WBN2Public Resource

From: Boyd, Desiree L [dlboyd@tva.gov]
Sent: Monday, March 21, 2011 3:00 PM
To: Epperson, Dan; Poole, Justin; Raghavan, Rags; Milano, Patrick; Campbell, Stephen
Cc: Crouch, William D; Hamill, Carol L; Boyd, Desiree L; Stockton, Rickey A
Subject: TVA letter to NRC_Submittal of Preservice Test Program Plan
Attachments: 03-21-11_Submittal of Preservice Test Program Plan_Final.pdf

Please see attached TVA letter that was sent to the NRC today.

Thank You,

~*~*~*~*~*~*~*~*~*~*~*~*~*~*~*~*~

Désireé L. Boyd

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U.S. Nuclear Regulatory Commission
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Watts Bar Nuclear Plant, Unit 2
NRC Docket No. 50-391

Subject: WATTS BAR NUCLEAR PLANT (WBN) UNIT 2 - PRESERVICE TEST PROGRAM PLAN

The purpose of this letter is to provide a document entitled, "Preservice Test (PST) Program Plan" for WBN Unit 2. The submittal of this document satisfies administrative code requirement contained in the ASME OM Code 2001 Edition through 2003 addenda. Specifically, ISTA-3200(a), "Administrative Requirements," states that: "IST Plans shall be filed with the regulatory authorities having jurisdiction at the plant site."

The broad category of IST plans addressed in ISTA-3200 includes the following types for each of three specific time periods: (1) the preservice test period, (2) the initial in-service test interval, and (3) all subsequent in-service test intervals. The submittal of the subject document provides the plan to satisfy the preservice time period.

The Enclosure provides the subject Program Plan. There are no new commitments contained in this submittal. If you have any questions, please contact Bill Crouch at (423) 365-2004.

Respectfully,

David Stinson
Watts Bar Unit 2 Vice President

Enclosure:

Preservice Test Program Plan - Watts Bar Nuclear Plant Unit 2

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ENCLOSURE

PRESERVICE TEST PROGRAM PLAN
WATTS BAR NUCLEAR PLANT UNIT 2
WBN 2 PST, REVISION 1

Preservice Test
Program Plan

Watts Bar Nuclear Plant
Unit 2

Tennessee Valley Authority
1101 Market Street
Chattanooga, TN 37402-2801

Watts Bar Nuclear Plant
P.O. Box 2000
Spring City, TN 37381

Docket Number – 50-391
Construction Permit No. CPPR-92, Issued January 23, 1973
Extension Issued October 24, 2000
Scheduled Commercial Service Date - April 19, 2012

Program No: WBN-2 PST Rev. 1

Effective Date: March 16, 2011

Responsible Organization: Inspection Services Organization

Prepared by: Charles Driskell

Reviewed by: Gary Johnson

Approved by: 3-16-11

Revision Log

Revision Number	Effective Date	Pages Affected	Description of Revision
0	**2/9/11**	**All**	Initial issue of the U2 Preservice Test Plan required by the 2001 edition through 2003 addenda of the ASME OM Code (ISTA-3110).
1	**3/16/11**	**3-5**	• Revise page numbering in Table of Contents • Modify Section 1.2.2 and add 1.2.3 to address components listed on the U1 N-3 form that are either inside or outside the U1 operational boundary. • Updated reference 2.1.A

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Program Description

The rules for the Preservice Testing of pumps and valves for the Preservice Testing Period (after completion of construction activities related to the component and before first electrical generation by nuclear heat), are contained in the ASME OM Code 2001 edition through 2003 addenda. Title 10, Part 50, Section 55a of the Code of Federal Regulations (10CFR50.55a) requires that Inservice Testing requirements be met throughout the service life of the nuclear power plant. This program plan provides the technical requirements for implementing the Preservice Testing (PST) Program for WBN Unit 2. The intent of this program is to establish reference values for use during preservice and inservice testing and verify that components tested by the PST program meet all applicable requirements for operability. The PST program will provide initial test data to support operability and allow trending of the data in order to identify pump and valve degradation during the First Inservice Test Interval (starting with commercial operation) for WBN Unit 2.

This Summary Description identifies the pumps and valves for which PST will be performed at WBN Unit 2 to comply with the requirements of 10CFR50.55a. The testing required by this program will be accomplished through (1) the WBN U2 Preoperational Testing Program, and by (2) Surveillance testing on a periodic basis as required to meet operability requirements before initial plant startup.

