow line because the minimum flow lines branch off upstream of the check valves and no flow occurs through these valves.

Alternative Testing Frequency: These check valves will be full-stroke exercised open and closed during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J5

System: Charging

Valve(s): CH-143, CH-155, CH-156

Category: C

Class: 2

Function: CH-143 - Charging Pump Boric Acid Supply Check Valve
CH-155- Charging Pump Boric Acid Gravity Feed Check Valve
CH-156 - Charging Pump Safety Injection and Refueling Water Tank (SIRWT) Suction Check Valve

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These check valves serve to permit direct feed of concentrated boric acid solution to the charging pump suction header. These check valves cannot be full-stroke or partial-stroke exercised open Quarterly during power operation. The only flow path through these valves is into the RCS; exercising would result in injecting highly concentrated boric acid into the RCS. Injecting concentrated boric acid into the RCS during power operation could cause an uncontrolled reactivity excursion, a plant shutdown, or a plant trip.

Alternative Testing Frequency: These check valves will be full-stroke exercised open and closed during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J6

System: Feedwater

Valve(s): FW-161, FW-162

Category: C

Class: 2

Function: Steam Generator Feedwater Inlet Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These check valves function to prevent the loss of inventory of the Steam Generator in the event of a line break upstream between valves HCV-1385 (HCV-1386) and check valve FW-161 (FW-162). These check valves cannot be full-stroke exercised closed Quarterly during power operation because the valves are the only feedwater supply flow paths to the steam generators. During power operation, the feedwater paths to the steam generators must not be isolated as this would remove the "heat sink" for the Reactor Coolant System (RCS).

These valves are 16 inch duo-disk check valves. Although these valves have springs that provide limited closing force, the primary closing force during an applicable event would be associated with flow reversal/differential pressure resulting from a major loss of upstream pressure (e.g., a pipe rupture) during plant operation. Efforts to full-stroke exercise these valves closed during cold shutdown have proven to be impracticable. Limited differential pressure across the valve disk during such testing does not necessarily close the valve with sufficient force to allow positive verification of valve disk closure. This makes it impracticable to reach a valid conclusion regarding the closure capability of the valve with it installed in the system.

Alternative Testing Frequency: These valves will be exercised open and closed manually using disassembly and examination in accordance with ISTC-5221 (c). Since these valves are of the same manufacturer, design, service conditions, size, materials of construction and orientation they may be grouped together. In accordance with ISTC-5221 (c) (3) one valve from this group will be disassembled and examined at each refueling outage with all valves being disassembled and examined at least once every 8 years. During the disassembly process, the valve will be manually full stroke exercised to both the open and closed positions. Immediately prior to completing reassembly the valve will be reverified to stroke through its full range of motion.

If the valve is not capable of full stroke motion or have unacceptable degradation of valve internals, an analysis will be performed. If it is determined that other valves in the group may have similar failure mechanisms, they will be disassembled and examined during the same refueling outage.

DEFERRED TESTING JUSTIFICATION NUMBER: J7

System: Auxiliary Feedwater

Valve(s): FW-163, FW-164

Category: C

Class: 2

Function: Steam Generator Auxiliary Feedwater Injection Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These check valves open for auxiliary feedwater (AFW) flow to the Steam Generators. Exercising these valves during power operation would result in cold water injection to a portion of the Steam Generators normally at 400° - 500° F, which would cause unnecessary and possibly damaging thermal stresses in the Steam Generators.

The check valves do not have a safety function in the closed direction, as there are two containment isolation valves upstream of each of the check valves which are normally closed. In addition, there is an AFW pump check valve upstream of the containment isolation valves which is exercised closed quarterly in accordance with the FCS IST Program Plan. As a result of the above mentioned IST tests, FCS has addressed adequately the concern of "thermal binding" of the AFW pumps and has determined that FW-163 and FW-164 do not provide a safety-related function in the reverse flow direction. It should also be noted that the discharge piping temperature upstream of FW-163 and FW-164 is monitored on a regular basis, further ensuring that the AFW pumps will not experience "thermal binding."

Alternative Testing Frequency: These check valves will be exercised to the open and closed positions during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J8

System: Reactor Coolant

Valve(s): HCV-176, HCV-177, HVC-178, HCV-179, HCV-180, HCV-181

Category: B

Class: 2

Function: Reactor Vessel Head and Pressurizer Vents

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: These valves are intended to be used to vent the Reactor Pressure Vessel (RPV) head and pressurizer. These valves are Target Rock solenoid valves, which have a history of sticking open when exercised. This could result in a small break Loss of Coolant Accident (LOCA) if these valves are stroke-timed at power. Therefore, partial or full-stroke exercising, or fail safe testing during normal operation (quarterly) is impracticable.

Alternate Testing Frequency: These valves will be stroke-timed exercised in the open and closed directions and fail safe tested closed during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J9

System: Safety Injection

Valve(s): SI-194, SI-197, SI-200, SI-203

Category: A/C

Class: 1

Function: Shutdown Cooling Injection Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These check valves cannot be full-stroke exercised open or partial-stroke exercised Quarterly during power operation because no flow path is available at operating pressure due to system configuration. Since the Safety Injection (SI) pumps are not able to develop sufficient discharge pressure to overcome RCS pressure, the valves are not able to be exercised. Valves SI-194, SI-197, SI-200 and SI-203 are Pressure Isolation Valves (PIVs)as defined by NRC Generic Letter (GL) 89-04 and as listed in the FCS Technical Specifications.

Alternate Testing Frequency: These check valves are full-stroke exercised open and closed during Cold Shutdown when the Shutdown Cooling system is in service. These check valves will be leak tested during Cold Shutdown in accordance with the requirements of FCS Technical Specification 2.1, Table 2-9. This leakage test verifies the closure position of these check valves.

DEFERRED TESTING JUSTIFICATION
NUMBER: J10

System: Safety Injection

Valve(s): SI-195, SI-198, SI-201, SI-204

Category: A/C

Class: 1

Function: High Pressure Safety Injection to Reactor Coolant Loop Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These check valves cannot be full-stroke or partial-stroke exercised open Quarterly during power operation because the only flow path available is into the RCS. Since the HPSI pumps do not develop sufficient discharge pressure to overcome RCS operating pressure, the valves cannot be exercised during Cold Shutdown because the RCS does not contain an adequate expansion volume and a low temperature overpressurization (LTOP) of the RCS could result Valves SI-195, SI-198, SI-201 and SI-204 are pressure isolation valves (PIV's) as defined by NRC GL 89-04 and as listed in the FCS Technical Specifications.

Alternate Testing Frequency: These check valves will be full-stroke exercised open and closed during Refueling Outages when the RCS is depressurized and the Reactor Pressure Vessel (RPV) Head is removed in order to provide an expansion volume to accommodate the flow required. These check valves will be leak tested during Cold Shutdown in accordance with the requirements of FCS Technical Specification 2.1, Table 2-9. This leakage test verifies the closure position of these check valves.

DEFERRED TESTING JUSTIFICATION
NUMBER: J11

System: Safety Injection

Valve(s): SI-196, SI-199, SI-202, SI-205, SI-343, CH-469

Category: C

Class: 1 - SI-196, SI-199, SI-202, SI-205, CH-469
2 - SI-343

Function: High Pressure Safety Injection to Reactor Coolant Loop Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: Valves SI-196, SI-199, SI-202, SI-205, and CH-469 function to prevent back flow through the Safety Injection (SI) pump discharge headers. These valves cannot be full-stroke or partial-stroke exercised open during power operation utilizing flow because the HPSI pumps do not develop sufficient discharge pressure to overcome RCS pressure. The charging pumps cannot be used during power operation because the flow path from the pumps would bypass the Regenerative Heat Exchanger and result in injecting cold water, causing thermal shock to the injection nozzles and a reactivity transient. This could result in an unnecessary plant trip. Check valve SI-343 cannot be partial-stroke exercised during Cold Shutdowns because using the HPSI pumps without an adequate vent path could cause an overpressurization of the RCS. The HPSI pumps are therefore tagged out to prevent inadvertent operation and potential overpressurization to the RCS.

Alternate Testing Frequency: Check valves SI-196, SI-199, SI-202, and SI-205 will be partial-stroke exercised open during Cold Shutdown using the Charging Pumps and full-stroke exercised open and closed during Refueling Outages when the HPSI pumps are able to be utilized.

Check valve CH-469 will be partial-stroke exercised open during Cold Shutdown using the charging pumps. Both check valves, CH-469 and SI-343, will be full-stroke exercised open and closed during Refueling Outages using the charging pumps and the HPSI pumps, as necessary.

DEFERRED TESTING JUSTIFICATION
NUMBER: J12

System: Charging

Valve(s): CH-198, CH-203, CH-204

Category: C

Class: 1 - CH-203, CH-204
2 – CH-198

Function: CH-198 – Charging Pump Discharge to RCS Check Valve
CH-203, CH-204 – Loop Charging Line to RCS Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These check valves cannot be full-stroke exercised open (or closed for CH-198) during plant operations Quarterly or during Cold Shutdowns, since to do so would require the charging and HPSI pumps to be run which would require a flow path to the RCS. That flow path cannot be utilized during power operation because the HPSI pumps do not develop sufficient discharge pressure to overcome RCS pressure. This same flow path cannot be utilized during Cold Shutdowns because there is insufficient volume in the RCS to accommodate the flow required and a low temperature overpressure condition of the RCS could result

Alternate Testing Frequency: These check valves CH-198, CH-203, and CH-204 will be partial-stroke exercised in the open direction Quarterly during power operation using the charging pumps. The check valves will be full-stroke exercised in the open and closed directions during Refueling Outages when the Reactor Pressure Vessel (RPV) head is removed, using the charging pumps and the HPSI pumps.

DEFERRED TESTING JUSTIFICATION
NUMBER: J13

System: Charging

Valve(s): TCV-202, HCV-204

Category: A

Class: 1 – TCV-202
2 – HCV-204

Function: TCV-202 – Letdown Temperature Control Valve
HCV-204 – Letdown Heat Exchanger Inlet Isolation Valve

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: These valves are used for RCS Loop 2A letdown isolation and temperature regulation. Exercising these valves or performing fail safe testing Quarterly during power operation could result in the termination of letdown flow. This would isolate the RCS purification process and could potentially cause a reactivity excursion. These valves cannot be partial-stroked because the valves are either fully open or fully closed.

Alternate Testing Frequency: These valves will be stroke-timed exercised in the closed direction and fail safe tested during Cold Shutdown in accordance with the FCS IST Program Plan implementing procedures.

DEFERRED TESTING JUSTIFICATION
NUMBER: J14

System: Charging

Valve(s): CH-205

Category: C

Class: 1

Function: Auxiliary Pressurizer Spray Check Valve

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: This check valve cannot be full-stroke exercised during plant operations Quarterly or during Cold Shutdowns, since to do so would require a flow path to the RCS. That flow path cannot be utilized during power operation because the HPSI pumps do not develop sufficient discharge pressure to overcome RCS pressure. This same flow path cannot be utilized during Cold Shutdowns because there is insufficient volume in the RCS to accommodate the flow required and a low temperature overpressure condition of the RCS could result

Alternate Testing Frequency: The check valves will be partial-stroke exercised in the open direction Quarterly during power operation using the charging pumps. The check valves will be full-stroke exercised in the open and closed directions during Refueling Outages when the RVP head is removed, using the charging pumps and the HPSI pumps.

DEFERRED TESTING JUSTIFICATION
NUMBER: J15

System: Charging

Valve(s): HCV-206, HCV-241

Category: A

Class: 2

Function: Reactor Coolant Pump Control Bleed Off Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: The Reactor Coolant Pump (RCP) seals serve as an RCS pressure boundary, therefore, seal failure could result in unisolable coolant leakage from the RCS. Isolation of the RCP seal bleed-off by stroking these valves closed would cause the seal bleed-off line relief valve (CH-208) to lift, directing reactor coolant directly to the Reactor Coolant Drain Tank (RCDT). If the leakage remained unchecked, the RCDT relief valve could lift directing reactor coolant to the Containment floor, causing a Ventilation Isolation Actuation Signal (VIAS). Additionally, the temporary isolation of pump seal flow (until the relief valve lifted) would eliminate the ability of the RCP seal to break down RCS pressure and could potentially cause localized overheating of the seals. The pump seals can be damaged by overheating if seal water flow is stopped while the pumps are running. It is impracticable to exercise these valves Quarterly or during any plant conditions that could result in abnormal seal wear. This could lead to failure of the RCP seals, creating unisolable leakage equivalent to a small break LOCA.

Alternate Testing Frequency: The valves will be stroke-timed exercised and fail safe tested in the closed direction during Cold Shutdown, when the RCS is depressurized and the RCP's are secured.

DEFERRED TESTING JUSTIFICATION
NUMBER: J16

System: Charging

Valve(s): LCV-218-2, LCV-218-3

Category: B

Class: 2

Function: Volume Control Tank Outlet Isolation Valve and Charging Pump Suction from SIRWT Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves function to provide Volume Control Tank (VCT) level control and switch charging suction to the Safety Injection and Refueling Water Storage Tank (SIRWT). The valves cannot be stroke-tested Quarterly because doing so would terminate charging flow to the RCS and would have the potential for disrupting pressurizer level regulation or boron concentration regulation. Pressurizer level regulation disruption can lead to RCS pressure transients and disruption of boron concentration could cause reactivity excursions.

Alternate Testing Frequency: Valve LCV-218-2 will be stroke-timed exercised in the closed direction and valve LCV-218-3 will be stroke-timed exercised in the open direction during Cold Shutdowns.

DEFERRED TESTING JUSTIFICATION
NUMBER: J17

System: Charging

Valve(s): IA-HCV-240-C, HCV-240, HCV-249

Category: B - HCV-240, HCV-249
A/C – IA-HCV-240-C

Class: 1 - HCV-240, HCV-249
3 - IA-HCV-240-C

Function: IA-HCV-240-C – IA Accumulator Check Valve
HCV-240, HCV-249 – Auxiliary Pressurizer Spray Inlet Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: Valves HCV-240 and HCV-249 cannot be stroke-timed exercised or fail safe tested Quarterly during power operation because doing so will lead to large scale depressurization of the RCS and thermal shock of the pressurizer spray nozzle. The IA accumulator check valve (IA-HCV-240-C) cannot be full-stroke exercised in the open direction Quarterly during power operation, as exercising of the check valve will cause HCV-240 to cycle. This could cause large scale depressurization of the RCS and thermal shock of the pressurizer spray nozzle. The check valve (IAHCV-240-C) cannot be partial-stroke exercised for the same reason.

Alternate Testing Frequency: Valve IA-HCV-240-C will be exercised in the open and closed directions during Cold Shutdowns. Valves HCV-240 and HCV-249 will be stroke-timed in both the open and closed and fail safe tested closed directions during Cold Shutdowns.

DEFERRED TESTING JUSTIFICATION
NUMBER: J18

System: Charging

Valve(s): HCV-268

Category: B

Class: 2

Function: Boric Acid to Charging Pump Suction Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves serve to isolate concentrated boric acid from the charging pump suction header. These valves cannot be stroke-timed exercised Quarterly during-power operation because doing so would allow concentrated boric acid solution to be injected into the RCS. Boration of the primary system during normal power operation would cause reactivity transients and possibly result in a plant shutdown. These valves cannot be partial-stroked for the same reason.

Alternate Testing Frequency: This valve will be stroke-timed exercised in the open direction during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J19

System: Safety Injection

Valve(s): SI-323

Category: C

Class: 2

Function: High Pressure Safety Injection Header Check Valve

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: This check valve functions to prevent back flow of charging flow to the lower design pressure HPSI piping when the alternate charging flow path is active. The only flow path available is into the RCS and since the HPSI pumps do not develop sufficient discharge pressure to overcome RCS operating pressure, this valve cannot be exercised Quarterly during power operation. This valve cannot be exercised during Cold Shutdowns because the RCS does not contain-an adequate expansion volume and a low-temperature overpressurization of the RCS could result. Additionally, this valve cannot be partial-stroke exercised during pump test or minimum flow because the minimum flow lines branch off upstream of the check valve and no flow occurs through this valve.

Alternate Testing Frequency: This check valve will be exercised open and closed during Refueling Outages.

DEFERRED TESTING JUSTIFICATION
NUMBER: J20

System: Containment Spray

Valve(s): HCV-344, HCV-345
IA-HCV-344-C, IA-HCV-345-C

Category: B - HCV-344, HCV-345
C - IA-HCV-344-C, IA-HCV-345-C

Class: 2

Function: HCV-344, HCV-345 - Containment Spray Header Isolation Valves
IA-HCV-344-C, IA-HCV-345-C - IA Accumulator Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: Valves HCV-344 and HCV-345 serve as CS isolation. These valves cannot be stroke-tested Quarterly during power operation since the potential for spraying down the Containment is greatly increased. Spraying down the Containment could cause equipment damage, electrical grounds and unnecessary corrosion (due to electrical shorts) to equipment and equipment malfunctions and unnecessary plant trips. These valves represent the only boundary between the CS and SI pump headers and the CS nozzles when manual valves SI-I 77 and SI-178 are open. The valves cannot be partial-stroked for the same reason.

Valves IA-HCV-344-C and IA-HCV-345-C are the IA accumulator check valves for process valves HCV-344 and HCV-345, and function to allow the valves to be closed on loss of IA, if required. These check valves cannot be exercised Quarterly as required as this would stroke the process valves, HCV-344 and/or HCV-345.

Alternate Testing Frequency: Valve HCV-344 shall be stroke-timed in the open direction during Cold Shutdown. HCV-345 shall be stroke-timed in the open direction during Cold Shutdown. The IA check valves IA-HCV-344-C and IA-HCV-345-C shall be exercised in the open and closed direction during Cold Shutdown

DEFERRED TESTING JUSTIFICATION
NUMBER: J21

System: Safety Injection

Valve(s): HCV-347, HCV-348

Category: A

Class: 1

Function: Shutdown Cooling from Loop Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves cannot be stroke-timed exercised open or closed Quarterly during power operation because they are interlocked closed to ensure the integrity of the pressure boundary between Class 2501 and Class 301 piping when the RCS pressure is > 250 psia.

Alternate Testing Frequency: These valves will be stroke-timed exercised in the open and closed direction during Cold Shutdown prior to initiating Shutdown Cooling (<300°F and >250 psia) while the Steam Generator is still available for removing decay heat from the primary system.

DEFERRED TESTING JUSTIFICATION
NUMBER: J22

System: Component Cooling Water

Valve(s): HCV-425A, HCV-425B, HCV-425C,HCV-425D

Category: A

Class: 2

Function: SI Tank Leakage Coolers Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: These valves serve to isolate Containment Penetrations M-39 and M-53, Component Cooling Water (CCW) System penetrations. They cannot be stroke-timed exercised or fail safe tested Quarterly during power operation because failure of these valves in the closed position would terminate cooling flow to Safety Injection Tank leakage coolers. This would have the potential for lifting the relief valve (SI222) to the Reactor Coolant Drain Tank (RCDT) which could eventually cause reactor coolant to overflow to the Containment floor, causing a Ventilation Isolation Actuation Signal (VIAS). These valves cannot be partial-stroked because they are either fully opened or fully closed.

Alternate Testing Frequency: These valves will be stroke-timed exercised and fail safe tested in the closed direction during Cold Shutdowns.

DEFERRED TESTING JUSTIFICATION
NUMBER: J23

System: Component Cooling Water/Instrument Air

Valve(s): HCV-438A, HCV-438B, HCV-438C, HCV-438D, IA-HCV-438B-C, IA-HCV-438D-C

Category: A - HCV-438A, HCV-438B, HCV-438C, HCV-438D
C - IA-HCV-438B-C, IA-HCV-438D-C

Class: 2 - HCV-438A, HCV-438B, HCV-438C, HCV-438D
3 - IA-HCV-438B-C, IA-HCV-438D-C

Function: RCP Cooler Isolation Valves, Instrument Air Supply Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves serve to isolate Containment Penetrations M-18 and M-19, RCP seal cooling water. Exercising these valves would isolate cooling water flow to the RC Pumps which could damage the pumps if they are operating. RC pump failure during power operation could result in a plant shutdown. Therefore, it is not practical to exercise these valves Quarterly during power operations. During some Cold Shutdowns, Reactor Coolant temperature may be held above 130° F and plant conditions may not allow further cool down or stopping all RC pumps. Exercising these valves during Cold Shutdowns when RC temperature is greater than 130° F or when any RC pump is running could result in RC pump damage. Therefore, it is not practical to exercise these valves when those plant conditions exist. These valves cannot be partial-stroked because they are either fully opened or fully closed.

The IA accumulator check valves cannot be exercised Quarterly during power operation as exercising these check valves will cause cycling of the process valves.

Alternate Testing Frequency: Valves HCV-438A HCV-438B, HCV-438C and HCV-438D will be stroke-timed exercised in the closed direction during Cold Shutdown, provided the RCS is depressurized, RCS temperature is less than 130° F, and the RCP's are secured. IA accumulator check valves (IA-HCV-438B-C, IA-HCV.438D-C) will be exercised open and closed during Cold Shutdown, provided the RCS is depressurized, RCS temperature is less than 130°F and the RCP's are secured.

DEFERRED TESTING JUSTIFICATION
NUMBER: J24

System: Main Steam

Valve(s): HCV-1041A, HCV-1042A

Category: B

Class: 2

Function: Main Steam Isolation Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: These valves serve to isolate the Main Steam (MS) headers. They cannot be exercised or fail safe tested Quarterly during power operation because doing so would isolate steam flow in the Steam Generators and result in a turbine and reactor trip. These valves cannot be partial-stroked because they are either fully opened or fully closed.

Alternate Testing Frequency: These valves will be stroke-timed exercised and fail safe tested in the closed direction during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J25

System: Main Steam

Valve(s): HCV-1041C, HCV-1042C

Category: B

Class: 2

Function: Main Steam Isolation Valve Bypass Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves serve to isolate the Main Steam (MS) headers. They cannot be exercise tested Quarterly during power operation because doing so would isolate steam flow in the Steam Generators and result in a turbine and reactor trip. These valves cannot be partial-stroked because they are either fully opened or fully closed.

Alternate Testing Frequency: These valves will be stroke-timed exercised in the closed direction during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J26

System: Feedwater

Valve(s): HCV-1385, HCV-1386
HCV-1103, HCV-1104, HCV-1105, HCV-1106

Category: B

Class: 2 - HCV-1385, HCV-1386
N - HCV-1103, HCV-1104, HCV-1105, HCV-1106

Function: Feedwater Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: Valves HCV-1385, HCV-1386, HCV-1103, HCV-1104, HCV-1105 and HCV-1106 cannot be stroke-timed exercised Quarterly during power operation because doing so would isolate feedwater to Steam Generators resulting in a reactor trip. Additionally, valves HCV-1105 and HCV-1106 cannot be fail safe tested during normal power operations for the same reason. These valves cannot be partial-stroked because they are either fully opened or fully closed.

Alternate Testing Frequency: These valves will be stroke-timed exercised in the closed direction during Cold Shutdown. Additionally, valves HCV-1105 and HCV-1106 will be fail safe tested during Cold Shutdown in conjunction with the stroke time exercise test.