1.2 Scope

1.2.1 Components not previously transferred to WBN U1 on the U1 ASME N-3 form (crosshatched on U1 CCD drawings)

The U2 PST Program applies to pumps and valves not previously transferred to WBN Unit 1 and identified in Tables 3 through 6 for which a preservice test will be required for WBN U2 operation. A preservice test (for U2 construction purposes) is defined as a test performed in the preservice test period.

1.2.2 Components previously transferred to WBN U1 on the U1 ASME N-3 form (not crosshatched on U1 CCD drawings)

The U2 PST Program does not apply to certain pumps and valves, previously transferred to WBN Unit 1 and within the U1 operational boundary, which may require preservice testing for two-unit operation at WBN. Those components will be addressed by the U1 Inservice Test (IST) Program.

1.2.3 Components previously transferred to WBN U1 on the U1 ASME N-3 form (crosshatched on U1 CCD drawings)

The U2 PST Program applies to certain pumps and valves, previously transferred to WBN Unit 1 and outside the U1 operational boundary, which may require preservice testing for two-unit operation at WBN. Those components will be addressed by the U2 Preservice Test (PST) Program.

2.0 REFERENCES

2.1 TVA Procedures

A. NPG-SPP-09.1, ASME Code and Augmented Programs.

2.2 TVA Drawings

A. 47W331-1.

B. 2-47W610-90-3.

C. 2-47W625-1.

D. 2-47W625-2.

E. 2-47W625-7.

F. 2-47W625-8.

G. 2-47W625-11.

H. 2-47W801-1.

I. 2-47W801-2.

J. 2-47W803-1.

K. 2-47W803-2.

L. 2-47W809-1.

M. 2-47W809-2.

N. 2-47W809-7.

O. 2-47W810-1.

P. 2-47W811-1.

Q. 2-47W812-1.

R. 2-47W813-1.

S. 2-47W814-2.

T. 2-47W819-1.

U. 2-47W830-1.

V. 2-47W830-6.

W. 2-47W845-2.

X. 2-47W845-3.

Y. 2-47W845-7.

Z. 47W846-2.

AA. 2-47W848-1.

BB. 2-47W850-9.

CC. 2-47W851-1.

DD. 2-47W855-1.

EE. 2-47W856-1.

FF. 2-47W859-3

GG. 2-47W859-4.

HH. 2-47W865-5.

II. 2-47W866-1.

2.3 Other

A. American Society of Mechanical Engineers (ASME), Code for Operation and Maintenance of Nuclear Power Plants (OM), 2001 edition through 2003 addenda.

B. WBN 2 Technical Specifications (when issued).

C. NRC Generic Letter 89-04 (including Supplement 1), Guidance on Developing Acceptable Inservice Testing Programs

D. WBN2-1-4002, Main Steam System.

E. WBN2-3A-4002, Main Feedwater, Feedwater Control, and Injection Water.

F. WBN2-3B-4002, Auxiliary Feedwater System.

G. WBN2-15-4002, Steam Generator Blowdown System.

H. WBN2-26-4002, High Pressure Fire Protection System.

I. WBN2-30AB-4001, Auxiliary Building Heating, Ventilation, and Air Conditioning System.

J. WBN2-30RB-4002, Reactor Building Ventilation System.

K. WBN2-32-4002, Compressed Air System.

L. WBN2-43-4001, Sampling and Water Quality System.

M. WBN2-61-4001, Ice Condenser System.

N. WBN2-62-4001, Chemical and Volume Control System.

O. WBN2-63-4001, System Description for Safety Injection System.

P. WBN2-67-4002, Essential Raw Cooling Water System.

Q. WBN2-68-4001, Reactor Coolant System.

R. WBN2-70-4002, Component Cooling System.

S. WBN2-72-4001, Containment Heat Removal Spray System.

T. WBN2-74-4001, System Description for Residual Heat Removal System.

U. WBN2-77A-4001, Gaseous Waste Disposal System.

V. WBN2-77C-4001, Liquid Radwaste Processing System.

W. WBN2-78-4001, System Description for Spent Fuel Pool Cooling and Cleaning System.

X. WBN2-81-4001, Primary Makeup Water System.

3.0 PUMP PRESERVICE TESTING PROGRAM

Except for relief requested under the provisions of 10CFR50.55a, the PST Program for pumps shall be conducted in accordance with ASME OM Code, ISTB, 2001 edition through 2003 addenda as summarized below. Table 3 summarizes the PST Program for pumps at WBN U2. Each Preservice Test Quantity to be measured is listed.

3.1 Code Cases Adopted

3.1.1 OMN-6, Alternate Rules for Digital Instruments

OMN-6 provides for allowing digital instruments to be utilized for testing such that the reference value does not exceed 90% of the calibrated range of the instrument. This Code Case has been endorsed by the NRC per Regulatory Guide (RG) 1.192, June 2003 publication date.

3.2 Pump Groups

A. **Group A Pumps** - The OM Code defines Group A pumps as those pumps that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations. Watts Bar U2 considers the following pumps to be Group A pumps along with the basis for grouping:

1. Centrifugal Charging Pumps (CCPs)- The CCPs are utilized during plant operation for normal charging and letdown activities (the existing U2 Reciprocating Charging Pump is abandoned in place).

2. Motor Driven Auxiliary Feedwater (MDAFW) Pumps - The MDAFW pumps are utilized during startup to fill the steam generators and to maintain steam generator level prior to initiation of normal feedwater.

3. Residual Heat Removal (RHR) Pumps - The RHR pumps are required to operate when maintaining the plant in a cold shutdown condition.

B. **Group B Pumps** - The OM Code defines Group B pumps as those pumps in standby systems that are not operated routinely except for testing. WBN U2 considers the following pumps Group B pumps:

1. Turbine Driven Auxiliary Feedwater (TDAFW) Pump - This pump is not utilized during any plant operating evolution. The pump remains in standby during all operating Modes, except during testing. This pump is required to operate only during accident or transient conditions in which it is credited for accident mitigation.

2. Containment Spray (CS) Pumps - The Containment Spray pumps are not utilized during any plant operating evolution. The pumps remain in standby during all operating Modes, except during testing. The pumps are required to operate only during a loss-of-coolant accident (LOCA) or main steam line break (MSLB) inside containment for containment heat removal and pressure suppression.

3. Safety Injection System (SIS) Pumps - The SIS pumps remain in standby during all operating Modes, except during testing. These pumps are required to operate only during a loss-of-coolant accident (LOCA) to provide cooling to the reactor.

3.3 Test Frequency

A. Tech Spec frequency shall not be superseded by ASME frequency. The provisions of Tech Spec 3.0.2 allowing the use of a ±25% tolerance to specified test frequencies of 2 years or less listed in the Tech Spec may be applied.

B. When plant conditions restrict the availability of some components for testing, testing may be delayed until plant conditions are made available.

C. Components tested during power ascension due to maintenance shall be considered inoperable until the post maintenance tests are completed.

D. ASME preservice pump testing (in the as-found condition where practical) shall be conducted quarterly (at least once every 92 days) for all pumps required to be operable.

E. A comprehensive pump test is performed to establish the initial pump reference values and every 2 years thereafter.

F. ASME pumps lacking required fluid inventory shall be tested at least once every two years (at least once every 24 months).

G. Pump testing shall continue through the preservice test period on operable equipment.

H. Pump performance may require increasing the test frequency to twice per quarter.

I. Pumps in systems out of service for an extended period of time are not required to be tested but will be tested within the last 92 days prior to being returned to service or entry into an operational mode which requires the pump to be OPERABLE unless technical specifications allow otherwise.

J. Pump testing is required prior to returning to service following maintenance activities which could affect pump performance.

K. Pumps that are discovered to be out of frequency shall be subject to the requirements of TS Surveillance Requirement 3.0.3 and Regulatory Issue Summary (RIS) 2005-020.

4.0 VALVE PRESERVICE TESTING PROGRAM

Except for relief requested under the provisions of 10CFR50.55a, the U2 PST Program for valves shall be conducted in accordance with ASME OM Code, ISTC, 2001 edition through 2003 addenda. Valves in WBN's safety related systems were reviewed and categorized. Valves which were categorized as active in any category and passive valves categorized in Category A or B are listed in Table 4. Justifications for testing at a frequency other than as nominally required by the Code are listed numerically in Appendix A. Justification numbering is maintained the same as Unit 1 for consistency.