DEFERRED TESTING JUSTIFICATION
NUMBER: J27

System: Instrument Air

Valve(s): PCV-1849A, PCV-1849B

Category: A

Class: 2

Function: Instrument Air Containment Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: These valves serve to isolate IA pressure (via Penetration M-73) to containment systems. PCV-1849A (inboard) and PCV-1849B (outboard) were added during the refueling and maintenance outage (Fuel Cycle 12) in 1988 by Modification MR-FC-88-11 (OSAR 87-10). Stroke-time exercising and fail safe testing cannot be performed Quarterly during power operations or Cold Shutdown with RCS temperature greater than 130° F and the RCS is not depressurized. The valves cannot be partial-stroked, because they are either fully opened or fully closed.

The closing of these valves could:

(1) cause fluctuations in the pressure control of the pressurizer (PCV-103-1, PCV-103-2),

(2) result in damage to RCP seals (HCV-241),

(3) disrupt RCS letdown to the Chemical Volume Control System (CVCS) (TCV-202, LCV-101-1, LCV-101-2),

(4) damage the Nuclear Detector instrumentation (HCV-467A/C),

(5) cause level fluctuation in the SI Tank level (HCV-2916, HCV-2936, HCV-2956, HCV-2976), and

(6) cause loss of the Steam Generator Blowdown (HCV-1387A and HCV-1388A).

The ripple effect caused by the exercise stroking of PCV-1849A/B would be detrimental during power operation or when in Cold Shutdown with RCS temperature greater than 130° F and not depressurized.

DEFERRED TESTING JUSTIFICATION
NUMBER: J27

Alternate Testing Frequency: These valves will be stroke-timed exercised and fail safe tested in the closed direction during Cold Shutdown when the RCS temperature is less than 130° F with RCP's off and the RCS depressurized.

DEFERRED TESTING JUSTIFICATION
NUMBER: J28

System: Instrument Air

Valve(s): IA-HCV-238-C, IA-HCV-239-C

Category: A/C

Class: 3

Function: Instrument Air Supply Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves are the instrument air supply check valves on IA accumulators attached to HCV-238 and HCV-239, which are located inside the Containment. The process valves (HCV-238 and HCV-239) are remotely stroke-time exercised in both the open and closed directions Quarterly, but due to inaccessibility during power operation, the check valves are not able to be tested.

Alternate Testing Frequency: These check valves will be full-stroke exercised in the open and closed directions at Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J29

System: Safety Injection/Instrument Air

Valve(s): IA-HCV-385-C, IA-HCV-386-C
HCV-385, HCV-386

Category: A/C - IA-HCV-385-C, IA-HCV-386-C
A - HCV-385, HCV-386

Class: 3 - IA-HCV-385-C, IA-HCV-386-C
2 - HCV-385, HCV-386

Function: IA-HCV-385-C, IA-HCV-386-C - Instrument Air Supply Check Valves
HCV-385, HCV-386 – SIRWT Minimum Recirculation Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves (IA-HCV-385-C and IA-HCV-386-C) are check valves on IA accumulators attached to HCV-385 and HCV-386 (Safety Injection Mini Flow Bypass Isolation Valves). The test methodology for the IA accumulator check valves requires the process valves to be closed greater than one hour each. This isolates the SI minimum flow recirculation line, which, if the SI pumps start, could cause these pumps to operate at shutoff head. Therefore, the check valves are not able to be exercise tested Quarterly. Running the SI pumps at shutoff head could cause the pumps to overheat and cavitate. Prolonged closure of these valves could cause equipment damage.

These valves (HCV-385 and HCV-386) are Safety Injection Minimum Recirculation Flow isolation valves to the SIRWT (SI-5). The test methodology for these valves requires these valves to be stroke tested dosed which isolates the SI pump minimum recirculation flow path. During the time when one or both minimum-recirculation isolation valves are closed and a real or inadvertent start of a Safety Injection Pump occurs the pump would be deadheaded. This could cause damage to the SI pump and potentially degrade the margin of safety inherent to the SI system. Although the probability that a small Break LOCA would occur at the same time is very remote, Fort Calhoun Station has decided to stroke time exercise HCV-385 and HCV-386 during Cold Shutdown. It is also important to know that during normal operations, valves HCV-385 and HCV-386 are Normally Open, Fail Open, and are only required to close during a Recirculation Actuation Signal (RAS).

Fort Calhoun Station is confident that performing the stroke time exercising of HCV-385 and HCV-386 during Cold Shutdown, in accordance with the IST Program Plan, will provide an acceptable alternative test frequency and will provide a reasonable assurance of the ability of the valves to function as required during a design accident condition.

DEFERRED TESTING JUSTIFICATION
NUMBER: J29

Alternate Testing Frequency: These check valves (IA-HCV-385-C and IA-HCV-386-C) will be full-stroke exercised in the open and closed directions at Cold Shutdown.

Valves HCV-385 and HCV-386 will be stroke-timed exercised in closed direction at Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J30

System: Charging

Valve(s): CH-166

Category: C

Class: 2

Function: Volume Control Tank Outlet Check Valve

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: This check valve serves to prevent a divergent path from the Boric Acid Injection system to the Volume Control Tank (VCT). A divergent path may reduce the concentration of boric acid required to be injected into the RCS.

This check valve cannot be full-stroke exercised in the closed direction Quarterly during power operation. The only flow path through this valve is to the RCS, and would result in injecting highly concentrated boric acid into the RCS. Injecting concentrated boric acid into the RCS during power operation could cause an uncontrolled reactivity excursion, a plant shutdown, or a plant trip.

Alternate Testing Frequency: This check valve will be full-stroke exercised in the open and closed directions during Cold Shutdown in accordance with the FCS IST Program Plan.

DEFERRED TESTING JUSTIFICATION
NUMBER: J31

System: Containment Spray

Valve(s): SI-135, SI-143, SI-149

Category: C

Class: 2

Function: Containment Spray Pump Discharge Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves cannot be full-stroke exercised open or close Quarterly during power operation because the only full flow path is into the CS headers. This would result in the spraying down of the equipment in containment, possibly causing equipment damage and requiring extensive cleanup. Also, these valves cannot be partial-stroke exercised during the Quarterly CS pump tests because the minimum flow lines branch off upstream of the check valves and therefore no flow occurs through these valves. Using the discharge tap downstream of the minimum flow lines will overflow the floor drains in the Auxiliary Building potentially creating an increase in radioactive contamination and background radiation levels.

Alternate Testing Frequency: These check valves will be full-stroke exercised in the open and closed directions during Cold Shutdown when the CS pumps are able to be aligned for shutdown cooling to the Shutdown Cooling Heat Exchangers (< 120° F primary temperature), in accordance with the FCS Technical Specifications.

DEFERRED TESTING JUSTIFICATION
NUMBER: J32

System: Instrument Air

Valve(s): IA-PCV-6680A-1 -C, IA-PCV-6680A-2-C, IA-PCV-6680B-1 -C, IA-PCV-6680B-2-C, and IA-PCV-6682-C
IA-HCV-1107A-C, IA-HCV-1107B-C, IA-HCV-1108A-C
IA-HCV-1108B-C, IA-FCV-1368-C, and IA-FCV-1369-C

Category: A/C

Class: 3

Function: Instrument Air Head Supply Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These valves (IA-PCV-6680A-1-C/-2-C, -6680B-1-C/-2-C and IA-PCV-6682-C) cannot be exercised Quarterly during power operation, as exercising these check valves will cause isolation of the Control Room (CR) air filtration dampers. Failure of the CR air filtration dampers in a non-conservative position would cause the CR filtration system to be inoperable. This would require the plant to be in Cold Shutdown per Technical Specification (TS) 2.12. Failure of the dampers in the OPEN position would not allow the CR to be isolated during a toxic gas release. This would result in entry into Technical Specification 2.0.1.

Check valves IA-HCV-1107A/B-C, -1108A/B-C, and FCV-1368-C/1369-C cannot be exercised Quarterly during power operation as exercising these check valves will cause possible isolation of AFW and render the AFW system inoperable for an extended period of time, possibly requiring the plant to be in Cold Shutdown per Technical Specification 2.5. Failure of the isolation valves in the open direction would not allow the required flow rate to the Steam Generator assuming loss of FW-10. This would result in entry into Technical Specification 2.0.1, i.e., Notification of Unusual Event (NOUE).

Alternate Testing Frequency: These check valves will be full-stroke exercised in the open and closed directions during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J33

System: Main Steam

Valve(s): HCV-1041B, HCV-1042B

Category: C

Class: 2

Function: Main Steam Stop Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: These check valves are swing type check valves which are installed to provide a positive isolation of the Steam Generators. If Main Steam (MS) header pressure is greater than Steam Generator pressure, the check valves prevent reverse back flow into a faulted Steam Generator. The corrective maintenance history of these two check valves has been limited to gasket/bolt/nut replacements since installation. In addition, the check valves are 28 inch carbon steel Ametek, Inc. type check valves which see flow during normal operations. OPPD has previously disassembled and inspected each of these check valves once and the check valves were acceptable. In order to assess the condition of the check valves during sample disassembly and examination and to provide a consistent and precise method of gauging the check valves' physical and mechanical condition, a check list was developed and incorporated into the surveillance tests used for sample disassembly and inspection. An example of items evaluated on the check list are:

1) Whether valve discs are initially seated
2) A determination of obstructions
3) Cracking or linear indications
4) Loose/missing/broken parts
5) Whether obstruction to moving parts
6) Wear/Corrosion/Erosion
7) Presence of foreign material
8) Misalignment (if any) and effect on valve operation
9) Mechanical damage
10) Hinge Pin condition
11) Disc/seat condition
12) Perform manual exercise of discs

DEFERRED TESTING JUSTIFICATION
NUMBER: J33

Each check valve has been disassembled and inspected in the previous outages. The assessment of the valves' mechanical and physical condition is performed by FCS Inspectors qualified to VT-3 in accordance with ASME Section XI. In addition, the review/evaluation of any observed deficiencies/indications is performed by Engineering for a final acceptance of the valve's condition. In addition, a review of the installation of each check valve has been addressed using the "EPRI Applications Guideline for Check Valves in Nuclear Power Plants" and appropriate actions have been taken (i.e., Preventive Maintenance (PM) inspections) as a result of the completion of the design application for the check valves. Disassembly and reassembly of both valves (i.e., every Refueling Outage) introduces unnecessary potential for valve failure due to damage caused by maintenance without providing a commensurate increase in plant safety or check valve reliability. These check valves cannot be exercised Quarterly during power operation because doing so would cause steam to be isolated to the Main Steam header, causing the turbine to trip and resulting in a reactor trip. It is impractical to reverse flow test these check valves during Cold Shutdown; to do so would require the downstream side of the valves to have reverse flow sufficient to close the 600 pound, 28-inch disks. To close these disks would require extensive modifications to the secondary side of the Main Steam system to permit sufficient dP to close the valve disks. Another method would be to fill the downstream side of the valve disks with fluid. To do this would require extensive piping and support modifications because of excessive loading on the Main Steam piping. To perform any type of successful reverse flow test on these check valves would require extensive plant modifications and manpower, and would subject the Main Steam system to potentially detrimental conditions, without providing a commensurate increase in public safety or check valve reliability.

Alternative Testing Frequency: These valves will be exercised open and closed manually using disassembly and examination in accordance with ISTC-5221 (c). Since these valves are of the same manufacturer, design, service conditions, size, materials of construction and orientation they may be grouped together. In accordance with ISTC-5221 (c) (3) one valve from this group will be disassembled and examined at each refueling outage with all valves being disassembled and examined at least once every 8 years. During the disassembly process, the valve will be manually full stroke exercised to both the open and closed positions. Immediately prior to completing reassembly, the valve will be reverified to stroke through its full range of motion.

If the valve is not capable of full stroke motion or has unacceptable degradation of valve internals, an analysis will be performed. Other valves in the group that may also be affected by this failure mechanism will be disassembled and examined or tested during the same refueling outage.

DEFERRED TESTING JUSTIFICATION
NUMBER: J34

System: Safety Injection/Instrument Air

Valve(s): LCV-383-1, LCV-383-2, HCV-383-3, HCV-383-4
IA-LCV-383-1-C, IA-LCV-383-2-C

Category: A - LCV-383-1, LCV-383-2, HCV-383-3, HCV-383-4
C - IA-LCV-383-1-C, IA-LCV-383-2-C

Class: 2 - LCV-383-1, LCV-383-2, HCV-383-3, HCV-383-4
3 - IA-LCV-383-1-C, IA-LCV-383-2-C

Function: LCV-383-1, LCV-383-2; SIRWT Isolation Valves
HCV-383-3, HCV-383-4: Containment Sump Isolation Valves
IA-LCV-383-1-C, IA-LCV-383-2-C; Instrument Air Supply Check Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification:

Tech Spec Limitations

OP-ST-SI-3001, Attachment 5, prior to PC 42612 contained a caution stating that "Closing LCV-383-1 renders LPSI Pump SI-IB, HPSI Pump Sl-2B, and CS pumps SI-3C and 3B INOPERABLE." The applicable Limiting Conditions for Operation (LCO) action statements of Technical Specifications 2.1.1, 2.3, 2.4 and 2.7 must be implemented.

Technical Specification 2.3(2) specifically states that during power operation, the Minimum Requirements may be modified to allow one of the following conditions to be true at any one time. If the system is not restored to meet the minimum

a. One low-pressure safety injection pump may be inoperable provided the pump is restored to operable status within 24 hours.

b. One high-pressure safety injection pump may be inoperable provided the pump is restored to operable status within 24 hours.

By performing this test at power, two provisions of Tech Spec 2.3(2) are violated concurrently, requiring entry into Technical Specification 2.0.1.

Operations reviewed the possibility of utilizing a dedicated operator during performance of this surveillance test. Using the guidance of the NRC Generic Letter 91-18, Operations Memo 93-11, and Standing Order G-100 (approved and issued), the following conclusions can be drawn. The Generic Letter information is explicit in stating that, generally, equipment is inoperable during surveillance. The use of a dedicated operator

DEFERRED TESTING JUSTIFICATION
NUMBER: J34

must be reviewed to ensure that the operator and his necessary actions would result in a configuration where the system did not need to be considered inoperable. In the case of LCV-383-1 and -2, this determination cannot be made. Even if a dedicated operator were stationed at the valve and were to immediately return the valve to an open condition in the event of an accident signal, the open travel time of the valves is roughly 30 seconds. The sequencer timer for a HPSI pump is approximately 3 seconds, with LPSI pumps following shortly in less than 15 seconds. Adding in reaction time of the operator, even a few seconds, there is a high probability that more than one SI pump would start without a suction source. Practically speaking, the most prudent action to prevent equipment damage would be to place the respective pumps in pull-out. This, however, renders the pumps inoperable and the Tech Specs noted above apply. Thus, no positive operability determination can be made; instead, Tech Spec 2.0.1 again applies.

Testing of HCV-383-3 and -383-4 is performed in conjunction with the testing of LCV-383-1 and -383-2 (during the time frame when these valves are closed) because of the possibility that the check valves in the recirculation lines may not hold. If the check valve did not hold, and LCV-383-1 or -2 was left open, cycling HCV-383-3 or -4 to the open position could result in backing the SIRWT up into the containment sump. Among possible consequences of this is the violation of Technical Specification on SIRWT level. Consequently, it is preferable to close LCV-383-1/2 during cycling of HCV-383-3 or -4. Closing LCV-383-1/2 during power operation results in entry to Tech Spec LCO 2.0.1 (see discussion for LCV-383-1/2, above).

Testing of LCV-383-1-C and -383-2-C is performed to demonstrate the ability of the instrument air check valve to isolate instrument air and continue to hold the valve closed with backup nitrogen. The purpose of the test is to demonstrate the ability of nitrogen to hold the valve closed, and therefore the test must be performed with LCV-383-1/2 in the closed condition. The closure of LCV-383-1/2 during power operation results in entry to Tech Spec 2.0.1 (see discussion for LCV-383-112, above). Therefore, testing of these check valves must be deferred to a Cold Shutdown/Refueling condition.

Alternative Testing Frequency: Valves (LCV-383-1, LCV-383-2) will be stroke-time exercised in the closed direction at cold shutdown frequency.

Valves (HCV-383-3, HCV-383-4) will be stroke-time exercised in the open direction at Cold Shutdown frequency.

Valves (LCV-383-1-C, LCV-383-2-C) will be exercised in the open and closed directions at Cold Shutdown frequency.

DEFERRED TESTING JUSTIFICATION
NUMBER: J35

System: Nitrogen Gas

Valve(s): NG-142, NG-144, NG-146, NG-148

Category: A/C

Class: 2

Function: Nitrogen supply to Safety Injection Tanks

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: Check valves NG-142, NG-144, NG-146 and NG-148 function to prevent back flow through the check valves and the nitrogen (N_2) supply to the SI Tanks during an accident condition. The check valves prevent loss of N2 from the SI Tanks during an accident condition. These check valves cannot be full-stroke exercised Quarterly, as the containment would be inaccessible during power operation and the SI Tanks would be required to be made inoperable in order to perform this test. The SI Tanks are required to function in order to provide adequate protection to the plant personnel and the general public during a postulated loss of coolant accident (LOCA). Check valves will be partial-stroke exercised quarterly, during normal plant operations or using a PMO procedure as required in order to ensure that the check valves are partially stroke exercised at least quarterly.

Alternative Testing Frequency: Check valves, NG-142, NG-144, NG-146 and NG-148 will be partial-stroke exercised quarterly during power operations using normal plant operations/logs. The check valves will be full-stroke exercised open and closed during Cold Shutdowns.

DEFERRED TESTING JUSTIFICATION NUMBER: J36

System: Reactor Coolant

Valve(s): RC-374

Category: A/C

Class: 1

Function: Pressurizer Spray Line Check Valve

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: This check valve (RC-374) functions to prevent or minimize a loss of flow through the Pressurizer Spray Line from the Pressurizer Auxiliary Spray Line to the Reactor Coolant System Cold Legs when Auxiliary Spray is required (i.e., during Hot Leg injection).

The check valve cannot be full-stroke exercised closed during plant operations Quarterly or during Cold Shutdowns, since to do so would require a flow path to the RCS using the Auxiliary Pressurizer Spray Line. That flow path cannot be utilized during power operation as it could cause a cold water injection event to the Pressurizer resulting in a large fluctuation of power due to the decreased temperature and could cause an uncontrolled reactivity addition. The increased reactivity could cause an increase in power and/or reactivity addition and ultimately a plant/reactor trip. The flow path (Pressurizer Auxiliary Spray) cannot be utilized during power operation or Cold Shutdown since to test RC-374 closed requires the High Pressure Safety Injection (HPSI) Pumps to be run. The HPSI pumps cannot be run during power operations as the pumps do not have enough suction pressure to overcome RCS pressure. In addition, the check valve is not able to be tested during Cold Shutdown because using the HPSI pumps without an adequate vent path could cause an overpressurization of the RCS. Using the Charging Pumps only to quantify leakage would not provide a sufficient flow to adequately verify check valve closure.

Alternative Testing Frequency: Check valve RC-374 will be exercised in the open and closed directions during Refueling Outages using the HPSI Pumps.

DEFERRED TESTING JUSTIFICATION
NUMBER: J37

System: Component Cooling Water

Valve(s): HCV-467A, HCV-467B, HCV-467C, HCV-467D

Category: A

Class: 2

Function: Nuclear Detector Cooling Water Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: These valves serve to isolate containment Penetrations M-15 and M-11, Component Cooling Water (CCW) penetrations. These valves cannot be stroke time exercised or fail safe tested Quarterly during power operation because failure of these valves during testing would render the Nuclear Detector Well Cooling Units inoperable and require the Plant to take emergency action within eight minutes. This would cause the Nuclear Instrumentation to have erratic indication. Should the Nuclear Detector Well Cooling Units fail, the LCO specified in Technical Specifications 2.13 would be entered and could result in a Plant shutdown. These valves are always open at power and therefore do not require exercising. The PSA analysis has shown that these valves have a low risk significance and are of minimum safety value. These valves would only be required to close during a Containment Isolation Actuation Signal coincident with a loss of CCW, a highly unlikely scenario. Testing these valves during power operation would not result in a commensurate increase is safety, but could result in undue hardship to the licensee.

Alternative Testing Frequency: These valves will be stroke time exercised and fail safe tested during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J38

System: Ventilating Air

Valve(s): PCV-742A, PCV-742B, PCV-742C, PCV-742D

Category: A

Class: 2

Function: Containment Purge Inlet/Exhaust Isolation Valves

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

ISTC-3560, Fail Safe Testing. Valves with fail safe actuators shall be tested in accordance with the frequency of ISTC-3510.

Basis for Justification: These valves are 42 inch butterfly valves which are normally closed and locked closed during power operation or when Containment Integrity is required. These valves have a passive safety function in the closed direction during all conditions except Containment Purge operations. These valves are only required to function as "active" during Containment Purge operations.

These valves are required to be leakage tested per Appendix J every time they are exercised. Stroke time exercising and/or fail safe testing of these valves during normal plant operation could cause loss of Containment Integrity and is prohibited by Technical Specifications and administrative controls.

Alternative Testing Frequency: These valves will be stroke time exercised and fail safe tested during Cold Shutdown.

DEFERRED TESTING JUSTIFICATION
NUMBER: J39

System: Safety Injection

Valve(s): SI-153

Category: C

Class: 2

Function: LPSI/CS Pumps Minimum Recirculation Header Check Valve

Test Requirements: ISTC-3510, Exercising Test Frequency. Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months.

Basis for Justification: This valve functions to prevent reverse flow into the Low Pressure Safety Injection (LPSI) pumps/Containment Spray (CS) pumps minimum recirculation header. Following a Recirculation Actuation Signal (RAS), this check valve could be exposed to higher downstream pressure when the recirculation header is isolated from the Safety Injection and Refueling Water Tank (SIRWT). This valve provides one line of defense to prevent High Pressure Safety Injection (HPSI) pump flow from "short-circuiting" back through the LPSI/CS pumps into the HPSI suction header. This valve also must open to pass sufficient minimum recirculation flow from the pumps.

This valve is a 6 inch duo disk check valve. Surveillance Test OP-ST-SI-3008 partial strokes this valve in the open direction on a quarterly frequency. This check valve cannot be full stroke exercised open or closed Quarterly during power operation or during cold shutdown since flow instrumentation is not installed in the line and it is not acceptable to operate multiple SI pumps that would be needed to establish full flow through this valve during power operation or during cold shutdown.

Alternative Testing Frequency: This valve will be exercised open and closed manually using disassembly and examination in accordance with ISTC-5221 (c). During the disassembly process, the valve will be manually full stroke exercised to both the open and closed positions. Immediately prior to completing reassembly the valve will be reverified to stroke through its full range of motion.

If the valve is not capable of full stroke motion or has unacceptable degradation of valve internals, an analysis will be performed. Other valves that may also be affected by this failure mechanism will be disassembled and examined or tested during the same refueling outage.