4.1 Containment Isolation Valves (CIV)

Valve leakage rates shall be subject to the analysis and corrective action of OM Code (ISTC-3600). Category A valves or valve combinations shall have a permissible leakage rate specified by the owner. Valves or valve combinations with leakage rates exceeding the permissible rate shall be declared inoperable and either repaired or replaced. A retest demonstrating satisfactory performance shall be performed prior to declaring the valve operable. This requirement is satisfied within the Appendix J program for containment isolation valves. All Appendix J valves are also included in the PST Program as Class 2 components.

4.2 Pressure Isolation Valves (PIV)

A. These valves must be tested at least once in the preservice test period and once per 18 months thereafter.

B. Testing must be performed prior to entering mode 2 whenever the plant has been in mode 5 for 7 days or more and if leakage testing has not been performed in the previous 9 months.

C. Testing must be performed within 24 hours following valve actuation due to automatic or manual action or flow through the valve. The 24 hour clock will start after the flow through the valve(s) has been stopped. Surveillance Requirements and the associated bases allow delay when plant conditions needed for testing are not available in modes 3 or 4.

D. Testing should be performed during startup after coming off RHR to eliminate multiple performances due to RHR flow through Cold Leg Primary and Secondary check valves.

E. Testing at low RCS pressure will minimize personnel hazard and provide a conservative leak rate which provides early indication of potential problems.

F. Testing must be performed prior to returning to mode 2 following maintenance, repair, or replacement work that could affect valve seating.

G. A listing of PIVs is provided in Table 6.

4.3 Fail Safe Actuators

Valves which have a fail safe actuator are exercised using that actuator. In most cases, the nature of the control circuitry used to stroke the valve is such that normal testing causes the fail safe actuator to operate the valve. Thus, the fail safe actuator is regularly tested when the valve is tested. In those cases where the fail safe actuator is not the normal source for operation of the valve, valve testing is performed using both the normal means of operation and the fail safe actuator.

4.4 Passive Valves

A. As specified in ISTC Table ISTC-3500-1, passive valves have no testing requirements other than verification of the accuracy of remote position indicators for valves so equipped and/or seat leakage testing if categorized as A-Passive. The attached testing program provides for verification of the accuracy of the remote position indicators of passive valves which are in a flow path which is required to perform a safety function in order to mitigate the consequences of an accident, achieve the safe shutdown condition, or maintain the safe shutdown condition. Provisions are also included for seat leakage testing of Category A-Passive valves. Passive valves which are within a non-safety related flow path are considered to be outside the scope of the PST program and are not tested as part of this program.

B. WBN U2 also has valves in the Essential Raw Cooling Water and Component Cooling System that were originally equipped with remote position indicators and which are within or provide a flow boundary for a safety related flow path. These valves have been placed in their required safety position and administratively locked in place with the power supply breaker locked open. This action was taken to mitigate potential non-conservative action by the valves in the event of a fire (10CFR50 Appendix R). None of these locked valves are required to change position to achieve or maintain the safe shutdown condition or to mitigate the consequences of an accident. Since locking open the power breaker for these valves also disables the remote position indication, these valves are considered to be passive manual valves not equipped with remote position indicators. Consequently the disabled indicators are not tested for accuracy of position indication.

4.5 Testing of Category C-Active and AC-Active Check Valves

A. Each check valve shall be exercise tested to both the open and closed position, regardless of safety direction.

B. Open and closed tests need only be performed at an interval when it is practicable to perform both tests, however both an open and closed test are required to be performed at least once during the preservice test period.

C. Test order shall be determined by WBN U2.

D. Open and closed tests are not required to be performed at the same time if they are performed in the preservice test period. However, if a check valve is exercised more often in one direction than may occur in the opposite direction, the more frequent testing may continue to be performed. For example, pump discharge checks may be tested open multiple times in conjunction with pump preoperational testing, while the closure test may be performed only once.

E. If two check valves are in a series configuration without provisions to verify individual reverse flow closure and the plant safety analysis assumes closure of either valve but not both, the valve pair may be tested as a unit. If the plant safety analysis assumes that a specific valve or both valves of the pair close to perform the safety function(s), the valve(s) shall be tested to demonstrate individual valve closure.

F. The use of a mechanical exerciser to move the obturator is also an acceptable test.

G. Disassembly inspection or Non-intrusive testing (NIT) may be used to document acceptable valve performance.

4.6 Check Valve Condition Monitoring Program (CMP)

A. As an alternative to the testing methods listed in Section 4.5 above, WBN U2 may establish a Check Valve Condition Monitoring Program [CKV-CMP] per ISTC-5222 of the OM Code, subject to the limitations and modifications listed in 10CFR 50.55a(b)(3).