ATTACHMENT 8

Pump Tables

SYSTEM: AFW - Auxiliary Feedwater System

Component	PID(Coord) Comments	Code Class	Test Parameters Disc.	Press	DP	Flow	VIB	Speed	Code Procedure	Freq	Dev.
FW-10	M-253 (B5)	3	No	Yes	Yes	Yes	Yes	SE-ST-AFW-3006	Q		
AUXILIARY FEEDWATER PUMP; (TURBINE-DRIVE											
FW-6	M-253 (C6)	3	No	Yes	Yes	Yes	No	OP-ST-AFW-3009	Q		
AUXILIARY FEEDWATER PUMP ; (MOTOR-DRIVEN											

SYSTEM: CCW - Component Cooling Water System

Component	PID(Coord)	Code Class	Test Parameters					Procedure	Freq
			Disc.Press	DP	Flow	VIB	Speed		
AC-3A	M-10 (E6)	3	No	Yes	Yes	Yes	No	OP-ST-CCW-3002	Q
COMPONENT COOLING WATER PUMP									
AC-3B	M-10 (D6)	3	No	Yes	Yes	Yes	No	OP-ST-CCW-3012	Q
COMPONENT COOLING WATER PUMP									
AC-3C	M-10 (C6)	3	No	Yes	Yes	Yes	No	OP-ST-CCW-3022	Q
COMPONENT COOLING WATER PUMP									

SYSTEM: CH - Chemical and Volume Control

Component	PID(Coord)	Code Class	Test Parameters					Procedure	Freq
			Disc.Press	DP	Flow	VIB	Speed		
CH-1A	210-120-1 (A6)	2	Yes	No	Yes	Yes	No	OP-ST-CH-3003	Q
CHARGING PUMP "A"									
CH-1B	210-120-1 (E6)	2	Yes	No	Yes	Yes	No	OP-ST-CH-3003	Q
CHARGING PUMP "B"									
CH-1C	210-120-1 (C6)	2	Yes	No	Yes	Yes	No	OP-ST-CH-3003	Q
CHARGING PUMP "C"									
CH-4A	210-121 (A3)	2	No	Yes	Yes	Yes	No	OP-ST-CH-3003	Q
BORIC ACID PUMP									
CH-4B	210-121 (B6)	2	No	Yes	Yes	Yes	No	OP-ST-CH-3003	Q
BORIC ACID PUMP									

SYSTEM: FO - (Diesel Generator) Fuel Oil System

Component	PID(Coord)	Code Class	Test Parameters Disc.Press	DP	Flow	VIB	Speed	Procedure	Freq
FO-4A-1	M-262-1 (D6)	3	Yes	No	Yes	Yes	No	OP-ST-FO-3001	Q
D1 FUEL OIL TRANSFER PUMP #1									
FO-4A-2	M-262-1 (F6)	3	Yes	No	Yes	Yes	No	OP-ST-FO-3001	Q
D2 FUEL OIL TRANSFER PUMP #1									
FO-4B-1	M-262-1 (C6)	3	Yes	No	Yes	Yes	No	OP-ST-FO-3001	Q
D1 FUEL OIL TRANSFER PUMP #2									
FO-4B-2	M-262-1 (E6)	3	Yes	No	Yes	Yes	No	OP-ST-FO-3001	Q
D2 FUEL OIL TRANSFER PUMP #2									

SYSTEM: RW - Raw Water System

Component	PID(Coord)	Code Class	Test Parameters					Procedure	Freq
			Disc.Press	DP	Flow	VIB	Speed		
AC-10A	M-100 (A7)	3	No	Yes	Yes	Yes	No	OP-ST-RW-3001	Q
RAW WATER PUMP									
AC-10B	M-100 (A6)	3	No	Yes	Yes	Yes	No	OP-ST-RW-3011	Q
RAW WATER PUMP									
AC-10C	M-100 (A5)	3	No	Yes	Yes	Yes	No	OP-ST-RW-3021	Q
RAW WATER PUMP									
AC-10D	M-100 (A4)	3	No	Yes	Yes	Yes	No	OP-ST-RW-3031	Q
RAW WATER PUMP									

SYSTEM: SI - Safety Injection System

Component	PID(Coord)	Code Class	Test Parameters					Procedure	Freq
			Disc.Press	DP	Flow	VIB	Speed		
SI-1A	210-130 (B3)	2							
			No	Yes	Yes	Yes	No	OP-ST-SI-3008	Q
			No	Yes	Yes	Yes	No	OP-ST-SI-3003	CS
LOW PRESSURE SAFETY INJECTION PUMP									
SI-1B	210-130 (A3)	2							
			No	Yes	Yes	Yes	No	OP-ST-SI-3008	Q
			No	Yes	Yes	Yes	No	OP-ST-SI-3003	CS
LOW PRESSURE SAFETY INJECTION PUMP									
SI-2A	210-130-3 (E3)	2							
			No	Yes	Yes	Yes	No	OP-ST-SI-3007	RO
			No	Yes	Yes	Yes	No	OP-ST-SI-3008	Q
HIGH PRESSURE SAFETY INJECTION PUMP									
SI-2B	210-130-3 (C3)	2							
			No	Yes	Yes	Yes	No	OP-ST-SI-3007	RO
			No	Yes	Yes	Yes	No	OP-ST-SI-3008	Q
HIGH PRESSURE SAFETY INJECTION PUMP									
SI-2C	210-130-3 (D3)	2							
			No	Yes	Yes	Yes	No	OP-ST-SI-3007	RO
			No	Yes	Yes	Yes	No	OP-ST-SI-3008	Q
HIGH PRESSURE SAFETY INJECTION PUMP									
SI-3A	210-130 (C3)	2							
			No	Yes	Yes	Yes	No	OP-ST-SI-3008	Q

			No	Yes	Yes	Yes	No	OP-ST-SI-3003	CS
CONTAINMENT SPRAY PUMP									
SI-3B	210-130 (D3)	2							
			No	Yes	Yes	Yes	No	OP-ST-SI-3008	Q
			No	Yes	Yes	Yes	No	OP-ST-SI-3003	CS
CONTAINMENT SPRAY PUMP									
SI-3C	210-130 (E3)	2							
			No	Yes	Yes	Yes	No	OP-ST-SI-3008	Q
			No	Yes	Yes	Yes	No	OP-ST-SI-3003	CS
CONTAINMENT SPRAY PUMP									

ATTACHMENT 9

Valve Tables

SYSTEM: AFW - Auxiliary Feedwater System

Component	PID(Coord)	Function	Code Class	Position Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
FCV-1368	M-253-4 (C6)	Active	3	GL	A	B	1	A	FO			
										OP-ST-AFW-3006	FSTO	Q
										OP-ST-AFW-3006	STC	Q
										OP-ST-AFW-3006	STO	Q
										OP-ST-VX-3002	PIT	2YR
AUX FEEDPUMP FW-6 RECIRC CONTROL VALVE												
FCV-1369	M-253-4 (B5)	Active	3	GL	A	B	2	A	FO			
										OP-ST-AFW-3006	FSTO	Q
										OP-ST-AFW-3006	STO	Q
										OP-ST-VX-3002	PIT	2YR
TURB-DRIVEN AUX FEED PUMP FW-10 RECIRCULATION VALVE												
FW-1525	E-4144 (D3)	Active	3	RL	R	C	0.75	NC	N/A			
										PE-ST-VX-3003	RV	OM*
AUX FEEDWATER PUMP FW-10 : LUBE OIL PUMP LO-56 ; SUPPLY LINE REL												
FW-163	M-253-4 (F7)	Active	2	CK	C	C	3	NC	N/A			

										OP-ST-AFW-3007	CVO	CS
STEAM GENERATOR RC-2B AUXILIARY FEEDWATER INLET CHECK VALVE												
FW-164	M-253-4 (F8)	Active	2	CK	C	C	3	NC	N/A	OP-ST-AFW-3007	CVO	CS
STEAM GENERATOR RC-2A ; AUXILIARY FEEDWATER INLET ; CHECK VALVE												
FW-173	M-253-4 (C6)	Active	3	CK	C	C	4	N/A	N/A	SE-ST-AFW-3006	CVC	Q
										OP-ST-AFW-3009	CVO	Q
MOTOR-DRIVEN AUX FEED PUMP FW-6 DISCHARGE CHECK VALVE												
FW-174	M-253-4 (C5)	Active	3	CK	C	C	4	N/A	N/A	OP-ST-AFW-3009	CVC	Q
										SE-ST-AFW-3006	CVO	Q
TURB-DRIVEN AUX FEED PUMP FW-10 DISCHARGE CHECK VALVE												
FW-658	M-254-2 (D5)	Active	3	CK	C	C	1.5	NC	N/A	PE-ST-VX-3011	INSP	RO
EMGY FEEDWATER STORAGE TNK FW-19; VACUUM BREAKER												
FW-672	M-253-4 (B6)	Active	3	CK	C	C	2	NC	N/A	SE-ST-AFW-3006	CVO	Q
AUX FEED PUMP (FW-10 TURB) RECIRC CHECK VALVE												
HCV-1107A	M-253-1 (F8)	Active	2	GL	A	B	3	NC	FO	OP-ST-AFW-3010	FSTO	Q
										OP-ST-AFW-3010	STO	Q
										OP-ST-VX-3002	PIT	2YR
STEAM GEN RC-2A ; AUXILIARY FEEDWATER INLET VALVE												

HCV-1107B	M-253-4 (E8)	Active	2	GL	A	B	3	NC	FO			
										OP-ST-AFW-3010	FSTO	Q
										OP-ST-AFW-3010	STO	Q
										OP-ST-VX-3002	PIT	2YR

EMERG. FEEDWATER CONTROL FOR STEAM GEN A

HCV-1108A	M-253-4 (F7)	Active	2	GL	A	B	3	NC	FO			
										OP-ST-AFW-3010	FSTO	Q
										OP-ST-AFW-3010	STO	Q
										OP-ST-VX-3002	PIT	2YR

STEAM GEN RC-2B ; AUXILIARY FEEDWATER INLET VALVE

HCV-1108B	M-253-4 (E7)	Active	2	GL	A	B	3	NC	FO			
										OP-ST-AFW-3010	FSTO	Q
										OP-ST-AFW-3006	STO	Q
										OP-ST-VX-3002	PIT	2YR

EMERGENCY CONTROL VALVE FOR SG-B

HCV-1384	M-253-4 (D7)	Active	3	GA	M	B	4	NC	FAI			
										OP-ST-AFW-3006	STC	Q
										OP-ST-AFW-3006	STO	Q
										OP-ST-VX-3002	PIT	2YR

MAIN AND AUXILIARY FEEDWATER ; CROSSCONNECT VALVE

SYSTEM: CA - Compressed Air System

Component	PID(Coord)	Function	Code Position Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
CA-555	M-13 (F3)	Passive	2	GA	H	A	4	NO	N/A			
										IC-ST-AE-3174	LJ	OptB
CONTAINMENT; SERVICE AIR SUPPLY HEADER ; INBOARD ISOLATION VALV												
HCV-1749	M-13 (F4)	Active	2	GL	A	A	4	NC	FC			
										OP-ST-CA-3001	FSTC	Q
										OP-ST-CA-3001	STC	Q
										IC-AE-ST-3174	LJ	OptB
										OP-ST-VX-3003	PIT	2YR
CONTAINMENT SERVICE AIR HEADER ; OUTBOARD ISOLATION VALVE												

SYSTEM: CCW - Component Cooling Water System

Component	PID(Coord)	Function	Code Class	Position Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq	Comments
AC-101	M-10-2 (E6)	Active	3	CK	C	C	12	N/A	N/A	OP-ST-CCW-3012	CVC	Q	OP-ST-CCW-3022
										OP-ST-CCW-3002	CVO	Q	
COMP COOLING WATER PUMP AC-3A DISCHARGE CHECK VALVE													
AC-104	M-10-2 (D6)	Active	3	CK	C	C	12	N/A	N/A	OP-ST-CCW-3002	CVC	Q	OP-ST-CCW-3022
										OP-ST-CCW-3012	CVO	Q	
COMP COOLING WATER PUMP AC-3B DISCHARGE CHECK VALVE													
AC-107	M-10-2 (C6)	Active	3	CK	C	C	12	N/A	N/A	OP-ST-CCW-3002	CVC	Q	OP-ST-CCW-3012
										OP-ST-CCW-3022	CVO	Q	
COMP COOLING WATER PUMP AC-3C DISCHARGE CHECK VALVE													
AC-164	M-10-1 (D6)	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3007	RV	OM	
CONTROL ROOM VA UNIT VA-46A ; CCW INLET RELIEF VALVE													
AC-165	M-10-1 (C6)	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3007	RV	OM	
CONTROL ROOM VA UNIT VA-46B ; CCW INLET RELIEF VALVE													

AC-283	M-40-1 (F7)	Active	2	RL	R	C	0.75	NC	N/A	PE-ST-VX-3007	RV	OM
CNTMT VA-1A COOLING COIL ; CCW INLET RELIEF VALVE												
AC-284	M-40-1 (E7)	Active	2	RL	R	C	0.75	NC	N/A	PE-ST-VX-3007	RV	OM
CNTMT VA-1B COOLING COIL ; CCW INLET RELIEF VALVE												
AC-285	M-40-1 (E6)	Active	2	RL	R	C	0.75	NC	N/A	PE-ST-VX-3007	RV	OM
CNTMT VA-8A COOLING COIL ; CCW INLET RELIEF VALVE												
AC-286	M-40-1 (E5)	Active	2	RL	R	C	0.75	NC	N/A	PE-ST-VX-3007	RV	OM
CNTMT VA-8B COOLING COIL ; CCW INLET RELIEF VALVE												
AC-341	M-10-2 (C3)	Active	3	RL	R	C	1	NC	N/A	PE-ST-VX-3001	RV	OM
COMP COOLING WTR SURGE TANK AC-2 N2 RELIEF VALVE TO VENT HEADER												
AC-364	M-10-2 (D4)	Active	3	RL	R	C	2	NC	N/A	PE-ST-VX-3001	RV	OM
COMP COOLING WTR SURGE TANK AC-2; RECIRCULATION RELIEF VALVE ; T												
AC-391	M-10-2 (B4)	Active	3	CK	C	A/C	1.5	NC	N/A	SE-ST-CCW-3003 SE-ST-CCW-3003	CVC LT1	Q 2YR
COMP COOLING WTR SURGE TANK AC-2 DEMINERALIZED MAKE-UP WATER INL												
HCV-2808A	M-10-4 (E5)	Active	3	GL	A	B	1.5	NO	FO			

										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
LPSI PUMP SI-1A BRG CLR ; CCW INLET VALVE												
HCV-2808B	M-10-4 (B5)	Active	3	GL	A	B	1.5	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
LPSI PUMP SI-1A BRG CLR ; CCW OUTLET VALVE												
HCV-2809A	M-10-4 (E4)	Active	3	GL	A	B	1.5	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
LPSI PUMP SI-1B BRG CLR ; CCW INLET VALVE												
HCV-2809B	M-10-4 (B4)	Active	3	GL	A	B	1.5	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
LPSI PUMP SI-1B BRG CLR ; CCW OUTLET VALVE												
HCV-2810A	M-10-4 (E3)	Active	3	GL	A	B	1.5	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
HPSI PUMP SI-2A BRG CLR ; CCW INLET VALVE												
HCV-2810B	M-10-4 (B3)	Active	3	GL	A	B	1.5	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR

HPSI PUMP SI-2A BRG CLR ; CCW OUTLET VALVE

HCV-2811A	M-10-4 (E2)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR

HPSI PUMP SI-2B BRG CLR ; CCW INLET VALVE

HCV-2811B	M-10-4 (B2)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR

HPSI PUMP SI-2B BRG CLR ; CCW OUTLET VALVE

HCV-2812A	M-10-4 (E1)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR

HPSI PUMP SI-2C BRG CLR ; CCW INLET VALVE

HCV-2812B	M-10-4 (B1)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR

HPSI PUMP SI-2C BRG CLR ; CCW OUTLET VALVE

HCV-2813A	M-10-4 (E6)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR

CNTMT SPRAY PUMP SI-3A BRG CLR ; CCW INLET VALVE

HCV-2813B	M-10-4 (B6)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
CNTMT SPRAY PUMP SI-3A BRG CLR ; CCW OUTLET VALVE												
HCV-2814A	M-10-4 (E8)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
INLET CONT SPRAY SI-3B												
HCV-2814B	M-10-4 (B8)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
OUTLET CONT SPRAY SI-3B												
HCV-2815A	M-10-4 (E7)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
CNTMT SPRAY PUMP SI-3C BRG CLR ; CCW INLET VALVE												
HCV-2815B	M-10-4 (B7)	Active	3	GL	A	B	1.5	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
CNTMT SPRAY PUMP SI-3C BRG CLR ; CCW OUTLET VALVE												
HCV-2898A	M-10-1 (D6)	Active	3	GL	A	B	2	NO	FC	OP-ST-CCW-3001	FSTC	Q
										OP-ST-CCW-3001	STC	Q
										OP-ST-VX-3005A	PIT	2YR

CONTROL ROOM VA UNIT VA-46A ; CCW INLET VALVE

HCV-2898B	M-10-1 (D4)	Active	3	GL	A	B	2	NO	FC	OP-ST-CCW-3001	FSTC	Q
										OP-ST-CCW-3001	STC	Q
										OP-ST-VX-3005B	PIT	2YR

CONTROL ROOM VA UNIT VA-46A ; CCW OUTLET VALVE

HCV-2899A	M-10-1 (C6)	Active	3	GL	A	B	2	NO	FC	OP-ST-CCW-3001	FSTC	Q
										OP-ST-CCW-3001	STC	Q
										OP-ST-VX-3005A	PIT	2YR

CONTROL ROOM VA UNIT VA-46B ; CCW INLET VALVE

HCV-2899B	M-10-1 (C4)	Active	3	GL	A	B	2	NO	FC	OP-ST-CCW-3001	FSTC	Q
										OP-ST-CCW-3001	STC	Q
										OP-ST-VX-3005B	PIT	2YR

CONTROL ROOM VA UNIT VA-46B ; CCW OUTLET VALVE

HCV-400A	M-40-1 (C7)	Active	2	BU	A	B	8	NO	FO	OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STC	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007A	PIT	2YR

CNTMT VA-1A COOLING COIL ; CCW INLET VALVE

HCV-400B	M-40-1 (B7)	Active	2	BU	A	B	8	NO	FO	OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007A	PIT	2YR

CNTMT VA-1A COOLING COIL ; CCW INLET VALVE

HCV-400C	M-40-1 (C2)	Active	2	BL	A	B	8	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STC	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007B	PIT	2YR

CNTMT VA-1A COOLING COIL; CCW OUTLET VALVE

HCV-400D	M-40-1 (B2)	Active	2	BU	A	B	8	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007B	PIT	2YR

CONTAINMENT COOLING COIL VA-1A COMP. COOLING WATER RETURN ISO

HCV-401A	M-40-1 (C7)	Active	2	BU	A	B	8	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STC	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007A	PIT	2YR

CONTAINMENT COOLING COIL VA-1B COOLING WATER SUPPLY ISOLATION

HCV-401B	M-40-1 (B7)	Active	2	BU	A	B	8	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007A	PIT	2YR

CONTAINMENT COOLING COIL VA-1B COMP. COOLING WATER INLET ISOL

HCV-401C	M-40-1 (C3)	Active	2	BL	A	B	8	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STC	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007B	PIT	2YR

CNTMT VA-1B COOLING COIL ; CCW OUTLET VALVE

HCV-401D	M-40-1 (B3)	Active	2	BU	A	B	8	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007B	PIT	2YR
CONTAINMENT COOLING COIL VA-1B COMP. COOLING WATER RETURN												
HCV-402A	M-40-1 (C6)	Active	2	BU	A	B	6	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STC	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007A	PIT	2YR
CNTMT VA-8A COOLING COIL ; CCW INLET VALVE												
HCV-402B	M-40-1 (B6)	Active	2	BU	A	B	6	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007A	PIT	2YR
CNTMT VA-8A COOLING COIL ; CCW INLET VALVE												
HCV-402C	M-40-1 (C4)	Active	2	BL	A	B	6	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STC	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007B	PIT	2YR
CNTMT VA-8A COOLING COIL ; CCW OUTLET VALVE												
HCV-402D	M-40-1 (B4)	Active	2	BU	A	B	6	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007B	PIT	2YR
CNTMT VA-8A COOLING COIL ; CCW OUTLET VALVE												

HCV-403A	M-40-1 (C5)	Active	2	BU	A	B	6	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STC	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007A	PIT	2YR
CNTMT VA-8B COOLING COIL ; CCW INLET VALVE												
HCV-403B	M-40-1 (B5)	Active	2	BU	A	B	6	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007A	PIT	2YR
CNTMT VA-8B COOLING COIL ; CCW INLET VALVE												
HCV-403C	M-40-1 (C4)	Active	2	BL	A	B	6	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STC	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007B	PIT	2YR
CNTMT VA-8B COOLING COIL ; CCW OUTLET VALVE												
HCV-403D	M-40-1 (B4)	Active	2	BU	A	B	6	NO	FO			
										OP-ST-CCW-3005	FSTO	Q
										OP-ST-CCW-3005	STO	Q
										OP-ST-VX-3007B	PIT	2YR
CNTMT VA-8B COOLING COIL ; CCW OUTLET VALVE												
HCV-425A	M-40-3 (E3)	Active	2	GL	A	A	3	NO	FC			
										IC-ST-AE-3139	LJ	OptB
										OP-ST-CCW-3004	FSTC	CS
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
SI LEAKAGE COOLERS SI-4A-D ; COMBINED CCW INLET HEADER ; INBOARD												
HCV-425B	M-40-3 (E3)	Active	2	GL	A	A	3	NO	FC			

										IC-ST-AE-3139	LJ	OptB
										OP-ST-CCW-3004	FSTC	CS
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
SI LEAKAGE COOLERS SI-4A-D ; COMBINED CCW INLET HEADER ; OUTBOAR												
HCV-425C	M-40-3 (E2)	Active	2	GL	A	A	3	NO	FC			
										IC-ST-AE-3139	LJ	OptB
										OP-ST-CCW-3004	FSTC	CS
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
SI LEAKAGE COOLERS SI-4A-D ; COMBINED CCW OUTLET HEADER ; INBOAR												
HCV-425D	M-40-3 (E2)	Active	2	GL	A	A	3	NO	FC			
										IC-ST-AE-3139	LJ	OptB
										OP-ST-CCW-3004	FSTC	CS
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
SI LEAKAGE COOLERS SI-4A-D ; COMBINED CCW OUTLET HEADER ; OUTBOA												
HCV-438A	M-40-2 (F8)	Active	2	GL	A	A	6	NO	FO			
										IC-ST-AE-3118	LJ	OptB
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
RCP RC-3A-D LUBE OIL & SEAL CLRS; CCW INLET INBOARD ISOLATION VL												
HCV-438B	M-40-1 (A6)	Active	2	GL	A	A	6	NO	FO			
										IC-ST-AE-3118	LJ	OptB
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
RCP RC-3A-D LUBE OIL & SEAL CLRS; CCW INLET OUTBOARD ISOLATION V												
HCV-438C	M-40-2 (F2)	Active	2	GL	A	A	6	NO	FO			
										IC-ST-AE-3118	LJ	OptB

										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
RCP RC-3A-D LUBE OIL & SEAL CLRS; CCW OUTLET INBOARD ISOLATION V												
HCV-438D	M-40-1 (A3)	Active	2	GL	A	A	6	NO	FO			
										IC-ST-AE-3118	LJ	OptB
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
RCP RC-3A-D LUBE OIL & SEAL CLRS; CCW OUTLET OUTBOARD ISOL VLV												
HCV-467A	M-40-3 (E7)	Active	2	GL	A	A	1.5	NO	FC			
										IC-ST-AE-3111	LJ	OptB
										OP-ST-CCW-3004	FSTC	CS
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
DET WELL COOLING COILS VA-14A&B ; COMBINED CCW INLET HEADER ; IN												
HCV-467B	M-40-1 (A3)	Active	2	GL	A	A	1.5	NO	FC			
										IC-ST-AE-3111	LJ	OptB
										OP-ST-CCW-3004	FSTC	CS
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
DET WELL COOLING COILS VA-14A&B ; COMBINED CCW INLET HEADER ; OU												
HCV-467C	M-40-3 (E6)	Active	2	GL	A	A	1.5	NO	FC			
										IC-ST-AE-3111	LJ	OptB
										OP-ST-CCW-3004	FSTC	CS
										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
DET WELL COOLING COILS VA-14A&B ; COMBINED CCW OUTLET HEADER ; I												
HCV-467D	M-40-1 (A2)	Active	2	GL	A	A	1.5	NO	FC			
										IC-ST-AE-3111	LJ	OptB
										OP-ST-CCW-3004	FSTC	CS

										OP-ST-CCW-3004	STC	CS
										OP-ST-VX-3006	PIT	2YR
DET WELL COOLING COILS VA-14A&B ; COMBINED CCW OUTLET HEADER ; O												
HCV-474	M-10-3 (F8)	Active	3	GL	A	B	2	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3006	PIT	2YR
SI PUMPS SI-1A&B,2A,B&C ; CNTMT SPRAY PUMPS SI-3A-C BRG CLRS CCW												
HCV-478	M-10-3 (D2)	Active	3	BU	A	B	8	NO	FO			
										OP-ST-CCW-3001	STC	Q
										OP-ST-VX-3005A	PIT	2YR
SPENT FUEL POOL HT EXCH AC-8 ; CCW OUTLET VALVE												
HCV-480	M-10-3 (C6)	Active	3	BU	A	B	14	NC	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
SHUTDOWN COOLING HT EXCH AC-4A ; CCW INLET VALVE												
HCV-481	M-10-3 (B7)	Active	3	BU	A	B	14	NC	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
SHUTDOWN COOLING HT EXCH AC-4B ; CCW INLET VALVE												
HCV-484	M-10-3 (B4)	Active	3	BU	A	B	14	NC	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
SHUTDOWN COOLING HT EXCH AC-4A ; CCW OUTLET VALVE												

HCV-485	M-10-3 (A5)	Active	3	BU	A	B	14	NC	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
SHUTDOWN COOLING HT EXCH AC-4B ; CCW OUTLET VALVE												
HCV-489A	M-10-3 (B2)	Active	3	BU	A	B	10	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
COMP COOLING HT EXCH AC-1A ; CCW INLET VALVE												
HCV-489B	M-10-2 (A6)	Active	3	BU	A	B	10	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
COMP COOLING HT EXCH AC-1A ; CCW OUTLET VALVE												
HCV-490A	M-10-3 (B2)	Active	3	BU	A	B	10	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
COMP COOLING HT EXCH AC-1B ; CCW INLET VALVE												
HCV-490B	M-10-2 (A6)	Active	3	BU	A	B	10	NO	FO	OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
COMP COOLING HT EXCH AC-1B ; CCW OUTLET VALVE												
HCV-491A	M-10-3 (C2)	Active	3	BU	A	B	10	NO	FO	OP-ST-CCW-3001	FSTO	Q

										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
COMP COOLING HT EXCH AC-1C ; CCW INLET VALVE												
HCV-491B	M-10-2 (B6)	Active	3	BU	A	B	10	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
COMP COOLING HT EXCH AC-1C ; CCW OUTLET VALVE												
HCV-492A	M-10-3 (C2)	Active	3	BU	A	B	10	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005A	PIT	2YR
COMP COOLING HT EXCH AC-1D ; CCW INLET VALVE												
HCV-492B	M-10-2 (C6)	Active	3	BU	A	B	10	NO	FO			
										OP-ST-CCW-3001	FSTO	Q
										OP-ST-CCW-3001	STO	Q
										OP-ST-VX-3005B	PIT	2YR
COMP COOLING HT EXCH AC-1D ; CCW OUTLET VALVE												
NG-113	M-42-1 (D7)	Active	3	CK	C	A/C	1	NC	N/A			
										SE-ST-CCW-3003	CVC	Q
										SE-ST-CCW-3003	LT1	2YR
COMP COOLING WATER SURGE TANK AC-2 NITROGEN MAKEUP LINE												

SYSTEM: CH - Chemical and Volume Control

Component	PID(Coord)	Function	Code Class	Position Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
CH-129	210-121-1 (A6	Active	3	CK	C	C	3	N/A	N/A			
										OP-ST-CH-3002	CVC	Q
										OP-ST-CH-3002	CVO	Q
BORIC ACID PUMP CH-4A DISCHARGE CHECK VALVE												
CH-130	210-121-1 (B7	Active	3	CK	C	C	3	N/A	N/A			
										OP-ST-CH-3002	CVC	Q
										OP-ST-CH-3002	CVO	Q
BORIC ACID PUMP CH-4B DISCHARGE CHECK VALVE												
CH-143	210-121-2 (B5	Active	2	CK	C	C	3	N/A	N/A			
										OP-ST-CH-3006	CVO	CS
BORIC ACID PUMPS CH-4A & B ; DISCHARGE TO CHARGING SUCTION HEADE												
CH-155	210-121-2 (A5	Active	2	CK	C	C	3	N/A	N/A			
										OP-ST-CH-3006	CVO	CS
CHARG PUMPS CH-1A,B&C SUCT HDR ; GRAVITY FEED CHECK VALVE												
CH-156	210-120-1 (E3	Active	2	CK	C	C	3	N/A	N/A			
										OP-ST-CH-3006	CVO	CS
CHARG PUMPS CH-1A,B&C SUCT HDR SAFETY INJECTION & BORIC ACID SUP												
CH-166	210-120-1 (C2	Active	2	CK	C	C	4	NO	N/A			
										OP-ST-CH-3006	CVC	CS

VOLUME CONTROL TANK CH-14 ; OUTLET CHECK VALVE											
CH-181	210-120-1 (F7 Active	2	RL	R	C	1.5	C	N/A	PE-ST-VX-3002	RV	OM
CHARGING PUMP CH-1C DISCHARGE RELIEF VALVE											
CH-182	210-120-1 (D7 Active	2	RL	R	C	1.5	C	N/A	PE-ST-VX-3002	RV	OM
CHARGING PUMP CH-1B DISCHARGE RELIEF VALVE											
CH-183	210-120-1 (B7 Active	2	RL	R	C	1.5	C	N/A	PE-ST-VX-3002	RV	OM
CHARGING PUMP CH-1A DISCHARGE RELIEF VALVE											
CH-187	210-120-1 (E7 Active	2	CK	C	C	2	N/A	N/A	OP-ST-CH-3003	CVC	Q
									OP-ST-CH-3003	CVO	Q
CHARGING PUMP CH-1C DISCHARGE CHECK VALVE											
CH-188	210-120-1 (C7 Active	2	CK	C	C	2	N/A	N/A	OP-ST-CH-3003	CVC	Q
									OP-ST-CH-3003	CVO	Q
CHARGING PUMP CH-1B DISCHARGE CHECK VALVE											
CH-189	210-120-1 (A7 Active	2	CK	C	C	2	N/A	N/A	OP-ST-CH-3003	CVC	Q
									OP-ST-CH-3003	CVO	Q
CHARGING PUMP CH-1A DISCHARGE CHECK VALVE											
CH-198	210-120-1A (B Active	2	CK	C	C	2	NO	N/A	SE-ST-CH-3004	CVC	RO
									SE-ST-CH-3003	CVO	RO

									OP-ST-CH-3003	PS	Q
REGENERATIVE HEAT EXCHANGER CH-6; CHARGING LINE CHECK VALVE											
CH-203	210-120-1A (F	Active	1	CK	C	C	2	NO	N/A		
										SE-ST-CH-3003	CVO	RO
										OP-ST-CH-3003	PS	Q
REACTOR COOLANT SYSTEM LOOP 1A ; CHARGING LINE CHECK VALVE											
CH-204	210-120-1A (C	Active	1	CK	C	C	2	NO	N/A		
										SE-ST-CH-3003	CVO	RO
										OP-ST-CH-3003	PS	Q
REACTOR COOLANT SYSTEM LOOP 2A ; CHARGING LINE CHECK VALVE											
CH-205	210-120-1A (E	Active	1	CK	C	C	2	N/A	N/A		
										SE-ST-CH-3003	CVO	RO
PRESSURIZER CH-4 ; AUXILIARY SPRAY CHECK VALVE											
CH-223	210-120-1A (B	Active	2	RL	R	A/C		NC	N/A		
										IC-ST-AE-3102	LJ	OptB
											RV	OM
REGENERATIVE HEAT EXCHANGER CH-6; LETDOWN RELIEF VALVE ; TO PRES											
CH-469	210-120-1A (D	Active	1	CK	C	C	2	N/A	N/A		
										SE-ST-CH-3003	CVO	RO
PRESSURIZER RC-4 AUX SPRAY INLET VALVE HCV-240 BYPASS LINE CHEC											
FCV-269	210-121-1 (C7	Active	2	GL	A	B	3	NC	FC		
										OP-ST-CH-3001	FSTC	Q
										OP-ST-CH-3001	STC	Q
										OP-ST-VX-3008	PIT	2YR
VOLUME CONTROL TANK CH-14 ; BORIC ACID MAKE-UP INLET VALVE											

HCV-204	210-120-1A (A	Active	2	GL	A	A	2	NO	FC		
										IC-ST-AE-3102	LJ	OptB
										OP-ST-CH-3005	FSTC	CS
										OP-ST-CH-3005	STC	CS
										OP-ST-VX-3009	PIT	2YR
LETDOWN HEAT EXCHANGER CH-7 ; INLET VALVE												
HCV-206	210-120-1A (E	Active	2	GL	A	A	0.75	NO	FC		
										IC-ST-AE-3107	LJ	OptB
										OP-ST-CH-3005	FSTC	CS
										OP-ST-CH-3005	STC	CS
										OP-ST-VX-3009	PIT	2YR
RX COOLANT PUMPS RC-3A,B,C&D ; CONTROLLED BLEEDOFF ; OUTBOARD IS												
HCV-238	210-120-1A (F	Active	1	GL	A	B	2	NO	FO		
										OP-ST-CH-3001	FSTO	Q
										OP-ST-CH-3001	STC	Q
										OP-ST-CH-3001	STO	Q
										OP-ST-VX-3008	PIT	2YR
REACTOR COOLANT SYSTEM LOOP 1A ; CHARGING LINE STOP VALVE												
HCV-239	210-120-1A (D	Active	1	GL	A	B	2	NO	FO		
										OP-ST-CH-3001	FSTO	Q
										OP-ST-CH-3001	STC	Q
										OP-ST-CH-3001	STO	Q
										OP-ST-VX-3008	PIT	2YR
REACTOR COOLANT SYSTEM LOOP 2A ; CHARGING LINE STOP VALVE												
HCV-240	210-120-1A (E	Active	1	GL	A	B	2	NC	FC		
										OP-ST-CH-3005	FSTC	Q
										OP-ST-CH-3005	STC	CS
										OP-ST-CH-3005	STO	CS
										OP-ST-VX-3009	PIT	2YR

PRESSURIZER RC-4 ; AUXILIARY SPRAY INLET VALVE

HCV-241	210-120-1A (E	Active	2	GL	A	A	0.75	NO	FC		
										IC-ST-AE-3107	LJ	OptB
										OP-ST-CH-3005	FSTC	CS
										OP-ST-CH-3005	STC	CS
										OP-ST-VX-3009	PIT	2YR

RX COOLANT PUMPS RC-3A,B,C&D ; CONTROLLED BLEEDOFF ; INBOARD ISO

HCV-247	210-120-1A (F	Active	2	GL	S	B	2	NO	FO		
										OP-ST-CH-3001	FSTO	Q
										OP-ST-CH-3001	STC	Q
										OP-ST-CH-3001	STO	Q
										OP-ST-VX-3008	PIT	2YR

REACTOR COOLANT SYSTEM LOOP 1A ; CHARGING LINE STOP VALVE

HCV-248	210-120-1A (D	Active	2	GL	S	B	2	NO	FO		
										OP-ST-CH-3001	FSTO	Q
										OP-ST-CH-3001	STC	Q
										OP-ST-CH-3001	STO	Q
										OP-ST-VX-3008	PIT	2YR

REACTOR COOLANT SYSTEM LOOP 2A ; CHARGING LINE STOP VALVE

HCV-249	210-120-1A (D	Active	1	GL	S	B	2	NC	FC		
										OP-ST-CH-3005	FSTC	CS
										OP-ST-CH-3005	STC	CS
										OP-ST-CH-3005	STO	CS
										OP-ST-VX-3009	PIT	2YR

PRESSURIZER RC-4 ; AUX SPRAY INLET VALVE HCV-240 ; BYPASS VALVE

HCV-257	210-121-1 (D7	Active	2	GL	A	B	2	NO	FC		
										OP-ST-CH-3001	FSTC	Q
										OP-ST-CH-3001	STC	Q
										OP-ST-VX-3008	PIT	2YR

BORIC ACID STORAGE TANK CH-11B ; RECIRCULATION VALVE

HCV-258	210-121-1 (B5 Active	2	GA	M	B	3	NC	FAI	OP-ST-CH-3001	STO	Q
									OP-ST-VX-3008	PIT	2YR

BORIC ACID STORAGE TANK CH-11B ; OUTLET ISOLATION VALVE

HCV-264	210-121-1 (D4 Active	2	GL	A	B	2	NO	FC	OP-ST-CH-3001	FSTC	Q
									OP-ST-CH-3001	STC	Q
									OP-ST-VX-3008	PIT	2YR

BORIC ACID STORAGE TANK CH-11A ; RECIRCULATION VALVE

HCV-265	210-121-1 (B3 Active	2	GA	M	B	3	NC	FAI	OP-ST-CH-3001	STO	Q
									OP-ST-VX-3008	PIT	2YR

BORIC ACID STORAGE TANK CH-11A ; OUTLET ISOLATION VALVE

HCV-268	210-121-2 (B4 Active	2	GA	M	B	3	NC	FAI	OP-ST-CH-3005	STO	CS
									OP-ST-VX-3009	PIT	2YR

BORIC ACID PUMP TO CHARGING SUCTION ISOL VALVE

LCV-218-2	210-120-1 (C2 Active	2	GA	M	B	4	NO	FAI	OP-ST-CH-3005	STC	CS
									OP-ST-VX-3009	PIT	2YR

VOLUME CONTROL TANK CH-14 ; OUTLET VALVE

LCV-218-3	210-120-1 (E3 Active	2	GA	M	B	3	NC	FAI	OP-ST-CH-3005	STC	CS
									OP-ST-CH-3005	STO	CS
									OP-ST-VX-3009	PIT	2YR

CHARGING PUMPS CH-1A,B&C SUCT HDR ; SAFETY INJE CTION & BORIC AC

TCV-202	210-120-1A (E	Active	1	GL	A	A	2	NO	FC		
										IC-ST-AE-3102	LJ	OptB
										OP-ST-CH-3005	FSTC	CS
										OP-ST-CH-3005	STC	CS
										OP-ST-VX-3009	PIT	2YR

REACTOR COOLANT SYSTEM LOOP 2A ; LETDOWN TEMPERATURE CONTROL VLV

SYSTEM: DW - Demineralized Water System

Component	PID(Coord)	Function	Code Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
HCV-1559A	M-5-2 (E5)	Active	2	DI	A	A	2.5	NC	FC			
										OP-ST-DW-3001	FSTC	Q
										OP-ST-DW-3001	STC	Q
										IC-ST-AE-3180	LJ	OptB
										OP-ST-VX-3010	PIT	2YR
DEMIN WATER SUPPLY ; CONTAINMENT ISOLATION VALVE												
HCV-1559B	M-5-2 (E5)	Active	2	DI	A	A	2.5	NC	FC			
										OP-ST-DW-3001	FSTC	Q
										OP-ST-DW-3001	STC	Q
										IC-ST-AE-3180	LJ	OptB
										OP-ST-VX-3010	PIT	2YR
DEMIN WATER SUPPLY ; CONTAINMENT ISOLATION VALVE												
HCV-1560A	M-5-2 (A4)	Active	2	DI	A	A	2	NC	FC			
										OP-ST-DW-3001	FSTC	Q
										OP-ST-DW-3001	STC	Q
										IC-ST-AE-3179	LJ	OptB
										OP-ST-VX-3010	PIT	2YR
DEAERATED WATER SUPPLY ; CONTAINMENT ISOLATION VALVE												
HCV-1560B	M-5-2 (A4)	Active	2	DI	A	A	2	NC	FC			
										OP-ST-DW-3001	FSTC	Q
										OP-ST-DW-3001	STC	Q
										IC-ST-AE-3179	LJ	OptB
										OP-ST-VX-3010	PIT	2YR

DEAERATED WATER SUPPLY ; CONTAINMENT ISOLATION VALVE

SYSTEM: FO - (Diesel Generator) Fuel Oil System

Component	PID(Coord)	Function	Code Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
FO-104	M-262-1 (F6)	Active	3	CK	C	C	1	N/A	N/A			
										OP-ST-FO-3002	CVC	Q
										OP-ST-FO-3002	CVO	Q
TRANSFER PUMP FO-4A-2 ; DISCHARGE CHECK VALVE												
FO-105	M-262-1 (E6)	Active	3	CK	C	C	1	N/A	N/A			
										OP-ST-FO-3002	CVC	Q
										OP-ST-FO-3002	CVO	Q
TRANSFER PUMP FO-4B-2 ; DISCHARGE CHECK VALVE												
FO-106	M-262-1 (D6)	Active	3	CK	C	C	1	N/A	N/A			
										OP-ST-FO-3001	CVC	Q
										OP-ST-FO-3001	CVO	Q
TRANSFER PUMP FO-4A-1 ; DISCHARGE CHECK VALVE												
FO-107	M-262-1 (C6)	Active	3	CK	C	C	1	N/A	N/A			
										OP-ST-FO-3001	CVC	Q
										OP-ST-FO-3001	CVO	Q
TRANSFER PUMP FO-4B-1 ; DISCHARGE CHECK VALVE												
FO-218	M-262-1 (D7)	Active	3	CK	C	C	2	N/A	N/A			
										OP-ST-FO-3001	CVO	Q
DG-1 FOOT VALVE												
FO-219	M-262-1 (D8)	Active	3	CK	C	C	2	N/A	N/A			
										OP-ST-FO-3002	CVO	Q

DG-2 FOOT VALVE

SYSTEM: FW - Feedwater System

Component	PID(Coord) Comments	Function	Code Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq	Dev.
FW-1443	M-253-4 (F8)	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3003	RV	OM	
AUX FEEDWATER TO RC-2A HEADER RELIEF VALVE													
FW-1444	M-253-4 (F6)	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3003	RV	OM	
AUX FEEDWATER TO RC-2B HEADER RELIEF VALVE													
FW-161	M-253-1 (D4)	Active	2	CK	C	C	16	NO	N/A	PE-ST-FW-3001	CVC	RO	
STEAM GENERATOR RC-2B ; INLET CHECK VALVE													
FW-162	M-253-1 (D6)	Active	2	CK	C	C	16	NO	N/A	PE-ST-FW-3001	CVC	RO	
STEAM GENERATOR RC-2A ; INLET CHECK VALVE													
HCV-1103	M-253-1 (C3)	Active	N	GA	M	B	16	NO	FAI	OP-ST-FW-3002 OP-ST-VX-3011	STC PIT	CS 2YR	
FEED REG VALVE FCV-1101 OUTLET ISOLATION VALVE													
HCV-1104	M-253-1 (D3)	Active	N	GA	M	B	16	NO	FAI	OP-ST-FW-3002 OP-ST-VX-3011	STC PIT	CS 2YR	

STM GEN RC-2B ; FEED REG VALVE FCV-1102 ; OUTLET ISOLATI

HCV-1105	M-253-1 (C3)	Active	N	GL	A	B	6	NC	FC			
										OP-ST-FW-3002	FSTC	CS
										OP-ST-FW-3002	STC	CS
										OP-ST-VX-3011	PIT	2YR

STM GEN RC-2A ; FEED REG BYPASS VALVE

HCV-1106	M-253-1 (E3)	Active	N	GL	A	B	6	NC	FC			
										OP-ST-FW-3002	FSTC	CS
										OP-ST-FW-3002	STC	CS
										OP-ST-VX-3011	PIT	2YR

STM GEN RC-2B ; FEED REG BYPASS VALVE

HCV-1385	M-253-1 (D3)	Active	2	GA	M	B	16	NO	FAI			
										OP-ST-FW-3002	STC	CS
										OP-ST-VX-3011	PIT	2YR

S/G RC-2B ISOLATION VALVE

HCV-1386	M-253-1 (C6)	Active	2	GA	M	B	16	NO	FAI			
										OP-ST-FW-3002	STC	CS
										OP-ST-VX-3011	PIT	2YR

S/G RC-2A ; FEEDWATER ISOLATION VALVE

HCV-1387A	M-253-1 (C3)	Active	2	GL	A	B	2	NO	FC			
										OP-ST-BD-3000	FSTC	Q
										OP-ST-BD-3000	STC	Q
										OP-ST-VX-3011	PIT	2YR

STEAM GENERATOR RC-2B ; BLWD ISOLATION VALVE

HCV-1387B	M-253-1 (B3)	Active	2	GL	A	B	2	NO	FC			
										OP-ST-BD-3000	FSTC	Q

										OP-ST-BD-3000	STC	Q
										OP-ST-VX-3011	PIT	2YR
STEAM GENERATOR RC-2B ; BLWD ISOLATION VALVE												
HCV-1388A	M-253-1 (C8)	Active	2	GL	A	B	2	NO	FC			
										OP-ST-BD-3000	FSTC	Q
										OP-ST-BD-3000	STC	Q
										OP-ST-VX-3011	PIT	2YR
STEAM GENERATOR RC-2A ; BLWD ISOLATION VALVE												
HCV-1388B	M-253-1 (B8)	Active	2	GL	A	B	2	NO	FC			
										OP-ST-BD-3000	FSTC	Q
										OP-ST-FW-3002	STC	Q
										OP-ST-VX-3011	PIT	2YR
STEAM GENERATOR RC-2A ; BLWD ISOLATION VALVE												

SYSTEM: IA - Instument Air System

Component	PID(Coord)	Function	Code Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
IA-3092	M-264-4 (B5)	Passive	2	GL	H	A	0.5	NC	N/A			
										IC-ST-AE-3103	LJ	OptB
PERSONNEL AIR LOCK (PAL) INNER DOOR SEALS TEST TUBING ISOLATION												
IA-3093	M-264-4 (B5)	Passive	2	GL	H	A	0.5	NC	N/A			
										IC-ST-AE-3103	LJ	OptB
PERSONNEL AIR LOCK (PAL) OUTER DOOR SEALS TEST TUBING ISOLATION												
IA-3094	M-264-4 (B5)	Passive	2	BL	H	A	0.5	NC	N/A			
										IC-ST-AE-3103	LJ	OptB
PERSONNEL AIR LOCK (PAL) EMERGENCY AIR PIPE INLET ISOLATION VALV												
IA-A/FIC-383-C	M-264-4 (D3)	Active	3	CK	C	A/C	0.5	N/A	N/A			
										IC-ST-IA-3001	CVC	Q
										IC-ST-IA-3001	LT1	2YR
A/FIC-383 INSTRUMENT AIR ; CHECK VALVE												
IA-B/FIC-383-C	M-264-4 (B3)	Active	3	CK	C	A/C	0.5	N/A	N/A			
										IC-ST-IA-3001	CVC	Q
										IC-ST-IA-3001	LT1	2YR
CHECK VALVE												
IA-C/FIC-383-C	M-264-4 (C3)	Active	3	CK	C	A/C	0.5	N/A	N/A			
										IC-ST-IA-3001	CVC	Q
										IC-ST-IA-3001	LT1	2YR