B. The purpose of this program is to both (a) improve check valve performance and (b) optimize testing, examination, and preventive maintenance activities in order to maintain the continuing acceptable performance of a select group of check valves. WBN U2 may implement this program on a valve or a group of similar valves.

C. In general, valves that are grouped for disassembly inspection or NIT are included in the Condition Monitoring Program. Also, valves that credit Appendix J leak tests for the closure test are included to document and justify the extended frequency of testing. Valves included in the CKV-CMP are identified in the Alternate Frequency Justification column of the valve test table.

D. The U2 Condition Monitoring Program will be set up to start with the Inservice Test period. Groups will be established and monitoring methods assigned. Because there will be little or no actual operating or maintenance experience for U2 until after startup, the U2 CMP will be in the Interim period until sufficient information has been gathered to determine a Final plan for activities to be applied to the check valves in the program.

4.7 Thermal Expansion Check Valves

Several containment penetrations have been fitted with normally closed check valves designed to open to pass flow created by thermal expansion of fluid in the penetration. The quantity of thermal expansion flow is so small that any opening of the check valve will allow it to pass its maximum required accident flow. Open testing will be performed by verifying the ability to pass any amount of flow. Flow will not be quantified.

4.8 Safety and Relief Valves

Requirements are developed from Appendix I of the 2001 edition through 2003 addenda, of the ASME OM Code.

A. Set point verification is determined from test actuation using as the test media the fluid to which the valve is subject under operating conditions. Specific acceptance values are identified in implementing instructions.

B. Seat leakage verification is determined by measuring actual leakage through the valve seat during testing. Specific acceptance values are identified in implementing instructions.

C. The relief valves are grouped for testing. All relief valves are tested at least once during the preservice test period. Relief valve groups are identified in Table 5.

4.9 Thermal Relief Valves

Some safety related systems, particularly those containing heat exchangers, have been provided with thermal relief valves (TRV). These TRVs are small capacity relief valves intended to relieve pressure due to thermal expansion of fluid in an isolated component. The function of these valves is to protect equipment that is in a standby mode, that is, the equipment is not actively in service for accident mitigation or shutdown.

Tests shall be performed at least once in the preservice test period on all class 2 and 3 relief devices used in a thermal relief application.

4.10 Testing of Solenoid Actuated Pilot Valves

Many WBN U2 diaphragm actuated line valves are operated by a solenoid actuated pilot valve that cycles either to supply air to or to vent air from the diaphragm actuator. Such pilot valves are considered part of the actuator and their function is adequately demonstrated when the line valve is exercised. Such pilot valves are not individually exercised or stroke timed independent of the diaphragm actuated line valve. Where multiple trains of actuation exist [i.e., multiple solenoid actuated pilot valves performing redundant operation of a single line valve] the line valve is tested using each train of actuation independently. This ensures that each solenoid actuated pilot valve is challenged by the line valve test.

4.11 Testing in Conjunction with Cold Shutdowns

For valves in which testing is deferred to cold shutdown, testing will commence within 48 hours after cold shutdown is achieved and will continue until all tests are complete or the plant is ready to return to power. The unit will not be kept in cold shutdown solely to complete cold shutdown testing unless the plant failed to begin the required cold shutdown testing within 48 hours of achieving the cold shutdown condition. Any testing not completed at one shutdown will be performed at subsequent cold shutdowns. For planned shutdowns in which sufficient time exists to complete the testing of all the valves identified to be tested at cold shutdown, exception may be taken to the 48 hour rule, provided all of the valves are tested prior to startup. As a minimum, all cold shutdown valves will be tested prior to initial startup. For shutdowns greater than 92 days, all cold shutdown testing shall be completed in the last 92 days of the shutdown. For valves that fail their associated acceptance criteria during cold shutdown testing and which can only be tested at cold shutdown, corrective action shall be performed prior to restart. Additionally, some tests identified to be performed in conjunction with cold shutdowns cannot be performed during MODE 5 operation. These tests are performed in operational MODE 3 or 4 either while shutting the unit down or while returning the unit to power operation. Although these tests are not performed in MODE 5 (cold shutdown), they are considered to be tests performed in conjunction with cold shutdown because they cannot be performed unless the unit is removed from MODE 1 power operation.