C/FIC-383 INSTRUMENT AIR ; CHECK VALVE

IA-D/FIC-383-C	M-264-4 (A3)	Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-IA-3001	CVC	Q
										IC-ST-IA-3001	LT1	2YR

D/FIC-383 INSTRUMENT AIR ; CHECK VALVE

IA-FCV-1368-C	C-4175-8 (D7)	Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-AFW-3001	CVC	CS
										IC-ST-AFW-3001	LT1	2YR

AFW RECIRC VALVE FCV-1368 INSTRUMENT AIR CHECK VALVE

IA-FCV-1369-C	C-4175-8 (D7)	Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-AFW-3001	CVC	CS
										IC-ST-AFW-3001	LT1	2YR

AFW RECIRC VALVE FCV-1369 INSTRUMENT AIR CHECK VALVE

IA-HCV-1107A-C	C-4175-8 (E7)	Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-AFW-3002	CVC	CS
										IC-ST-AFW-3002	LT1	2YR

HCV-1107A INSTRUMENT AIR SUPPLY CHECK VALVE

IA-HCV-1107B-C	C-4175-8 (D7)	Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-AFW-3002	CVC	CS
										IC-ST-AFW-3002	LT1	2YR

HCV-1107B INSTRUMENT AIR SUPPLY ; CHECK VALVE

IA-HCV-1108A-C	C-4175-8 (D7)	Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-AFW-3002	CVC	CS
										IC-ST-AFW-3002	LT1	2YR

HCV-1108A INSTRUMENT AIR SUPPLY CHECK VALVE

IA-HCV-1108B-C	C-4175-8 (D7) Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-AFW-3002	CVC	CS
									IC-ST-AFW-3002	LT1	2YR
HCV-1108B INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-238-C	C-4175-8 (F7) Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-IA-3002	CVC	CS
									IC-ST-IA-3002	LT1	2YR
HCV-238 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-239-C	C-4175-8 (F7) Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-IA-3002	CVC	CS
									IC-ST-IA-3002	LT1	2YR
HCV-239 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-240-C	C-4175-8 (E7) Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-IA-3002	CVC	CS
									IC-ST-IA-3002	LT1	2YR
HCV-240 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-2850-C	C-4175-7 (D7) Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-IA-3003	CVC	Q
									IC-ST-IA-3003	LT1	2YR
HCV-2850 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-2851-C	C-4175-7 (D7) Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-IA-3003	CVC	Q
									IC-ST-IA-3003	LT1	2YR
HCV-2851 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-2852-C	C-4175-7 (D7) Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-IA-3003	CVC	Q

										IC-ST-IA-3003	LT1	2YR
HCV-2852 INSTRUMENT AIR SUPPLY ; CHECK VALVE												
IA-HCV-2853-C	C-4175-7 (D7)	Active	3	CK	C	A/C	0.5	NC	N/A			
										IC-ST-IA-3003	CVC	Q
										IC-ST-IA-3003	LT1	2YR
HCV-2853 INSTRUMENT AIR SUPPLY ; CHECK VALVE												
IA-HCV-2898A-C		Active	3	CK	C	A/C	0.5	NC	N/A			
										IC-ST-IA-3008	CVC	Q
										IC-ST-IA-3008	LT1	2YR
CCW INLET VALVE HCV-2898A INSTRUMENT AIR CHECK VALVE												
IA-HCV-2898B-C	M-100 (UNK)	Active	3	CK	C	A/C	0.5	NC	N/A			
										IC-ST-IA-3008	CVC	Q
										IC-ST-IA-3008	LT1	2YR
CCW OUTLET VALVE HCV-2898B INSTRUMENT AIR CHECK VALVE												
IA-HCV-2899A-C	M-100 (UNK)	Active	3	CK	C	A/C	0.5	NC	N/A			
										IC-ST-IA-3008	CVC	Q
										IC-ST-IA-3008	LT1	2YR
CCW INLET VALVE HCV-2899A INSTRUMENT AIR CHECK VALVE												
IA-HCV-2899B-C		Active	3	CK	C	A/C	0.5	NC	N/A			
										IC-ST-IA-3008	CVC	Q
										IC-ST-IA-3008	LT1	2YR
CCW OUTLET VALVE HCV-2899B INSTRUMENT AIR CHECK VALVE												
IA-HCV-2987-C	C-4175-5 (C7)	Active	3	CK	C	A	0.37	N/A	N/A			
										IC-ST-IA-3005	CVC	CS
										IC-ST-IA-3005	LT1	2YR

HCV-2987 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-344-C	C-4175-5 (E7) Active	2	CK	C	C	0.5	N/A	N/A	OP-ST-SI-3002	CVC	CS
HCV-344 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-345-C	C-4175-5 (E7) Active	2	CK	C	C	0.5	N/A	N/A	OP-ST-SI-3002	CVC	CS
HCV-345 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-385-C	C-4175-5 (E7) Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-IA-3004	CVC	CS
									IC-ST-IA-3004	LT1	2YR
HCV-385 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-386-C	C-4175-5 (E7) Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-IA-3004	CVC	CS
									IC-ST-IA-3004	LT1	2YR
HCV-386 INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-400A-C	C-4175-6 (F7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW INLET VALVE HCV-400A INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-400B-C	C-4175-6 (F7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW INLET VALVE HCV-400B INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-400C-TV	C-4175-6 (F3) Active	3	CK	C	C	0.25	NC	N/A	OP-ST-CCW-3005	CVC	Q

HCV-400C INSTRUMENT AIR SUPPLY ; TRIP VALVE											
IA-HCV-400D-C	C-4175-6 (F7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW OUTLET VALVE HCV-400D INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-401A-C	C-4175-6 (F7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW INLET VALVE HCV-401A INSTRUMENT AIR CHECK VALVE											
IA-HCV-401B-C	C-4175-6 (F7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW INLET VALVE HCV-401B INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-401C-TV	C-4175-6 (F3) Active	3	CK	C	C	0.25	NC	N/A	OP-ST-CCW-3005	CVC	Q
HCV-401C INSTRUMENT AIR SUPPLY ; TRIP VALVE											
IA-HCV-401D-C	C-4175-6 (F7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW OUTLET VALVE HCV-401D INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-402A-C	C-4175-6 (E7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW INLET VALVE HCV-402A INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-402B-C	C-4175-6 (E7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW INLET VALVE HCV-402B INSTRUMENT AIR SUPPLY CHECK VALVE											

IA-HCV-402C-TV	C-4175-6 (E3) Active	3	CK	C	C	0.25	NC	N/A	OP-ST-CCW-3005	CVC	Q
HCV-402C INSTRUMENT AIR SUPPLY ; TRIP VALVE											
IA-HCV-402D-C	C-4175-6 (E7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW OUTLET VALVE HCV-402D INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-403A-C	C-4175-6 (E7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW INLET VALVE HCV-403A INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-403B-C	C-4175-6 (E7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW INLET VALVE HCV-403B INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-403C-TV	C-4175-6 (E3) Active	3	CK	C	C	0.25	NC	N/A	OP-ST-CCW-3005	CVC	Q
HCV-403C INSTRUMENT AIR SUPPLY ; TRIP VALVE											
IA-HCV-403D-C	C-4175-6 (E7) Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-CCW-3005	CVC	Q
CCW OUTLET VALVE HCV-403D INSTRUMENT AIR SUPPLY CHECK VALVE											
IA-HCV-438B-C	C-4175-6 (D7) Active	3	CK	C	C	0.5	N/A	N/A	OP-ST-CCW-3004	CVC	CS
HCV-438B INSTRUMENT AIR SUPPLY ; CHECK VALVE											
IA-HCV-438D-C	C-4175-6 (D7) Active	3	CK	C	C	0.5	N/A	N/A	OP-ST-CCW-3004	CVC	CS

HCV-438D INSTRUMENT AIR SUPPLY ; CHECK VALVE												
IA-HCV-480-C	C-4175-6 (B7) Active	3	CK	C	C	0.5	N/A	N/A	OP-ST-CCW-3001	CVC	Q	
CCW INLET VALVE HCV-480 INSTRUMENT AIR SUPPLY CHECK VALVE												
IA-HCV-481-C	C-4175-6 (B7) Active	3	CK	C	C	0.5	N/A	N/A	OP-ST-CCW-3001	CVC	Q	
CCW INLET VALVE HCV-481 INSTRUMENT AIR SUPPLY CHECK VALVE												
IA-LCV-383-1-C	C-4175-5 (E7) Active	3	CK	C	C	0.37	N/A	N/A	OP-ST-SI-3002	CVC	CS	
LCV-383-1 INSTRUMENT AIR SUPPLY ; CHECK VALVE												
IA-LCV-383-2-C	C-4175-5 (E7) Active	3	CK	C	C	0.37	N/A	N/A	OP-ST-SI-3002	CVC	CS	
LCV-383-2 INSTRUMENT AIR SUPPLY ; CHECK VALVE												
IA-PCV-6680A-1-	P-49323 (N/A) Active	3	CK	C	A	0.5	NC	N/A	IC-ST-IA-3007	CVC	CS	IC-ST-IA-3006
									IC-ST-IA-3007	LT1	2YR	IC-ST-IA-3006
IA-PCV-6680A-2-	P-49323 (N/A) Active	3	CK	C	A	0.5	NC	N/A	IC-ST-IA-3007	CVC	CS	IC-ST-IA-3006
									IC-ST-IA-3007	LT1	2YR	IC-ST-IA-3006
IA-PCV-6680B-1-	P-49323 (N/A) Active	3	CK	C	A	0.5	NC	N/A	IC-ST-IA-3007	CVC	CS	IC-ST-IA-3006
									IC-ST-IA-3007	LT1	2YR	IC-ST-IA-3006

IA-PCV-6680B-2-	P-49323 (N/A) Active	3	CK	C	A	0.5	NC	N/A	IC-ST-IA-3007	CVC	CS	IC-ST-IA-3006
									IC-ST-IA-3007	LT1	2YR	IC-ST-IA-3006
IA-PCV-6682-C	P-49323 (N/A) Active	3	CK	C	A	0.5	NC	N/A	IC-ST-IA-3007	CVC	CS	IC-ST-IA-3006
									IC-ST-IA-3007	LT1	2YR	IC-ST-IA-3006
PCV-6682 INSTRUMENT AIR SUPPLY HEADER CHECK VALVE												
IA-YCV-1045A-C	C-4175-4 (B7) Active	3	CK	C	A/C	0.5	N/A	N/A	OP-ST-MS-3001	CVC	Q	
									OP-ST-MS-3001	LT1	2YR	
YCV-1045A INSTRUMENT AIR SUPPLY ; CHECK VALVE												
IA-YCV-1045B-C	C-4175-4 (B7) Active	3	CK	C	A/C	0.5	N/A	N/A	OP-ST-MS-3001	CVC	Q	
									OP-ST-MS-3001	LT1	2YR	
YCV-1045B INSTRUMENT AIR SUPPLY ; CHECK VALVE												
PCV-1849A	M-264-1 (D8) Active	2	GL	A	A	2	NO	FC	IC-ST-AE-3173	LJ	OptB	
									OP-ST-CA-3002	FSTC	CS	
									OP-ST-CA-3002	STC	CS	
									OP-ST-VX-3004	PIT	2YR	
CONTAINMENT IA SUPPLY INBOARD PRESSURE CONTROL VALVE												
PCV-1849A-20A	M-264-1 (D8) Active	2	GL	S	A	0.5	O	FC	IC-ST-AE-3173	LJ	OptB	

PCV-1849A-20B	M-264-1 (D8)	Active	2	GL	S	A	0.5	O	FC	IC-ST-AE-3173	LJ	OptB
PCV-1849B	M-264-1 (F5)	Active	2	GL	A	A	2	NO	FC	IC-ST-AE-3173	LJ	OptB
										OP-ST-CA-3002	FSTC	CS
										OP-ST-CA-3002	STC	CS
										OP-ST-VX-3004	PIT	2YR

CONTAINMENT INSTRUMENT AIR SUPPLY OUTBOARD PRESSURE CONTROL VALV

SYSTEM: MS - Main Steam System

Component	PID(Coord)	Function	Code Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
HCV-1041A	M-252-1 (F6)	Active	2	CK	A	B	28	NO	FC			
										OP-ST-MS-3002	FSTC	CS
										OP-ST-MS-3002	STC	CS
										OP-ST-VX-3013	PIT	2YR
STEAM GENERATOR RC-2A ; MS ISOLATION VALVE												
HCV-1041B	M-252-1 (F6)	Active	2	CK	C	C	28	N/A	N/A			
										PE-ST-MS-3001	CVC	RO1
STEAM GENERATOR RC-2A MS CHECK VALVE												
HCV-1041C	M-252-1 (F6)	Active	2	GL	M	B	2	NC	FAI			
										OP-ST-MS-3002	STC	CS
										OP-ST-VX-3013	PIT	2YR
MAIN STEAM BYPASS VALVE												
HCV-1042A	M-252-1 (E6)	Active	2	CK	A	B	28	NO	FC			
										OP-ST-MS-3002	FSTC	CS
										OP-ST-MS-3002	STC	CS
										OP-ST-VX-3013	PIT	2YR
STEAM GENERATOR RC-2B ; MS ISOLATION VALVE												
HCV-1042B	M-252-1 (E6)	Active	2	CK	C	C	28	N/A	N/A			
										PE-ST-MS-3001	CVC	RO1
STEAM GENERATOR RC-2B MS CHECK VALVE												

HCV-1042C	M-252-1 (E6)	Active	2	GL	M	B	2	NC	FAI	OP-ST-MS-3002 OP-ST-VX-3013	STC PIT	CS 2YR
MAIN STEAM BYPASS VALVE												
MS-275	M-252-1 (F8)	Active	2	RL	R	C	6	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "A" ; RELIEF VALVE												
MS-276	M-252-1 (F8)	Active	2	RL	R	C	6	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "A" ; RELIEF VALVE												
MS-277	M-252-1 (F7)	Active	2	RL	R	C	6	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "A" ; RELIEF VALVE												
MS-278	M-252-1 (F7)	Active	2	RL	R	C	6	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "A" ; RELIEF VALVE												
MS-279	M-252-1 (E8)	Active	2	RL	R	C	6	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "B" ; RELIEF VALVE												
MS-280	M-252-1 (E7)	Active	2	RL	R	C	6	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "B" ; RELIEF VALVE												
MS-281	M-252-1 (E7)	Active	2	RL	R	C	6	NC	N/A	SE-ST-MS-3002	RV	RO

MAIN STEAM LINE "B" ; RELIEF VALVE												
MS-282	M-252-1 (E6)	Active	2	RL	R	C	6	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "B" ; RELIEF VALVE												
MS-291	M-252-1 (F7)	Active	2	RL	R	C	2.5	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "A" ; RELIEF VALVE												
MS-292	M-252-1 (E7)	Active	2	RL	R	C	2.5	NC	N/A	SE-ST-MS-3002	RV	RO
MAIN STEAM LINE "B" ; RELIEF VALVE												
MS-351	M-252-1 (E5)	Active	3	CK	C	C	2	N/A	N/A	SE-ST-AFW-3006	CVO	Q
MS LINE "B" TO AUX FEED PUMP FW-10 ; CHECK VALVE												
MS-352	M-252-1 (E5)	Active	3	CK	C	C	2	N/A	N/A	SE-ST-AFW-3006	CVO	Q
MS LINE "A" TO AUX FEED PUMP FW-10 ; CHECK VALVE												
YCV-1045	M-252-1 (C5)	Active	3	GL	A	B	2	NC	FO	SE-ST-AFW-3006	FSTO	Q
										SE-ST-AFW-3006	STO	Q
										OP-ST-VX-3001	PIT	2YR
AUX FEEDWATER PUMP FW-10 ; INLET VALVE												
YCV-1045A	M-252-1 (F5)	Active	2	GL	A	B	2	NC	FO	OP-ST-MS-3001	FSTO	Q
										OP-ST-MS-3001	STC	Q

										OP-ST-MS-3001	STO	Q
										OP-ST-VX-3012	PIT	2YR
MAIN STEAM LINE "A" TO ; AUX FEEDWATER PUMP FW-10 ; SUPPLY VALVE												
YCV-1045B	M-252-1 (E5)	Active	2	GL	A	B	2	NC	FO			
										OP-ST-MS-3001	FSTO	Q
										OP-ST-MS-3001	STC	Q
										OP-ST-MS-3001	STO	Q
										OP-ST-VX-3012	PIT	2YR
MAIN STEAM LOOP "B" ; AUX FEEDWATER PUMP FW-10 ; SUPPLY VALVE												

SYSTEM: NG - Nitrogen Gas System

Component	PID(Coord)	Function	Code Position Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
HCV-2603A	M-42-1 (D8)	Active	2	GL	A	A	1	NC	FC			
										OP-ST-NG-3001	FSTC	Q
										OP-ST-NG-3001	STC	Q
										IC-ST-AE-3142	LJ	OptB
										OP-ST-VX-3014	PIT	2YR
SI TANKS SI-6A-6D ; SUPPLY OUTBOARD ISOLATION VALVE												
HCV-2603B	M-42-1 (D8)	Active	2	GL	A	A	1	NC	FC			
										OP-ST-NG-3001	FSTC	Q
										OP-ST-NG-3001	STC	Q
										IC-ST-AE-3142	LJ	OptB
										OP-ST-VX-3014	PIT	2YR
SI TANKS SI-6A-6D ; SUPPLY INBOARD ISOLATION VALVE												
HCV-2604A	M-42-1 (D5)	Active	2	GL	A	A	1	NC	FC			
										OP-ST-NG-3001	FSTC	Q
										OP-ST-NG-3001	STC	Q
										IC-ST-AE-3143	LJ	OptB
										OP-ST-VX-3014	PIT	2YR
REACTOR COOLANT DRAIN TANK WD-1 ; PRESSURIZER QUENCH TANK RC-5 ;												
HCV-2604B	M-42-1 (D5)	Active	2	GL	A	A	1	NC	FC			
										OP-ST-NG-3001	FSTC	Q
										OP-ST-NG-3001	STC	Q
										IC-ST-AE-3143	LJ	OptB
										OP-ST-VX-3014	PIT	2YR

REACTOR COOLANT DRAIN TANK WD-1 ; PRESSURIZER QUENCH TANK RC-5 ;

NG-142	M-42-1 (E5)	Active	2	CK	C	A/C	1	NC	N/A	SE-ST-NG-3002	CVC	CS
										SE-ST-NG-3002	LT1	2YR

SAFETY INJECTION TANK SI-6A ; SUPPLY CHECK VALVE

NG-144	M-42-1 (E6)	Active	2	CK	C	A/C	1	NC	N/A	SE-ST-NG-3002	CVC	CS
										SE-ST-NG-3002	LT1	2YR

SAFETY INJECTION TANK SI-6B ; SUPPLY CHECK VALVE

NG-146	M-42-1 (E7)	Active	2	CK	C	A/C	1	NC	N/A	SE-ST-NG-3002	CVC	CS
										SE-ST-NG-3002	LT1	2YR

SAFETY INJECTION TANK SI-6C ; SUPPLY CHECK VALVE

NG-148	M-42-1 (E7)	Active	2	CK	C	A/C	1	NC	N/A	SE-ST-NG-3002	CVC	CS
										SE-ST-NG-3002	LT1	2YR

SAFETY INJECTION TANK SI-6D ; SUPPLY CHECK VALVE

NG-HCV-344-S2	C-4175-5 (E2)	Active	2	RL	R	C	0.75	NC	N/A	PE-ST-VX-3006	RV	OM

HCV-344 NITROGEN SUPPLY ; RELIEF VALVE

NG-HCV-400A-S2	C-4175-6 (F2)	Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-93A LOW PRESSURE RELIEF VALVE

NG-HCV-400B-S2	C-4175-6 (F2)	Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-93B LOW PRESURE RELIEF VALVE

NG-HCV-401A-S2 C-4175-6 (F2) Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-93C LOW PRESSURE RELIEF VALVE

NG-HCV-401B-S2 C-4175-6 (F2) Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-93D LOW PRESSURE RELIEF VALVE

NG-HCV-402A-S2 C-4175-6 (E2) Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-93E LOW PRESSURE RELIEF VALVE

NG-HCV-402B-S2 C-4175-6 (E2) Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-93F LOW PRESSURE RELIEF VALVE

NG-HCV-403A-S2 C-4175-6 (E2) Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-93G LOW PRESSURE RELIEF VALVE

NG-HCV-403B-S2 C-4175-6 (E2) Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-93H LOW PRESSURE RELIEF VALVE

NG-HCV-438B-S2 C-4175-6 (D2) Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

CCW INLET VALVE HCV-438B NITROGEN ACCUMULATOR SUPPLY LOW

NG-HCV-438D-S2	C-4175-6 (D2)	Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

CCW OUTLET VALVE HCV-438D NITROGEN ACCUMULATOR SUPPLY LOW

NG-HCV-480-S2	C-4175-6 (B2)	Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-91 LOW PRESSURE RELIEF VALVE

NG-HCV-481-S2	C-4175-6 (B2)	Active	3	RL	R	C	0.25	NC	N/A	PE-ST-VX-3006	RV	OM

NITROGEN ACCUMULATOR IA-92 LOE PRESSURE RELIEF VALVE

NG-LCV-383-1-S2	C-4175-5 (E2)	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3006	RV	OM

LCV-383-1 NITROGEN SUPPLY ; RELIEF VALVE

NG-LCV-383-2-S2	C-4175-5 (E2)	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3006	RV	OM

LCV-383-2 NITROGEN SUPPLY ; RELIEF VALVE

SYSTEM: RC - Reactor Coolant System

Component	PID(Coord)	Function	Code Class	Type	Actuator	Cat.	Size	Norm. Position	Fail.	Procedure	Test	Freq
HCV-150	210-110-1A (D	Active	1	GA	M	B	2.5	NO	FAI			
										OP-ST-RC-3002	STC	Q
										OP-ST-VX-3015	PIT	2YR
PRESSURIZER RC-4 ; RELIEF ISOLATION VALVE												
HCV-151	210-110-1A (D	Active	1	GA	M	B	2.5	NO	FAI			
										OP-ST-RC-3002	STC	Q
										OP-ST-VX-3015	PIT	2YR
PRESSURIZER RC-4 ; RELIEF ISOLATION VALVE												
HCV-176	D-4078 (E5)	Active	2	GL	S	B	1	NC	FC			
										OP-ST-RC-3005	FSTC	CS
										OP-ST-RC-3005	STC	CS
										OP-ST-RC-3005	STO	CS
										OP-ST-RC-3006	PIT	2YR
REACTOR VESSEL RC-1 RCGVS HEAD VENT VALVE												
HCV-177	D-4078 (D5)	Active	2	GL	S	B	1	NC	FC			
										OP-ST-RC-3005	FSTC	CS
										OP-ST-RC-3005	STC	CS
										OP-ST-RC-3005	STO	CS
										OP-ST-RC-3006	PIT	2YR
REACTOR VESSEL RC-1 RCGVS HEAD VENT VALVE HCV-176 BYPASS VALVE												
HCV-178	D-4078 (C5)	Active	2	GL	S	B	1	NC	FC			
										OP-ST-RC-3005	FSTC	CS