Appendix A

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Alternative Frequency Justifications

1.0 ALTERNATE FREQUENCY-01

A. **Affected Component(s)** - 2-FCV-1-4-T, 2-FCV-1-11-T, 2-FCV-1-22-T, 2-FCV-1-29-T (2-47W801-1)

B. **Function of Affected Component(s)** - Closes to interrupt loss of SG inventory through a ruptured main steam line. Provides flow boundary isolation between the seismically qualified and non-seismically qualified portions of the main steam system.

C. **Basis for Alternative Frequency** - Closing these valves causes a loss of main steam flow from one steam generator which in turn causes a steam generator level transient, either of which could cause a unit trip and safety injection. Valves are equipped with part stroke capability, however, even a part stroke exercise increases the risk of an inadvertent valve closure when the unit is operating. In accordance with the manufacturer's recommendation, these valves should only be stroke time tested with steam on the valve. Therefore, stroke time testing can only be performed during MODE 3 operation, which is during the startup or shutdown sequence.

D. **Proposed Alternative Frequency** - Full stroke exercise and stroke time to the closed position during Hot Functional Testing and/or initial startup.

2.0 ALTERNATE FREQUENCY-02

A. **Affected Component(s)** - 2-FCV-1-17-A, 2-FCV-1-18-B (2-47W803-2)

B. **Function of Affected Component(s)** - Closes to prevent blowdown of main steam in the event of failure of the steam driven auxiliary feedwater pump or of the main steam piping to the pump.

C. **Basis for Alternative Frequency** - Testing these valves to close completely isolates the steam driven auxiliary feedwater pump from its source of steam. Failure of either valve to reopen will cause a complete loss of auxiliary feedwater for the loss of all AC power or station blackout accidents.

D. **Proposed Alternative Frequency** - Full stroke exercise to the closed position in conjunction with cold shutdown, not to exceed once per quarter in the preservice test period.

Appendix A

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3.0 ALTERNATE FREQUENCY-03

A. **Affected Component(s)** - 2-FCV-1-147-A, 2-FCV-1-148-B, 2-FCV-1-149-A, 2-FCV-1-150-B (2-47W801-1)

B. **Function of Affected Component(s)** - Closes to interrupt loss of SG inventory through a ruptured main steam line and to provide flow boundary isolation between the seismically qualified and non-seismically qualified portions of the main steam system during the startup phase of plant operation when the valves are open to provide steam line warming.

C. **Basis for Alternative Frequency** - The control circuitry for these valves has been modified to require the valves to be de-energized when unit startup is complete. The valves are maintained in the de-energized and closed condition during power operation. This modification was made to alleviate 10CFR50 Appendix R fire interactions from causing the valves to come open in a spurious fashion. Since the only time period in which these valves serve an active function is during startup, it is not prudent to restore power to the valve and place the valve, which is normally maintained in its fail safe condition, in other than its safe condition.

D. **Proposed Alternative Frequency** - Full stroke exercise to the closed position in conjunction with shutdowns, not to exceed once per quarter in the preservice test period.

4.0 ALTERNATE FREQUENCY-04

A. **Affected Component(s)** - 2-FCV-72-40-A, 2-FCV-72-41-B (2-47W812-1)

B. **Function of Affected Component(s)** - Opens to admit RHR pump flow to the RHR Spray Headers

C. **Basis for Alternative Frequency** - These valves are electrically interlocked with containment sump valves 2-FCV-63-72-A and 2-FCV-63-73-B in such a manner that the sump valves must be opened to allow the spray valves to open. Opening the containment sump valves with the system filled during operation requires either draining an extensive portion of the RHR system or allowing it to drain to the containment sump. Draining and refilling these lines requires a considerable amount of time and system inoperability. Allowing the affected piping to drain to the sump could require extensive cleanup time.

D. **Proposed Alternative Frequency** - Full stroke exercise to the open position once in the preservice test period.

Appendix A

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5.0 ALTERNATE FREQUENCY-05

A. **Affected Component(s)** - 2-CKV-3-508, 2-CKV-3-509, 2-CKV-3-510, 2-CKV-3-511 (2-47W803-1)

B. **Function of Affected Component(s)** - Closes to interrupt main feedwater to prevent a rapid primary side cooldown in the event of a main steam line break and or to prevent loss of steam generator water inventory in the event of a break in the main feedwater line before the isolation valve.