										OP-ST-RC-3005	STC	CS
										OP-ST-RC-3005	STO	CS
										OP-ST-RC-3006	PIT	2YR
PRESSURIZER RC-4 VENT STOP VALVE												
HCV-179	D-4078 (B5)	Active	2	GL	S	B	1	NC	FC			
										OP-ST-RC-3005	FSTC	CS
										OP-ST-RC-3005	STC	CS
										OP-ST-RC-3005	STO	CS
										OP-ST-RC-3006	PIT	2YR
PRESSURIZER RC-4 VENT VALVE HCV-178 TO RCGVS BYPASS VALVE												
HCV-180	D-4078 (E3)	Active	2	GL	S	B	1	NC	FC			
										OP-ST-RC-3005	FSTC	CS
										OP-ST-RC-3005	STC	CS
										OP-ST-RC-3005	STO	CS
										OP-ST-RC-3006	PIT	2YR
RCGVS VENT VALVE TO PRESSURIZER QUENCH TANK RC-5												
HCV-181	D-4078 (C3)	Active	2	GL	S	B	1	NC	FC			
										OP-ST-RC-3005	FSTC	CS
										OP-ST-RC-3005	STC	CS
										OP-ST-RC-3005	STO	CS
										OP-ST-RC-3006	PIT	2YR
RCGVS VENT VALVE TO ; CONTAINMENT ATMOSPHERE												
PCV-102-1	210-110-1A (E	Active	1	GL	S	B	2.5	NC	FC			
										OP-ST-RC-3004	FSTC	CS
										OP-ST-RC-3004	STC	CS
										OP-ST-RC-3004	STO	CS
										OP-ST-RC-3004	PIT	2YR
PZR POWER OPERATED RELIEF VALVE												
PCV-102-2	210-110-1A (E	Active	1	GL	S	B	2.5	NC	FC			

									OP-ST-RC-3004	FSTC	CS
									OP-ST-RC-3004	STC	CS
									OP-ST-RC-3004	STO	CS
									OP-ST-RC-3004	PIT	2YR
PRESSURIZER ; POWER OPERATED RELIEF VALVE											
RC-141	210-110-1A (F Active	1	RL	R	C	3	N/A	N/A	SE-ST-RC-3002	RV	RO
PRESSURIZER RC-4 RELIEF VALVE											
RC-142	210-110-1A (F Active	1	RL	R	C	3	N/A	N/A	SE-ST-RC-3002	RV	RO
PRESSURIZER RC-4 RELIEF VALVE											
RC-374	210-110-1A (E Active	1	CK	C	A/C	4	NO	N/A	OP-ST-SI-3007	CVC	RO
									OP-ST-SI-3007	LT	2YR
PRESSURIZER RC-4 ; SPRAY LINE CHECK VALVE											

SYSTEM: RW - Raw Water System

Component	PID(Coord)	Function	Code Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
HCV-2808C	M-10-4 (D5)	Passive	3	GL	A	B	1.5	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
LPSI PUMP SI-1A BRG CLR ; RAW WATER INLET VALVE												
HCV-2808D	M-10-4 (A5)	Passive	3	GL	A	B	1.5	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
LPSI PUMP SI-1A BRG CLR ; RAW WATER OUTLET VALVE												
HCV-2809C	M-10-4 (D4)	Passive	3	GL	A	B	1.5	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
LPSI PUMP SI-1B BRG CLR ; RAW WATER INLET VALVE												
HCV-2809D	M-10-4 (B4)	Passive	3	GL	A	B	1.5	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
LPSI PUMP SI-1B BRG CLR ; RAW WATER OUTLET VALVE												
HCV-2850	M-100-1 (B7)	Active	3	BU	A	B	20	N/A	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
RAW WATER PUMP AC-10A ; DISCHARGE VALVE												

HCV-2851	M-100-1 (B6)	Active	3	BU	A	B	20	N/A	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
RAW WATER PUMP AC-10B ; DISCHARGE VALVE												
HCV-2852	M-100-1 (B5)	Active	3	BU	A	B	20	N/A	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
RAW WATER PUMP AC-10C ; DISCHARGE VALVE												
HCV-2853	M-100-1 (B4)	Active	3	BU	A	B	20	N/A	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
RAW WATER PUMP AC-10D ; DISCHARGE VALVE												
HCV-2874A	M-100-1 (B6)	Active	3	BU	A	B	20	NO	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STC	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
RAW WATER PUMPS ; DISCH HEADER ISOLATION VALVE												
HCV-2874B	M-100-1 (B6)	Active	3	BU	A	B	20	NO	FO			
										OP-ST-RW-3002B	FSTO	Q
										OP-ST-RW-3002B	STC	Q
										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR
RAW WATER PUMPS ; DISCH HEADER ISOLATION VALVE												

HCV-2875A	M-100-1 (B6)	Active	3	BU	A	B	20	NO	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STC	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR

RAW WATER PUMPS ; DISCH HEADER ISOLATION VALVE

HCV-2875B	M-100-1 (B5)	Active	3	BU	A	B	20	NO	FO			
										OP-ST-RW-3002B	FSTO	Q
										OP-ST-RW-3002B	STC	Q
										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR

RAW WATER PUMPS ; DISCH HEADER ISOLATION VALVE

HCV-2876A	M-100-1 (B5)	Active	3	BU	A	B	20	NO	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STC	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR

RAW WATER PUMPS ; DISCH HEADER ISOLATION VALVE

HCV-2876B	M-100-1 (B5)	Active	3	BU	A	B	20	NO	FO			
										OP-ST-RW-3002B	FSTO	Q
										OP-ST-RW-3002B	STC	Q
										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR

RAW WATER PUMPS ; DISCH HEADER ISOLATION VALVE

HCV-2877A	M-100-1 (E4)	Active	3	BU	A	B	14	NO	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STC	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR

COMP CLG HT EXCHS AC-1A-D ; RAW WATER INLET HEADER ; ISOLATION V

HCV-2877B	M-100-1 (E4)	Active	3	BU	A	B	14	NO	FO			
										OP-ST-RW-3002B	FSTO	Q
										OP-ST-RW-3002B	STC	Q
										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR

COMP CLG HT EXCHS AC-1A-D ; RAW WATER INLET HEADER ; ISOLATION V

HCV-2879A	M-100-1 (C4)	Active	3	BU	A	B	14	NO	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STC	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR

COMP CLG HT EXCHS AC-1A-D ; RAW WATER INLET HEADER ; ISOLATION V

HCV-2879B	M-100-1 (C4)	Active	3	BU	A	B	14	NO	FO			
										OP-ST-RW-3002B	FSTO	Q
										OP-ST-RW-3002B	STC	Q
										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR

COMP CLG HT EXCHS AC-1A-D ; RAW WATER INLET HEADER ; ISOLATION V

HCV-2880A	M-100-1 (E3)	Active	3	BU	A	B	12	NO	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR

COMP COOLING HT EXCH AC-1A ; RAW WATER INLET VALVE

HCV-2880B	M-100-1 (E1)	Active	3	BU	A	B	12	NO	FO			
										OP-ST-RW-3002B	FSTO	Q
										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR

COMP COOLING HT EXCH AC-1A ; RAW WATER OUTLET VALVE

HCV-2881A	M-100-1 (C3)	Active	3	BU	A	B	12	NO	FO	OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
COMP COOLING HT EXCH AC-1B ; RAW WATER INLET VALVE												
HCV-2881B	M-100-1 (C1)	Active	3	BU	A	B	12	NO	FO	OP-ST-RW-3002B	FSTO	Q
										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR
COMP COOLING HT EXCH AC-1B ; RAW WATER OUTLET VALVE												
HCV-2882A	M-100-1 (F3)	Active	3	BU	A	B	12	NO	FO	OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
COMP COOLING HT EXCH AC-1C ; RAW WATER INLET VALVE												
HCV-2882B	M-100-1 (F1)	Active	3	BU	A	B	12	NO	FO	OP-ST-RW-3002B	FSTO	Q
										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR
COMP COOLING HT EXCH AC-1C ; RAW WATER OUTLET VALVE												
HCV-2883A	M-100-1 (B3)	Active	3	BU	A	B	12	NO	FO	OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
COMP COOLING HT EXCH AC-1D ; RAW WATER INLET VALVE												
HCV-2883B	M-100-1 (B1)	Active	3	BU	A	B	12	NO	FO	OP-ST-RW-3002B	FSTO	Q

										OP-ST-RW-3002B	STO	Q
										OP-ST-VX-3017B	PIT	2YR
COMP COOLING HT EXCH AC-1D ; RAW WATER OUTLET VALVE												
HCV-2893	M-100-1 (E4)	Active	3	BU	A	B	16	NO	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STC	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
RAW WATER TO CCW ; ISOLATION VALVE												
HCV-2894	M-100-1 (E4)	Active	3	BU	A	B	16	NO	FO			
										OP-ST-RW-3002A	FSTO	Q
										OP-ST-RW-3002A	STC	Q
										OP-ST-RW-3002A	STO	Q
										OP-ST-VX-3017A	PIT	2YR
RAW WATER TO CCW ; ISOLATION VALVE												
HCV-2898C	M-10-1 (D6)	Passive	3	GL	A	B	2	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
CONTROL ROOM VA UNIT VA-46A ; RAW WATER INLET VALVE												
HCV-2898D	M-10-1 (D4)	Passive	3	GL	A	B	2	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
CONTROL ROOM VA UNIT VA-46A ; RAW WATER OUTLET VALVE												
HCV-2899C	M-10-1 (C6)	Passive	3	GL	A	B	2	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
RAW WATER INLET TO CONTROL ROOM AIR COND VA-46B												

HCV-2899D	M-10-1 (C4)	Passive	3	GL	A	B	2	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
CONTROL ROOM VA UNIT VA-46B ; RAW WATER OUTLET VALVE												
HCV-482A	M-10-3 (C5)	Passive	3	BU	A	B	14	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
SHUTDOWN COOLING HT EXCH AC-4A ; BACK-UP RAW WATER INLET VALVE												
HCV-482B	M-10-3 (A4)	Passive	3	BU	A	B	14	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
SHUTDOWN COOLING HT EXCH AC-4A ; BACK-UP RAW WATER OUTLET VALVE												
HCV-483A	M-10-3 (B7)	Passive	3	BU	A	B	14	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
SHUTDOWN COOLING HT EXCH AC-4B ; BACK-UP RAW WATER INLET VALVE												
HCV-483B	M-10-3 (A5)	Passive	3	BU	A	B	14	LC	N/A			
										OP-ST-RW-3003	EXC	RO
										OP-ST-RW-3003	EXO	RO
SHUTDOWN COOLING HT EXCH AC-4B ; BACK-UP RAW WATER OUTLET VALVE												
RW-115	M-100-1 (B4)	Active	3	CK	C	C	20	N/A	N/A			
										OP-ST-RW-3004	CVC	Q
										OP-ST-RW-3031	CVO	Q
RAW WATER PUMP AC-10D ; DISCHARGE CHECK VALVE												
RW-117	M-100-1 (B5)	Active	3	CK	C	C	20	N/A	N/A			

										OP-ST-RW-3004	CVC	Q
										OP-ST-RW-3021	CVO	Q
RAW WATER PUMP AC-10C ; DISCHARGE CHECK VALVE												
RW-121	M-100-1 (B6)	Active	3	CK	C	C	20	N/A	N/A			
										OP-ST-RW-3004	CVC	Q
										OP-ST-RW-3011	CVO	Q
RAW WATER PUMP AC-10B ; DISCHARGE CHECK VALVE												
RW-125	M-100-1 (B7)	Active	3	CK	C	C	20	N/A	N/A			
										OP-ST-RW-3004	CVC	Q
										OP-ST-RW-3001	CVO	Q
RAW WATER PUMP AC-10A ; DISCHARGE CHECK VALVE												
RW-220	M-100-1 (F3)	Active	3	RL	R	C	0.75	NC	N/A			
										PE-ST-VX-3008	RV	OM
CCW HEAT EXCHANGER AC-1C ; PRESSURE RELIEF VALVE												
RW-221	M-100-1 (E3)	Active	3	RL	R	C	0.75	NC	N/A			
										PE-ST-VX-3008	RV	OM
CCW HEAT EXCHANGER AC-1A ; PRESSURE RELIEF VALVE												
RW-222	M-100-1 (D3)	Active	3	RL	R	C	0.75	NC	N/A			
										PE-ST-VX-3008	RV	OM
CCW HEAT EXCHANGER AC-1B ; PRESSURE RELIEF VALVE												
RW-223	M-100-1 (C3)	Active	3	RL	R	C	0.75	NC	N/A			
										PE-ST-VX-3008	RV	OM
CCW HEAT EXCHANGER AC-1D ; PRESSURE RELIEF VALVE												
RW-254	M-100-1 (A7)	Active	3	CK	C	C	0.75	N/A	N/A			

										IC-ST-RW-3001	CVO	Q
RAW WATER PUMP AC-10A BACKUP SEAL WATER CHECK VALVE												
RW-255	M-100-1 (A6)	Active	3	CK	C	C	0.75	N/A	N/A	IC-ST-RW-3001	CVO	Q
RAW WATER PUMP AC-10B BACKUP SEAL WATER CHECK VALVE												
RW-256	M-100-1 (A5)	Active	3	CK	C	C	0.75	N/A	N/A	IC-ST-RW-3001	CVO	Q
RAW WATER PUMP AC-10C BACKUP SEAL WATER CHECK VALVE												
RW-257	M-100-1 (A4)	Active	3	CK	C	C	0.75	N/A	N/A	IC-ST-RW-3001	CVO	Q
RAW WATER PUMP AC-10D BACKUP SEAL WATER CHECK VALVE												
SW-240	M-259-2 (A2)	Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-RW-3001 IC-ST-RW-3001	CVC LT	Q 2YR
RAW WATER PUMP AC-10A PRIMARY SEAL WATER CHECK VALVE												
SW-241	M-259-2 (A4)	Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-RW-3001 IC-ST-RW-3001	CVC LT	Q 2YR
RAW WATER PUMP AC-10B PRIMARY SEAL WATER CHECK VALVE												
SW-242	M-259-2 (A5)	Active	3	CK	C	A/C	0.5	N/A	N/A	IC-ST-RW-3001 IC-ST-RW-3001	CVC LT	Q 2YR
RAW WATER PUMP AC-10C PRIMARY SEAL WATER CHECK VALVE												
SW-243	M-259-2 (A6)	Active	3	CK	C	A/C	0.5	N/A	N/A			

IC-ST-RW-3001	CVC	Q
IC-ST-RW-3001	LT	2YR

RAW WATER PUMP AC-10D PRIMARY SEAL WATER CHECK VALVE

SYSTEM: SA - (Diesel Generator) Starting Air System

Component	PID(Coord)	Function	Code Class	Position Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq	
SA-127	B120F07001-1	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3004	RV	OM	
STARTING AIR RECEIVER SA-3A-1 ; RELIEF VALVE													
SA-128	B120F07001-1	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3004	RV	OM	
STARTING AIR RECEIVER SA-3B-1 ; RELIEF VALVE													
SA-129	B120F07001-1	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3004	RV	OM	
STARTING AIR RECEIVER SA-4B-1 ; RELIEF VALVE													
SA-130	B120F07001-1	Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3004	RV	OM	
STARTING AIR RECEIVER SA-4A-1 ; RELIEF VALVE													
SA-141	B120F07001-1	Active	3	SO	A	B		N/A	N/A	OP-ST-DG-0001	Skid	Q	DG START
ACCEPT													
D-1 STARTING LINE #1 ISOLATION VALVE													
SA-142	B120F07001-1	Active	3	SO	A	B		N/A	N/A	OP-ST-DG-0001	Skid	Q	DG START
ACCEPT													

DIESEL GENERATOR DG-1 PRIMARY AIR SYSTEM SOLENOID VALVE												
SA-145	B120F07001-1Active	3		A	B		NC	FC	OP-ST-DG-0001	Skid	Q	DG START
ACCEPT												
SECONDARY AIR RELAY VALVE												
SA-146	B120F07001-1Active	3		A	B		NC	FC	OP-ST-DG-0001	Skid	Q	DG START
ACCEPT												
PRIMARY AIR RELAY VALVE												
SA-147	B120F07001-1Active	3	DI	A	B	1.5	NC	FC	OP-ST-DG-0001	Skid	Q	DG START
ACCEPT												
SECONDARY STARTING AIR VALVE												
SA-148	B120F07001-1Active	3	DI	A	B	1.5	NC	FC	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
PRIMARY STARTING AIR VALVE												
SA-177	B120F07001-2Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3004	RV	OM	
SECONDARY RECEIVER SA-3A-2 RELIEF VALVE												
SA-178	B120F07001-2Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3004	RV	OM	
STARTING AIR RECEIVER SA-3B-2 ; RELIEF VALVE												
SA-179	B120F07001-2Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3004	RV	OM	

STARTING AIR RECEIVER SA-4B-2 ; RELIEF VALVE												
SA-180	B120F07001-2Active	3	RL	R	C	0.75	NC	N/A	PE-ST-VX-3004	RV	OM	
STARTING AIR RECEIVER SA-4A-2 ; RELIEF VALVE												
SA-191	B120F07001-2Active	3	SO	A	B		N/A	N/A	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
D-2 STARTING LINE #1 ISOLATION VALVE												
SA-192	B120F07001-2Active	3	SO	A	B		N/A	N/A	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
DIESEL GENERATOR DG-2 PRIMARY AIR SYSTEM SOLENOID VALVE												
SA-195	B120F07001-2Active	3		A	B		NC	FC	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
SECONDARY AIR RELAY VALVE												
SA-196	B120F07001-2Active	3		A	B		NC	FC	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
PRIMARY AIR RELAY VALVE												
SA-197	B120F07001-2Active	3	DI	A	B	1.5	NC	FC	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
SECONDARY AIR STARTING VALVE												

SA-198	B120F07001-2Active	3	DI	A	B	1.5	NC	FC	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
PRIMARY AIR STARTING VALVE												
SA-202	B120F07001-1Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-DG-0001	Skid	Q	DG START
ACCEPT												
AIR RELAY VALVE SA-145 CHECK VALVE												
SA-203	B120F07001-1Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-DG-0001	Skid	Q	DG START
ACCEPT												
AIR RELAY VALVE SA-146 CHECK VALVE												
SA-252	B120F07001-2Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
AIR RELAY VALVE SA-195 CHECK VALVE												
SA-253	B120F07001-2Active	3	CK	C	C	0.25	N/A	N/A	OP-ST-DG-0002	Skid	Q	DG START
ACCEPT												
AIR RELAY VALVE SA-196 CHECK VALVE												
SA-282	B120F07001-1Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-SA-3001 IC-ST-SA-3001	CVC LT1	Q 2YR	
PRIMARY STARTING AIR SYSTEM ; AIR RECEIVER SA-4B-1 ; INLET CHECK												
SA-285	B120F07001-1Active	3	CK	C	A/C	0.5	NC	N/A	IC-ST-SA-3001	CVC	Q	

									IC-ST-SA-3001	LT1	2YR
SECONDARY STARTING AIR SYSTEM ; AIR RECEIVER SA-3B-1 ; INLET CHE											
SA-288	B120F07001-2Active	3	CK	C	A/C	0.5	NC	N/A			
									IC-ST-SA-3001	CVC	Q
									IC-ST-SA-3001	LT1	2YR
PRIMARY STARTING AIR SYSTEM ; AIR RECEIVER SA-4B-2 ; INLET CHECK											
SA-291	B120F07001-2Active	3	CK	C	A/C	0.5	NC	N/A			
									IC-ST-SA-3001	CVC	Q
									IC-ST-SA-3001	LT1	2YR
SECONDARY STARTING AIR SYSTEM ; AIR RECEIVER SA-3B-2 ; INLET CHE											

SYSTEM: SI - Safety Injection System

Component	PID(Coord)	Function	Code Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq	
FCV-326	210-130-1 (A7	Passive	2	GL	A	B	12"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
SHUTDOWN CLG HT EXCHS AC-4A & 4B LPSI BYPASS FLOW CONTROL VALVE													
HCV-2907	210-130-3 (C2	Passive	2	GA	A	B	6"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
HPSI PUMP SI-2B ; SUCTION VALVE													
HCV-2908	210-130-3 (C4	Passive	2	GA	A	B	4"	LO	FO	OP-ST-SI-3008	PIT	2YR	Passive
HPSI PUMP SI-2B ; DISCHARGE VALVE													
HCV-2914	210-130-2 (B3	Passive	2	GA	M	B	12"	LO	FAI	SE-ST-SI-3016	PIT	2YR	Passive
SAFETY INJECTION TANK SI-6A ; OUTLET VALVE													
HCV-2916	210-130-2 (C5	Active	2	GL	A	A	1	NC	FC	OP-ST-SI-3001 OP-ST-SI-3001 OP-ST-VX-3018	FSTC STC PIT	Q Q 2YR	
SAFETY INJECTION TANK SI-6A ; FILL/DRAIN VALVE													
HCV-2917	210-130-3 (D2	Passive	2	GA	A	B	6"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
HPSI PUMP 2C SUCTION ISOLATION VALVE													

HCV-2918	210-130-3 (D4 Passive	2	GA	A	B	4"	LO	FO	OP-ST-SI-3008	PIT	2YR	Passive
HPSI PUMP 2C DISCHARGE ISOLATION VALVE												
HCV-2927	210-130-3 (F2 Passive	2	GA	A	B	6"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
HPSI PUMP 2A SUCTION ISOLATION VALVE												
HCV-2928	210-130-3 (F4 Passive	2	GA	A	B	4"	LO	FO	OP-ST-SI-3008	PIT	2YR	Passive
HPSI PUMP SI-2A DISCHARGE VALVE												
HCV-2934	210-130-2 (B6 Passive	2	GA	M	B	12"	LO	FAI	SE-ST-SI-3016	PIT	2YR	Passive
SAFETY INJECTION TANK SI-6B ; OUTLET VALVE												
HCV-2936	210-130-2 (C7 Active	2	GL	A	A	1	NC	FC	OP-ST-SI-3001 OP-ST-SI-3001 OP-ST-VX-3018	FSTC STC PIT	Q Q 2YR	
SAFETY INJECTION TANK SI-6B ; FILL/DRAIN VALVE												
HCV-2937	210-130-1 (A3 Passive	2	GA	A	B	14"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
LPSI PUMP SI-1B ; SUCTION VALVE												
HCV-2938	210-130-1 (A5 Passive	2	GA	A	B	8"	LO	FO	OP-ST-SI-3008	PIT	2YR	Passive
LPSI PUMP SI-1B ; DISCHARGE VALVE												

HCV-2947	210-130-1 (B2	Passive	2	GA	A	B	14"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
LPSI PUMP SI-1A ; SUCTION VALVE													
HCV-2948	210-130-1 (B5	Passive	2	GA	A	B	8"	LO	FO	OP-ST-SI-3008	PIT	2YR	Passive
LPSI PUMP SI-1A ; DISCHARGE VALVE													
HCV-2954	210-130-2B (B	Passive	2	GA	M	B	12"	LO	FAI	SE-ST-SI-3016	PIT	2YR	Passive
SAFETY INJECTION TANK SI-6C ; OUTLET VALVE													
HCV-2956	210-130-2B (C	Active	2	GL	A	A	1	NC	FC	OP-ST-SI-3001 OP-ST-SI-3001 OP-ST-VX-3018	FSTC STC PIT	Q Q 2YR	
SAFETY INJECTION TANK SI-6C ; FILL/DRAIN VALVE													
HCV-2957	210-130-1 (C3	Passive	2	GA	A	B	12"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
CONTAINMENT SPRAY PUMP 3A SUCTION ISOLATION VALVE													
HCV-2958	210-130-1 (C5	Passive	2	GA	A	B	8"	LO	FO	OP-ST-SI-3008	PIT	2YR	Passive
CONTAINMENT SPRAY PUMP SI-3A DISCHARGE VALVE													
HCV-2967	210-130-1 (D3	Passive	2	GA	A	B	12"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
CONTAINMENT SPRAY PUMP SI-3B ; SUCTION VALVE													
HCV-2968	210-130-1 (D5	Passive	2	GA	A	B	8"	LO	FO				

									OP-ST-SI-3008	PIT	2YR	Passive
CONTAINMENT SPRAY PUMP SI-3B ; DISCHARGE VALVE												
HCV-2974	210-130-2B (B	Passive	2	GA	M	B	12"	LO	FAI	SE-ST-SI-3016	PIT	2YR	Passive
SI-TANK SI-6D ; OUTLET ISOLATION VALVE												
HCV-2976	210-130-2B (C	Active	2	GL	A	A	1	NC	FC	OP-ST-SI-3001	FSTC	Q	
										OP-ST-SI-3001	STC	Q	
										OP-ST-VX-3018	PIT	2YR	
SAFETY INJECTION TANK SI-6D ; FILL/DRAIN VALVE												
HCV-2977	210-130-1 (E3	Passive	2	GA	M	B	12"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
CONTAINMENT SPRAY PUMP SI-3C ; SUCTION VALVE												
HCV-2978	210-130-1 (E5	Passive	2	GA	A	B	8"	LO	FO	OP-ST-SI-3008	PIT	2YR	Passive
CONTAINMENT SPRAY PUMP SI-3C ; DISCHARGE VALVE												
HCV-2983	210-130-1 (E8	Active	2	GL	A	A	2	NC	FC	OP-ST-SI-3001	FSTC	Q	
										OP-ST-SI-3001	STC	Q	
										IC-ST-AE-3122	LJ	OptB	
										OP-ST-VX-3018	PIT	2YR	
SAFETY INJECTION LEAKAGE TO ; CVCS ISOLATION VALVE												
HCV-2987	210-130-3 (E8	Active	2	GA	A	B	4	NO	FO	OP-ST-SI-3001	FSTO	Q	
										OP-ST-SI-3001	STC	Q	
										OP-ST-SI-3001	STO	Q	

									OP-ST-VX-3018	PIT	2YR	
HPSI ALTERNATE HEADER ISOLATION VALVE												
HCV-2988	210-130-3 (D6 Active	2	GL	S	B	2	NC	FC	OP-ST-SI-3001	FSTC	Q	
									OP-ST-SI-3001	STC	Q	
									OP-ST-SI-3001	STO	Q	
									OP-ST-VX-3019	PIT	2YR	
CHARGING PMPS CH-1A,B&C DISCH TO; HPSI HEADER ISOL VLV HCV-308 ;												
HCV-304	210-130-3 (D5 Passive	2	GA	A	B	4"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
HPSI PUMP SI-2B&C DISCHARGE CROSSCONNECT VALVE												
HCV-305	210-130-3 (E5 Passive	2	GA	A	B	4"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
HPSI PUMP SI-2A&C DISCHARGE CROSSCONNECT VALVE												
HCV-306	210-130-3 (C6 Passive	2	GA	A	B	4"	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
HPSI HEADER ISOLATION VALVE												
HCV-307	210-130-3 (F6 Passive	2	GA	A	B	4'	LO	FO	OP-ST-VX-3019	PIT	2YR	Passive
HPSI HEADER ISOLATION VALVE												
HCV-308	210-130-3 (D6 Active	2	GA	M	B	2	NC	FAI	OP-ST-SI-3001	STC	Q	
									OP-ST-SI-3001	STO	Q	
									OP-ST-VX-3018	PIT	2YR	
HPSI HEADER, CHARGING HEADER CROSSTIE VALVE												

HCV-311	210-130-2A (CActive	2	GL	M	B	2	NC	FAI	OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
HPSI TO RC LOOP 1B ; ISOLATION VALVE											
HCV-312	210-130-2A (CActive	2	GL	M	B	2	NC	FAI	OP-ST-SI-3001	STC	Q
									OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
HPSI TO RC LOOP 1B ; ISOLATION VALVE											
HCV-314	210-130-2A (CActive	2	GL	M	B	2	NC	FAI	OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
HPSI TO RC LOOP 1A ; ISOLATION VALVE											
HCV-315	210-130-2A (CActive	2	GL	M	B	2	NC	FAI	OP-ST-SI-3001	STC	Q
									OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
HPSI TO RC LOOP 1A ; ISOLATION VALVE											
HCV-317	210-130-2A (CActive	2	GL	M	B	2	NC	FAI	OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
HPSI TO RC LOOP 2A ; ISOLATION VALVE											
HCV-318	210-130-2A (CActive	2	GL	M	B	2	NC	FAI	OP-ST-SI-3001	STC	Q
									OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR

HPSI TO RC LOOP 2A ; ISOLATION VALVE											
HCV-320	210-130-2A (CActive	2	GL	M	B	2	NC	FAI	OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
HPSI TO RC LOOP 2B ; ISOLATION VALVE											
HCV-321	210-130-2A (CActive	2	GL	M	B	2	NC	FAI	OP-ST-SI-3001	STC	Q
									OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
HPSI TO RC LOOP 2B ; ISOLATION VALVE											
HCV-327	210-130-2A (CActive	2	GL	M	B	4	NC	FAI	OP-ST-SI-3001	STC	Q
									OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
LPSI TO RC LOOP 1B ; ISOLATION VALVE											
HCV-329	210-130-2A (CActive	2	GL	M	B	4	NC	FAI	OP-ST-SI-3001	STC	Q
									OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
LPSI TO RC LOOP 1A ; ISOLATION VALVE											
HCV-331	210-130-2A (CActive	2	GL	M	B	4	NC	FAI	OP-ST-SI-3001	STC	Q
									OP-ST-SI-3001	STO	Q
									OP-ST-VX-3018	PIT	2YR
LPSI TO RC LOOP 2A ; ISOLATION VALVE											
HCV-333	210-130-2A (CActive	2	GL	M	B	4	NC	FAI	OP-ST-SI-3001	STC	Q

									OP-ST-SI-3001	STO	Q	
									OP-ST-VX-3018	PIT	2YR	
LPSI TO RC LOOP 2B ; ISOLATION VALVE												
HCV-335	210-130-1 (B6 Passive	2	BU	A	B	12"	LC	FC				
									OP-ST-VX-3019	PIT	2YR	Passive
SHUTDOWN CLG HT EXCHS AC-4A&B ; INLET HEADER ISOLATION VALVE												
HCV-341	210-130-1 (C7 Passive	2	BL	A	B	8"	LC	FC				
									OP-ST-VX-3019	PIT	2YR	Passive
SHUTDOWN CLG HT EXCHS AC-4A&B ; OUTLET TEMPERATURE CONTROL VALVE												
HCV-344	210-130-1 (D8 Active	2	BL	A	B	8	NC	FO				
									OP-ST-SI-3002	FSTO	CS	
									OP-ST-SI-3002	STC	CS	
									OP-ST-SI-3002	STO	CS	
									OP-ST-VX-3019	PIT	2YR	
CONTAINMENT SPRAY HEADER ISOLATION VALVE												
HCV-345	210-130-1 (D8 Active	2	BL	A	B	8	NC	FO				
									OP-ST-SI-3002	FSTO	CS	
									OP-ST-SI-3002	STO	CS	
									OP-ST-VX-3019	PIT	2YR	
CONTAINMENT SPRAY HEADER ISOLATION VALVE												
HCV-347	210-130-3 (F7 Active	1	GA	M	A	10	LC	FAI				
									OP-ST-SI-3002	STC	CS	
									OP-ST-SI-3002	STO	CS	
									OI-SC-2	LT	2YR	
									OP-ST-VX-3019	PIT	2YR	
LPSI LOOP 2 ; SHUTDOWN COOLING ISOLATION VALVE												

HCV-348	210-130-2A (CActive	1	GA	M	A	12	LC	FAI	OP-ST-SI-3002	STC	CS	
									OP-ST-SI-3002	STO	CS	
									Normal Ops	LT	2YR	
									OP-ST-VX-3019	PIT	2YR	
LOOP 2 TO SHUTDOWN COOLING ; ISOLATION VALVE												
HCV-349	210-130-1 (B8 Passive	2	GL	A	B	4"	NC	FC	OP-ST-VX-3019	PIT	2YR	Passive
HPSI PUMP SI-2B ; ALTERNATE SUCTION VALVE												
HCV-350	210-130-1 (B7 Passive	2	GL	A	B	4"	NC	FC	OP-ST-VX-3019	PIT	2YR	Passive
HPSI PUMPS SI-2A&C ; ALTERNATE SUCTION VALVE												
HCV-383-3	210-130-3 (B7 Active	2	BU	M	A	24	NC	FAI	IC-ST-AE-3833	LJ	OptB	
									OP-ST-SI-3002	STO	CS	
									OP-ST-VX-3018	PIT	2YR	
CONTAINMENT SUMP ; RECIRC ISOLATION VALVE												
HCV-383-4	210-130-3 (B7 Active	2	BU	M	A	24	NC	FAI	IC-ST-AE-3834	LJ	OptB	
									OP-ST-SI-3002	STO	CS	
									OP-ST-VX-3018	PIT	2YR	
CONTAINMENT SUMP ; RECIRC ISOLATION VALVE												
HCV-385	210-130-1 (F4 Active	2	GL	A	A	4	NO	FO	OP-ST-SI-3002	FSTO	CS	
									OP-ST-SI-3002	STC	CS	
									OP-ST-SI-3002	STO	CS	
									SE-ST-SI-3005	LT	2YR	
									OP-ST-VX-3019	PIT	2YR	

SIRW TANK SI-5 RECIRCULATION VALVE											
HCV-386	210-130-1 (F4 Active	2	GL	A	A	4	NO	FO	OP-ST-SI-3002	FSTO	CS
									OP-ST-SI-3002	STC	CS
									OP-ST-SI-3002	STO	CS
									SE-ST-SI-3005	LT	2YR
									OP-ST-VX-3019	PIT	2YR
SIRW TANK SI-5 RECIRCULATION VALVE											
LCV-383-1	210-130-1 (D1 Active	2	BU	A	A	20	NO	FO	OP-ST-SI-3002	FSTO	CS
									OP-ST-SI-3002	STC	CS
									OP-ST-SI-3002	STO	CS
									SE-ST-SI-3005	LT	2YR
									OP-ST-VX-3019	PIT	2YR
SIRWT SI-5 OUTLET HEADER LEVEL CONTROL VALVE											
LCV-383-2	210-130-1 (D2 Active	2	BU	A	A	20	NO	FO	OP-ST-SI-3002	FSTO	CS
									OP-ST-SI-3002	STC	CS
									OP-ST-SI-3002	STO	CS
									SE-ST-SI-3005	LT	2YR
									OP-ST-VX-3019	PIT	2YR
SIRWT SI-5 OUTLET HEADER LEVEL CONTROL VALVE											
PCV-2909	210-130-2 (B5 Active	2	GL	A	A	1	NC	FC	OP-ST-SI-3001	FSTC	Q
									OP-ST-SI-3001	STC	Q
									OP-ST-VX-3018	PIT	2YR
SI LEAKAGE COOLER SI-4A ; OUTLET PRESSURE CONTROL VALVE											
PCV-2929	210-130-2 (B8 Active	2	GL	A	A	1	NC	FC	OP-ST-SI-3001	FSTC	Q

									OP-ST-SI-3001	STC	Q
									OP-ST-VX-3018	PIT	2YR
SI LEAKAGE COOLER SI-4B ; OUTLET PRESSURE CONTROL VALVE											
PCV-2949	210-130-2B (B Active	2	GL	A	A	1	NC	FC			
									OP-ST-SI-3001	FSTC	Q
									OP-ST-SI-3001	STC	Q
									OP-ST-VX-3018	PIT	2YR
SI LEAKAGE COOLER SI-4C ; OUTLET PRESSURE CONTROL VALVE											
PCV-2969	210-130-2B (B Active	2	GL	A	A	1	NC	FC			
									OP-ST-SI-3001	FSTC	Q
									OP-ST-SI-3001	STC	Q
									OP-ST-VX-3018	PIT	2YR
SI LEAKAGE COOLER SI-4D OUTLET PRESSURE CONTROL VALVE											
SI-100	210-130-3 (C1 Active	2	CK	C	C	6	N/A	N/A			
									OP-ST-SI-3007	CVO	RO
									OP-ST-SI-3008	PS	Q
HPSI PUMP SI-2B ; SUCTION CHECK VALVE											
SI-102	210-130-3 (C4 Active	2	CK	C	C	4	N/A	N/A			
									OP-ST-SI-3007	CVC	RO
									OP-ST-SI-3007	CVO	RO
HPSI PUMP SI-2B ; DISCHARGE CHECK VALVE											
SI-104	210-130-3 (C4 Active	2	CK	C	C	1	N/A	N/A			
									OP-ST-SI-3008	CVO	Q
HPSI PUMP SI-2B ; MINIMUM RECIRC CHECK VALVE											
SI-108	210-130-3 (D4 Active	2	CK	C	C	4	N/A	N/A			
									OP-ST-SI-3007	CVC	RO

									OP-ST-SI-3007	CVO	RO
HPSI PUMP SI-2C DISCHARGE CHECK											
SI-110	210-130-3 (E4 Active	2	CK	C	C	1	N/A	N/A	OP-ST-SI-3008	CVO	Q
HPSI PUMP SI-2C MINIMUM RECIRC CHECK VALVE											
SI-113	210-130-3 (E1 Active	2	CK	C	C	8	N/A	N/A	OP-ST-SI-3007 OP-ST-SI-3008	CVO PS	RO Q
HPSI PUMPS SI-2A&C SUCTION HEADER CHECK VALVE											
SI-115	210-130-3 (E4 Active	2	CK	C	C	4	N/A	N/A	OP-ST-SI-3007 OP-ST-SI-3007	CVC CVO	RO RO
HPSI PUMP SI-2A DISCHARGE CHECK VALVE											
SI-117	210-130-3 (F4 Active	2	CK	C	C	1	N/A	N/A	OP-ST-SI-3008	CVO	Q
HPSI PUMP SI-2A MINIMUM RECIRC CHECK VALVE											
SI-121	210-130-1 (A4 Active	2	CK	C	C	8	N/A	N/A	OP-ST-SI-3003 OP-ST-SI-3003	CVC CVO	CS CS
LPSI PUMP SI-1B ; DISCHARGE CHECK VALVE											
SI-129	210-130-1 (B4 Active	2	CK	C	C	8	N/A	N/A	OP-ST-SI-3003 OP-ST-SI-3003	CVC CVO	CS CS
LPSI PUMP SI-1A ; DISCHARGE CHECK VALVE											

SI-135	210-130-1 (C4 Active	2	CK	C	C	8	N/A	N/A				
									OP-ST-SI-3003	CVC	CS	
									OP-ST-SI-3003	CVO	CS	
CONTAINMENT SPRAY PUMP SI-3A DISCHARGE CHECK VALVE												
SI-139	210-130-1 (D2 Active	2	CK	C	A/C	20	N/A	N/A				
									PE-ST-SI-3006	CVO	RO*	
									SE-ST-SI-3005	CVC	RO	SE-ST-SI-
3027												
									OP-ST-SI-3008	PS	Q	
									SE-ST-SI-3005	LT	2YR	SE-ST-SI-
3027												
OUTLET CHECK VALVE SIRWT												
SI-140	210-130-1 (C2 Active	2	CK	C	A/C	20	N/A	N/A				
									PE-ST-SI-3006	CVO	RO*	
									SE-ST-SI-3005	CVC	RO	SE-ST-SI-
3027												
									OP-ST-SI-3008	PS	Q	
									SE-ST-SI-3005	LT	2YR	SE-ST-SI-
3027												
OUTLET CHECK VALVE SIRWT												
SI-143	210-130-1 (D4 Active	2	CK	C	C	8	N/A	N/A				
									OP-ST-SI-3003	CVC	CS	
									OP-ST-SI-3003	CVO	CS	
CONTAINMENT SPRAY PUMP SI-3B ; DISCHARGE CHECK VALVE												
SI-149	210-130-1 (E4 Active	2	CK	C	C	8	N/A	N/A				
									OP-ST-SI-3003	CVC	CS	
									OP-ST-SI-3003	CVO	CS	
CONTAINMENT SPRAY PUMP SI-3C ; DISCHARGE CHECK VALVE												
SI-153	210-130-1 (E5 Active	2	CK	C	C	6	N/A	N/A				

									PE-ST-SI-3007	CVC	RO
									PE-ST-SI-3007	CVO	RO
									OP-ST-SI-3008	PS	Q
LPSI PUMPS SI-1A&B ; CNTMT SPRAY PUMPS SI-3A,B&C ; MINIMUM RECIR											
SI-159	210-130-3 (B6 Active	2	CK	C	C	24	N/A	N/A			
									PE-ST-SI-3004	CVC	RO*
									PE-ST-SI-3004	CVO	RO*
									SE-ST-SI-3027	PS	RO*
CONTAINMENT SUMP ; RECIRC CHECK VALVE											
SI-160	210-130-3 (B6 Active	2	CK	C	C	24	N/A	N/A			
									PE-ST-SI-3004	CVC	RO*
									PE-ST-SI-3004	CVO	RO*
									SE-ST-SI-3027	PS	RO*
CONTAINMENT SUMP ; RECIRC CHECK VALVE											
SI-175	210-130-2 (B1 Active	2	CK	C	C	12	N/A	N/A			
									PE-ST-SI-3005	CVC	RO*
									PE-ST-SI-3005	CVO	RO*
SHUTDOWN COOLING HT EXCH AC-4B ; OUTLET TO CNTMTSPRAY NOZZLES ;											
SI-176	210-130-2 (D1 Active	2	CK	C	C	12	N/A	N/A			
									PE-ST-SI-3005	CVC	RO*
									PE-ST-SI-3005	CVO	RO*
SHUTDOWN COOLING HT EXCH AC-4A ; OUTLET TO CNTMT SPRAY NOZZLES ;											
SI-183	210-130-1 (E6 Passive	2	GL	H	A	2	NC	N/A			
									SE-ST-SI-3005	LT	2YR
SIRWT SI-5 ; CONTAINMENT SPRAY FLOW TEST ; STOP VALVE											
SI-184	210-130-1 (D6 Passive	2	GA	H	A	6	NC	N/A			

									SE-ST-SI-3005	LT	2YR	
SIRWT SI-5 ; CONTAINMENT SPRAY RETURN VALVE												
SI-185	210-130-1 (E8 Passive	2	GA	H	A	2	NC	N/A	IC-ST-AE-3122	LJ	OptB	
SI TANKS SI-6A,B,C&D ; DRAIN VALVE TO SIRWT SI-5												
SI-187	210-130-2 (H5 Active	2	RL	R	C	1.5	NC	N/A	PE-ST-VX-3009	RV	OM	
LPSI HEADER RELIEF VALVE												
SI-188	210-130-2A (D Active	2	RL	R	C	1.5	NC	N/A	PE-ST-VX-3009	RV	OM	
LPSI PUMPS SI-1A&B ; SHUTDOWN COOLING SUCTION ; RELIEF VALVE												
SI-189	210-130-2A (B Active	2	RL	R	C	1.5	NC	N/A	PE-ST-VX-3009	RV	OM	
HPSI RELIEF VALVE												
SI-190	210-130-2A (B Active	2	RL	R	C	1.5	NC	N/A	PE-ST-VX-3009	RV	OM	
HPSI RELIEF VALVE												
SI-194	210-130-2A (D Active	1	CK	C	A/C	6	NC	N/A	SE-ST-SI-3015	LT	CS*	PIV SEE
NOTE #7									OP-ST-SI-3003	CVO	CS	SEE NOTE #7
LPSI TO RC LOOP 2A ; CHECK VALVE												
SI-195	210-130-2A (D Active	1	CK	C	A/C	2	NC	N/A	OP-ST-SI-3007	CVO	RO	SEE NOTE #7

									SE-ST-SI-3015	LT	CS*	PIV SEE NOTE #7
HPSI TO RC LOOP 2A ; CHECK VALVE												
SI-196	210-130-2A (DActive	1	CK	C	C	2	N/A	N/A	OP-ST-SI-3007	CVO	RO	SEE NOTE #7
									OP-ST-CH-3006	PS	CS	SEE NOTE #7
HPSI TO RC LOOP 2A ; CHECK VALVE												
SI-197	210-130-2A (DActive	1	CK	C	A/C	6	NC	N/A	SE-ST-SI-3015	LT	CS*	PIV SEE NOTE #7
									OP-ST-SI-3003	CVO	CS	SEE NOTE #7
LPSI TO RC LOOP 2B ; CHECK VALVE												
SI-198	210-130-2A (DActive	1	CK	C	A/C	2	NC	N/A	OP-ST-SI-3007	CVO	RO	SEE NOTE #7
									SE-ST-SI-3015	LT	CS*	PIV SEE NOTE #7
HPSI TO RC LOOP 2B ; CHECK VALVE												
SI-199	210-130-2A (CActive	1	CK	C	C	2	N/A	N/A	OP-ST-SI-3007	CVO	RO	SEE NOTE #7
									OP-ST-CH-3006	PS	CS	SEE NOTE #7
HPSI TO RC LOOP 2B ; CHECK VALVE												
SI-200	210-130-2A (DActive	1	CK	C	A/C	6	NC	N/A	SE-ST-SI-3015	LT	CS*	PIV SEE NOTE #7
									OP-ST-SI-3003	CVO	CS	SEE NOTE #7
LPSI TO RC LOOP 1A ; CHECK VALVE												

SI-201	210-130-2A (DActive	1	CK	C	A/C	2	NC	N/A	OP-ST-SI-3007	CVO	RO	SEE NOTE #7
									SE-ST-SI-3015	LT	CS*	PIV SEE
NOTE #7												
HPSI TO RC LOOP 1A ; CHECK VALVE												
SI-202	210-130-2A (CActive	1	CK	C	C	2	N/A	N/A	OP-ST-SI-3007	CVO	RO	SEE NOTE #7
									OP-ST-CH-3006	PS	CS	SEE NOTE #7
HPSI TO RC LOOP 1A ; CHECK VALVE												
SI-203	210-130-2A (DActive	1	CK	C	A/C	6	NC	N/A	SE-ST-SI-3015	LT	CS*	PIV SEE
NOTE #7									OP-ST-SI-3003	CVO	CS	SEE NOTE #7
LPSI TO RC LOOP 1B ; CHECK VALVE												
SI-204	210-130-2A (DActive	1	CK	C	A/C	2	NC	N/A	OP-ST-SI-3007	CVO	RO	SEE NOTE #7
									SE-ST-SI-3015	LT	CS*	PIV SEE
NOTE #7												
HPSI TO RC LOOP 1B ; CHECK VALVE												
SI-205	210-130-2A (CActive	1	CK	C	C	2	N/A	N/A	OP-ST-SI-3007	CVO	RO	SEE NOTE #7
									OP-ST-CH-3006	PS	CS	SEE NOTE #7
HPSI TO RC LOOP 1B ; CHECK VALVE												
SI-207	210-130-2A (F Active	1	CK	C	A/C	12	NC	N/A	SE-ST-SI-3016	CVO	RO	SIT DUMP
									OP-ST-SI-3008	CVC	Q	
									OP-ST-SI-3008	LT	Q	PIV

SAFETY INJECTION TANK SI-6C ; OUTLET CHECK VALVE												
SI-208	210-130-2A (C	Active	1	CK	C	A/C	12	NC	N/A			
										SE-ST-SI-3016	CVO	RO	SIT DUMP
SEE NOTE #7												
										OP-ST-SI-3013	CVC	CS*	SEE NOTE #7
										OP-ST-SI-3013	LT	CS*	PIV
										OP-ST-SI-3003	PS	CS	SEE NOTE #7
SAFETY INJECTION TO LOOP 2A ; CHECK VALVE												
SI-209	210-130-2B (E	Active	2	RL	R	C	1	NC	N/A			
										PE-ST-VX-3005	RV	OM	
SAFETY INJECTION TANK SI-6D ; RELIEF VALVE												
SI-211	210-130-2A (F	Active	1	CK	C	A/C	12	NC	N/A			
										SE-ST-SI-3016	CVO	RO	SIT DUMP
										OP-ST-SI-3008	CVC	Q	
										OP-ST-SI-3008	LT	Q	PIV
SAFETY INJECTION TANK SI-6D ; OUTLET CHECK VALVE												
SI-212	210-130-2A (C	Active	1	CK	C	A/C	12	NC	N/A			
										SE-ST-SI-3016	CVO	RO	SIT DUMP
SEE NOTE #7												
										OP-ST-SI-3013	CVC	CS*	SEE NOTE #7
										OP-ST-SI-3013	LT	CS*	PIV
										OP-ST-SI-3003	PS	CS	SEE NOTE #7
SI TO RC LOOP 2B CHECK VALVE												
SI-213	210-130-2B (E	Active	2	RL	R	C	1	NC	N/A			
										PE-ST-VX-3005	RV	OM	
SAFETY INJECTION TANK SI-6C ; RELIEF VALVE												
SI-215	210-130-2A (F	Active	1	CK	C	A/C	12	NC	N/A			

									SE-ST-SI-3016	CVO	RO	SIT DUMP
									OP-ST-SI-3008	CVC	Q	
									OP-ST-SI-3008	LT	Q	PIV
SAFETY INJECTION TANK SI-6B ; OUTLET CHECK VALVE												
SI-216	210-130-2A (CActive	1	CK	C	A/C	12	NC	N/A				
									SE-ST-SI-3016	CVO	RO	SIT DUMP
SEE NOTE #7												
									OP-ST-SI-3013	CVC	CS*	SEE NOTE #7
									OP-ST-SI-3013	LT	CS*	PIV
									OP-ST-SI-3003	PS	CS	SEE NOTE #7
SI TO RC LOOP 1A ; CHECK VALVE												
SI-217	210-130-2 (E6 Active	2	RL	R	C	1	NC	N/A				
									PE-ST-VX-3005	RV	OM	
SAFETY INJECTION TANK SI-6B ; RELIEF VALVE												
SI-219	210-130-2A (F Active	1	CK	C	A/C	12	NC	N/A				
									SE-ST-SI-3016	CVO	RO	SIT DUMP
									OP-ST-SI-3008	CVC	Q	
									OP-ST-SI-3008	LT	Q	PIV
SAFETY INJECTION TANK SI-6A ; OUTLET CHECK VALVE												
SI-220	210-130-2A (CActive	1	CK	C	A/C	12	NC	N/A				
									SE-ST-SI-3016	CVO	RO	SIT DUMP
SEE NOTE #7												
									OP-ST-SI-3013	CVC	CS*	PIV SEE
NOTE #7												
									OP-ST-SI-3013	LT	CS*	PIV
									OP-ST-SI-3003	PS	CS	SEE NOTE #7
SAFETY INJECTION TO LOOP 1B ; CHECK VALVE												
SI-221	210-130-2 (E3 Active	2	RL	R	C	1	NC	N/A				
									PE-ST-VX-3005	RV	OM	

SAFETY INJECTION TANK SI-6A ; RELIEF VALVE											
SI-298	210-130-1 (D7 Active	2	RL	R	C	1	NC	N/A	PE-ST-VX-3009	RV	OM
SHUTDOWN HEAT EXCH AC-4A REACTOR COOLANT INLET PIPING RELIEF VAL											
SI-299	210-130-1 (B7 Active	2	RL	R	C	1	NC	N/A	PE-ST-VX-3009	RV	OM
SHUTDOWN COOLING HT EXCH SI-4B ; OUTLET RELIEF VALVE TO ; REACTO											
SI-300	210-130-1 (B4 Active	2	CK	C	C	2	N/A	N/A	OP-ST-SI-3008	CVO	Q
CONTAINMENT SPRAY PUMP SI-3C ; MINIMUM RECIRC CHECK VALVE											
SI-301	210-130-1 (D4 Active	2	CK	C	C	2	N/A	N/A	OP-ST-SI-3008	CVO	Q
CONTAINMENT SPRAY PUMP SI-3B RECIRC LINE CHECK VALVE											
SI-302	210-130-1 (F4 Active	2	CK	C	C	2	N/A	N/A	OP-ST-SI-3008	CVO	Q
CONTAINMENT SPRAY PUMP SI-3A MINIMUM RECIRC CHECK VALVE											
SI-303	210-130-1 (E4 Active	2	CK	C	C	2	N/A	N/A	OP-ST-SI-3008	CVO	Q
LPSI PUMP SI-1A ; MINIMUM RECIRC CHECK VALVE											
SI-304	210-130-1 (A4 Active	2	CK	C	C	2	N/A	N/A	OP-ST-SI-3008	CVO	Q
LOW PRESS SI PUMP SI-1B RECIRC LINE CHECK VALVE											

SI-306	210-130-1 (D7	Passive	2	GA	H	A	6	LC	N/A	SE-ST-SI-3005	LT 2YR

SIRWT SI-5 ; CONTAINMENT SPRAY RETURN VALVE

SI-309	210-130-3 (F5	Active	2	RL	R	C	1	NC	N/A	PE-ST-VX-3009	RV OM

LPSI PUMPS SI-1A&B ; SHUTDOWN CLG SUCT RELIEF VLV TO ; REACTOR C

SI-310	210-130-1 (C7	Active	2	RL	R	C	1	NC	N/A	PE-ST-VX-3009	RV OM

SHUTDOWN CLG HT EXCHS AC-4A&B ; OUTLET CROSSCONNECT RELIEF VLV ;

SI-323	210-130-3 (E6	Active	2	CK	C	C	4	N/A	N/A	SE-ST-SI-3010 OP-ST-SI-3007	CVC RO CVO RO

HPSI HEADER CHECK VALVE

SI-342	210-130-1 (E7	Passive	2	GL	H	A	1	LC	N/A	SE-ST-SI-3005	LT 2YR

SHUTDOWN COOLING TO ; CVCS PURIFICATION ISOLATION VLV

SI-343	210-130-3 (D6	Active	2	CK	C	C	2	N/A	N/A	SE-ST-CH-3003	CVO RO

CROSS TIE BYPASS VALVE HCV-2988 OUTLET LINE CHECK VALVE

SI-410	210-130-2 (F-2	Passive	2	GL	H	A	2	NC	N/A	IC-ST-AE-3122	LJ OptB

SI TANKS DRAIN LINE ISOLATION VALVE

SI-411	210-130-2 (F-2	Active	2	RL	R	A	2	NC	N/A	IC-ST-AE-3122	LJ OptB

Penetration M-22 Relief Valve

SYSTEM: SL - Primary Sample System

Component	PID(Coord)	Function	Code Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq	
HCV-2504A	M-12-1 (F7)	Active	2	GL	A	A	0.5	NO	FC				
										OP-ST-SL-3001	FSTC	Q	
										OP-ST-SL-3001	STC	Q	
										IC-ST-AE-3145	LJ	OptB	PIV
										OP-ST-VX-3021	PIT	2YR	
RC SAMPLE LINE CONTAINMENT ISOL VALVE (INSIDE)													
HCV-2504B	M-12-1 (F7)	Active	2	GL	A	A	0.5	NO	FC				
										OP-ST-SL-3001	FSTC	Q	
										OP-ST-SL-3001	STC	Q	
										IC-ST-AE-3145	LJ	OptB	PIV
										OP-ST-VX-3021	PIT	2YR	
REACTOR COOLANT SAMPLE LINE ; CNTMT ISOLATION VALVE													
HCV-2506A	M-12-1 (D7)	Active	2	GL	A	B	0.5	NO	FC				
										OP-ST-SL-3002	FSTC	Q	
										OP-ST-SL-3002	STC	Q	
										OP-ST-VX-3022	PIT	2YR	
SG RC-2A SAMPLE CONTAINMENT ISOL VALVE (INSIDE)													
HCV-2506B	M-12-1 (D7)	Active	2	GL	A	B	0.5	NO	FC				
										OP-ST-SL-3002	FSTC	Q	
										OP-ST-SL-3002	STC	Q	
										OP-ST-VX-3022	PIT	2YR	
STEAM GENERATOR RC-2A BLWD ; CNTMT ISOLATION VALVE													

HCV-2507A	M-12-1 (C7)	Active	2	GL	A	B	0.5	NO	FC	OP-ST-SL-3002	FSTC	Q
										OP-ST-SL-3002	STC	Q
										OP-ST-VX-3022	PIT	2YR

SG RC-2B SAMPLE CONTAINMENT ISOL VALVE (INSIDE)

HCV-2507B	M-12-1 (C7)	Active	2	GL	A	B	0.5	NO	FC	OP-ST-SL-3002	FSTC	Q
										OP-ST-SL-3002	STC	Q
										OP-ST-VX-3022	PIT	2YR

STEAM GENERATOR RC-2B BLWD ; CNTMT ISOLATION VALVE

SYSTEM: VA - Ventilating Air System

Component	PID(Coord)	Function	Code Class	Position Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq	
A/HCV-742	M-1-2 (D8)	Passive	2	DI	A	A	1	NO	FO				
										IC-ST-AE-3138	LJ	OptB	
										OP-ST-VX-3024A	PIT	2YR	Passive
CPHS ; CHANNEL "A" SENSING LINE; OUTBOARD ISOLATION VALVE													
B/HCV-742	M-1-2 (D8)	Passive	2	DI	A	A	1	NO	FO				
										IC-ST-AE-3150	LJ	OptB	
										OP-ST-VX-3024A	PIT	2YR	Passive
CPHS ; CHANNEL "B" SENSING LINE ; OUTBOARD ISOLATION VALVE													
C/HCV-742	M-1-2 (D8)	Passive	2	DI	A	A	1	NO	FO				
										IC-ST-AE-3151	LJ	OptB	
										OP-ST-VX-3024A	PIT	2YR	Passive
CPHS ; CHANNEL "C" SENSING LINE ; OUTBOARD ISOLATION VALVE													
D/HCV-742	M-1-2 (C8)	Passive	2	DI	A	A	1	NO	FO				
										IC-ST-AE-3152	LJ	OptB	
										OP-ST-VX-3024A	PIT	2YR	Passive
CPHS ; CHANNEL "D" SENSING LINE ; OUTBOARD ISOLATION VALVE													
HCV-746A	M-1-1 (D2)	Active	2	BL	A	A	2	NC	FC				
										OP-ST-VA-3001A	FSTC	Q	
										OP-ST-VA-3001A	STC	Q	
										IC-ST-AE-3148	LJ	OptB	
										OP-ST-VX-3024A	PIT	2YR	
CONTAINMENT PRESSURE RELIEF; INBOARD ISOLATION VALVE													

HCV-746B	M-1-2 (C7)	Active	2	BL	A	A	2	NC	FC			
										OP-ST-VA-3001A	FSTC	Q
										OP-ST-VA-3001A	STC	Q
										IC-ST-AE-3148	LJ	OptB
										OP-ST-VX-3024A	PIT	2YR
CONTAINMENT PRESSURE RELIEF ISOLATION VALVE												
HCV-820A	M-1-2 (B8)	Active	2	GL	S	A	1	NC	FC			
										OP-ST-VA-3001A	FSTC	Q
										OP-ST-VA-3001A	STC	Q
										IC-ST-AE-3140	LJ	OptB
										OP-ST-VX-3024A	PIT	2YR
CNTMT HYDROGEN ANALYZER VA-81A; INLET OUTBOARD ISOLATION VALVE												
HCV-820B	M-1-1 (C2)	Active	2	GL	S	A	1	NC	FO			
										OP-ST-VA-3001A	FSTO	Q
										OP-ST-VA-3001A	STC	Q
										OP-ST-VA-3001A	STO	Q
										IC-ST-AE-3140	LJ	OptB
										OP-ST-VX-3024A	PIT	2YR
CNTMT HYDROGEN ANALYZER VA-81A ; INLET INBOARD ISOLATION VALVE												
HCV-821A	M-1-2 (A8)	Active	2	GL	S	A	1	NC	FC			
										OP-ST-VA-3001B	FSTC	Q
										OP-ST-VA-3001B	STC	Q
										IC-ST-AE-3131	LJ	OptB
										OP-ST-VX-3024B	PIT	2YR
CNTMT HYDROGEN ANALYZER VA-81A ; OUTLET OUTBOARDISOLATION VALVE												
HCV-821B	M-1-1 (A2)	Active	2	GL	S	A	1	NC	FO			
										OP-ST-VA-3001B	FSTO	Q
										OP-ST-VA-3001B	STC	Q
										OP-ST-VA-3001B	STO	Q
										IC-ST-AE-3131	LJ	OptB

										OP-ST-VX-3024B	PIT	2YR
CNTMT HYDROGEN ANALYZER VA-81A ; OUTLET INBOARD ISOLATION VALVE												
HCV-881	M-1-1 (B2)	Active	2	BU	A	A	4	NC	FO			
										OP-ST-VA-3001A	FSTO	Q
										OP-ST-VA-3001A	STC	Q
										OP-ST-VA-3001A	STO	Q
										IC-ST-AE-3169	LJ	OptB
										OP-ST-VX-3024A	PIT	2YR
CONTAINMENT HYDROGEN PURGE; INBOARD ISOLATION VALVE												
HCV-882	M-1-1 (B2)	Active	2	BU	A	A	4	NC	FO			
										OP-ST-VA-3001A	FSTO	Q
										OP-ST-VA-3001A	STC	Q
										OP-ST-VA-3001A	STO	Q
										IC-ST-AE-3130	LJ	OptB
										OP-ST-VX-3024A	PIT	2YR
CONTAINMENT HYDROGEN PURGE; INBOARD ISOLATION VALVE												
HCV-883A	M-1-1 (C2)	Active	2	PG	A	A	1	NC	FO			
										OP-ST-VA-3001A	FSTO	Q
										OP-ST-VA-3001A	STC	Q
										OP-ST-VA-3001A	STO	Q
										IC-ST-AE-3157	LJ	OptB
										OP-ST-VX-3024A	PIT	2YR
CNTMT HYDROGEN ANALYZER VA-81B ; INLET INBOARD ISOLATION VALVE												
HCV-883B	M-1-2 (B8)	Active	2	GL	S	A	1	NC	FC			
										OP-ST-VA-3001A	FSTC	Q
										OP-ST-VA-3001A	STC	Q
										IC-ST-AE-3157	LJ	OptB
										OP-ST-VX-3024A	PIT	2YR
HYDROGEN SAMPLING SYSTEM ISOL VA-81B INLET OUTBOARD ISOLATI												

HCV-884A	M-1-1 (C2)	Active	2	GL	A	A	1	NC	FO			
										OP-ST-VA-3001B	FSTO	Q
										OP-ST-VA-3001B	STC	Q
										OP-ST-VA-3001B	STO	Q
										IC-ST-AE-3158	LJ	OptB
										OP-ST-VX-3024B	PIT	2YR
CNTMT HYDROGEN ANALYZER VA-81B ; OUTLET INBOARD ISOLATION VALVE												
HCV-884B	M-1-2 (B8)	Active	2	GL	S	A	1	NC	FC			
										OP-ST-VA-3001B	FSTC	Q
										OP-ST-VA-3001B	STC	Q
										IC-ST-AE-3158	LJ	OptB
										OP-ST-VX-3024B	PIT	2YR
CNTMT HYDROGEN ANALYZER VA-81B; OUTLET OUTBD ISOLATION VALVE												
PCV-742A	M-1-1 (D2)	-1	2	BU	A	A	42	LC	FC			
										IC-ST-AE-3187	LJ	OptB
										OP-ST-VA-3002	FSTC	CS
										OP-ST-VA-3002	STC	CS
										OP-ST-VX-3024A	PIT	2YR
CONTAINMENT PURGE AIR; OUTLET INBOARD ISOLATION VALVE												
PCV-742B	M-1-2 (C7)	-1	2	BU	A	A	42	LC	FC			
										IC-ST-AE-3187	LJ	OptB
										OP-ST-VA-3002	FSTC	CS
										OP-ST-VA-3002	STC	CS
										OP-ST-VX-3024A	PIT	2YR
CONTAINMENT PURGE EXHAUST ISOL VALVE												
PCV-742C	M-1-1 (C2)	-1	2	BU	A	A	42	LC	FC			
										IC-ST-AE-3188	LJ	OptB
										OP-ST-VA-3002	FSTC	CS
										OP-ST-VA-3002	STC	CS
										OP-ST-VX-3024A	PIT	2YR

CONTAINMENT PURGE AIR ; INLET INBOARD ISOLATION VALVE

PCV-742D	M-1-2 (B8)	-1	2	BU	A	A	42	LC	FC

IC-ST-AE-3188	LJ	OptB
OP-ST-VA-3002	FSTC	CS
OP-ST-VA-3002	STC	CS
OP-ST-VX-3024A	PIT	2YR

CONTAINMENT PURGE AIR; INLET OUTBOARD ISOLATION VALVE

PCV-742E	M-1-1 (F2)	Active	2	DI	A	A	1	A	FC

OP-ST-VA-3001A	FSTC	Q
OP-ST-VA-3001A	STC	Q
IC-ST-AE-3146	LJ	OptB
OP-ST-VX-3024A	PIT	2YR

RADIATION MONITORING CABINET; OUTLET INBOARD ISOLATION VALVE

PCV-742F	M-1-2 (E8)	Active	2	DI	A	A	1	NO	FC

OP-ST-VA-3001A	FSTC	Q
OP-ST-VA-3001A	STC	Q
IC-ST-AE-3146	LJ	OptB
OP-ST-VX-3024A	PIT	2YR

RADIATION MONITORING CABINET ; OUTLET OUTBOARD ISOLATION VALVE

PCV-742G	M-1-1 (E2)	Active	2	DI	A	A	1	NO	FC

OP-ST-VA-3001B	FSTC	Q
OP-ST-VA-3001B	STC	Q
IC-ST-AE-3147	LJ	OptB
OP-ST-VX-3024B	PIT	2YR

RADIATION MONITORING CABINET ; INLET INBOARD ISOLATION VALVE

PCV-742H	M-1-2 (E8)	Active	2	DI	A	A	1	NO	FC

OP-ST-VA-3001B	FSTC	Q
OP-ST-VA-3001B	STC	Q
IC-ST-AE-3147	LJ	OptB
OP-ST-VX-3024B	PIT	2YR

RADIATION MONITORING CABINET; INLET OUTBOARD ISOLATION VALVE												
VA-280	M-1-2 (A8)	Active	2	BU	H	A	4	LC	N/A	IC-ST-AE-3169	LJ	OptB
CONTAINMENT HYDROGEN PURGE; OUTBOARD ISOLATION VALVE TO ; CNTMT												
VA-287	M-1-2 (B6)	Active	3	RL	R	C	2	NC	N/A	PE-ST-VX-3010	RV	OM
CNTMT HYDROGEN PURGE FAN VA-80A ; RECIRC RELIEF VALVE												
VA-288	M-1-2 (B5)	Active	3	RL	R	C	2	N/A	N/A	PE-ST-VX-3010	RV	OM
CNTMT HYDROGEN PURGE FAN VA-80B; RECIRC RELIEF VALVE												
VA-289	M-1-2 (A8)	Active	2	BU	H	A	4	LC	N/A	IC-ST-AE-3130	LJ	OptB
CNTMT HYDROGEN PURGE; OUTBOARD ISOLATION VALVE TO ; CNTMT HYDRO												

SYSTEM: WD - Waste Disposal System

Component	PID(Coord)	Function	Code Position Class	Type	Actuator	Cat.	Size	Norm.	Fail.	Procedure	Test	Freq
HCV-500A	M-6-2 (A6)	Active	2	DI	A	A	4	NO	FC			
										OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3120	LJ	OptB
										OP-ST-VX-3025	PIT	2YR
RCDT PUMPS WD-2A&B ; DISCHARGE HEADER ; ISOLATION VALVE												
HCV-500B	M-6-2 (A6)	Active	2	DI	A	A	4	NO	FC			
										OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3120	LJ	OptB
										OP-ST-VX-3025	PIT	2YR
RCDT PUMPS WD-2A&B; DISCHARGE HEADER ; OUTBOARD ISOLATION VALVE												
HCV-506A	M-7-1 (A6)	Active	2	DI	A	A	2	NO	FC			
										OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3108	LJ	OptB
										OP-ST-VX-3025	PIT	2YR
CONTAINMENT SUMP PUMPS WD-3A&B; DISCHARGE HEADER ; OUTBOARD ISO												
HCV-506B	M-7-1 (A6)	Active	2	DI	A	A	2	NO	FC			
										OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3108	LJ	OptB
										OP-ST-VX-3025	PIT	2YR
CONTAINMENT SUMP PUMPS WD-3A&B ; DISCHARGE HEADER ; ISOLATION VA												

HCV-507A	M-98-3 (F7)	Active	2	DI	A	A	3	NO	FC	OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3114	LJ	OptB
										OP-ST-VX-3025	PIT	2YR
GAS VENT HEADER; OUTBOARD ISOLATION VALVE												
HCV-507B	M-98-3 (F7)	Active	2	DI	A	A	3	NO	FC	OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3114	LJ	OptB
										OP-ST-VX-3025	PIT	2YR
GAS VENT HEADER ; ISOLATION VALVE												
HCV-508A	M-98-3 (C7)	Active	2	DI	A	A	0.5	NC	FC	OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3125	LJ	OptB
										OP-ST-VX-3025	PIT	2YR
REACTOR COOLANT DRAIN TANK WD-1 ; OUTBOARD SAMPLE ISOLATION VALV												
HCV-508B	M-98-3 (C6)	Active	2	DI	A	A	0.5	NC	FC	OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3125	LJ	OptB
										OP-ST-VX-3025	PIT	2YR
REACTOR COOLANT DRAIN TANK WD-1 ; SAMPLE ISOLATION VALVE												
HCV-509A	M-98-3 (B7)	Active	2	DI	A	A	0.5	NC	FC	OP-ST-WDL-3001	FSTC	Q
										OP-ST-WDL-3001	STC	Q
										IC-ST-AE-3124	LJ	OptB
										OP-ST-VX-3025	PIT	2YR

PRESSURIZER QUENCH TANK RC-5 ; OUTBOARD SAMPLE ISOLATION VALVE

HCV-509B	M-98-3 (B6)	Active	2	DI	A	A	0.5	NC	FC

OP-ST-WDL-3001	FSTC	Q
OP-ST-WDL-3001	STC	Q
IC-ST-AE-3124	LJ	OptB
OP-ST-VX-3025	PIT	2YR

PRESSURIZER QUENCH TANK RC-5 ; SAMPLE ISOLATION VALVE