C. **Basis for Alternative Frequency** - Exercising these valves during power operation causes a loss of feedwater to the Steam Generator they supply which in turn causes a steam generator level transient, either of which could result in unit trip and safety injection.

D. **Proposed Alternative Frequency** - Full stroke exercise the CKVs to the closed position in conjunction with cold shutdowns, not to exceed once per quarter in the preservice test period. Bi-directional open test is verified during normal operations.

Appendix A

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6.0 ALTERNATE FREQUENCY-06

A. **Affected Component(s)** - 2-FCV-3-33-A, 2-FCV-3-35, 2-FCV-3-35A, 2-FCV-3-47-B, 2-FCV-3-48, 2-FCV-3-48A, 2-FCV-3-87-A, 2-FCV-3-90, 2-FCV-3-90A, 2-FCV-3-100-B, 2-FCV-3-103, 2-FCV-3-103A, 2-FCV-3-185, 2-FCV-3-186, 2-FCV-3-187, 2-FCV-3-188, 2-FCV-3-236, 2-FCV-3-239, 2-FCV-3-242, 2-FCV-3-245 (2-47W803-1)

B. **Function of Affected Component(s)** - Closes to interrupt main feedwater to prevent a rapid primary side cool down in the event of a main steam line break and or to prevent loss of steam generator water inventory in the event of a break in the main feedwater line before the isolation valve.

C. **Basis for Alternative Frequency** - Exercising these valves during power operation causes a change of feedwater flow to the Steam Generator they supply which in turn causes a steam generator level transient, either of which could result in unit trip and safety injection. Stroke time testing of the FCVs is normally performed in mode 3 during shutdown for a refueling when isolation of feedwater is performed. The test procedure is written to allow performance during modes 5 and/or 6, but performance in these modes requires extensive lifting/re-landing of permanent wiring and installation/removal of jumpers and test switches to allow testing of individual valves. Modes 5 and 6 performance is only used for Post Maintenance Testing purposes on a valve-by-valve bases.

D. **Proposed Alternative Frequency** - Full stroke exercise and stroke time the FCVs to the closed position at the end of Hot Functional Testing prior to initial startup.

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7.0 ALTERNATE FREQUENCY-07

A. **Affected Component(s)** - 2-CKV-3-805-A, 2-CKV-3-806-B, 2-CKV-3-810-S, 2-CKV-3-864-S (2-47W803-2)

B. **Function of Affected Component(s)** - Open to admit auxiliary feedwater to the steam generators during loss of main feedwater. Valves 2-CKV-3-805-A, 2-CKV-3-806-B and 2-CKV-3-810-S also close when the Condensate Storage Tank is exhausted to provide a flow boundary for ERCW going to the pump suction.

C. **Basis for Alternative Frequency** - Exercising these valves to their safeguard position requires operating the AFW pumps at full flow to the steam generators while the steam generators are pressurized. The resulting introduction of cold water into the steam generator will cause undesirable thermal fatigue cycles on the feedwater piping and SG feedwater nozzles and will cause level transients due to SG shrink that could result in unit trip and unnecessary actuation of the safety injection system. Testing the valves during return to power operation following shutdowns would delay startup of the plant because the test is performed in mode 3 in order to flow to the steam generators at full steam generator pressure. Valves 2-CKV-3-805-A, 2-CKV-3-806-B and 2-CKV-3-810-S close test will be performed at the same frequency as the open test as allowed by ISTC-3522(a).

D. **Proposed Alternative Frequency** - Full stroke exercise the four valves to the open position once during the preservice test period. Full stroke exercise valves 2-CKV-3-805-A, 2-CKV-3-806-B, and 2-CKV-3-810-S to the closed position once during the preservice test period. Bidirectional close testing of 2-CKV-3-864-S will be performed at the same frequency as permitted by ISTC-3522(a).

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8.0 ALTERNATE FREQUENCY-08

A. **Affected Component(s)** - 2-FCV-62-84-A (2-47W809-1)

B. **Function of Affected Component(s)** - Valve 2-FCV-62-84-A closes to prevent the loss of reactor coolant system inventory through a break in the Code Class 2 piping behind it and opens to provide auxiliary spray during certain reactor transients.

C. **Basis for Alternative Frequency** - Exercising this valve during power operation results in initiation of auxiliary RCS spray. This causes a quenching effect on the Pressurizer steam volume, resulting in a drop in RCS pressure and an increase in Pressurizer level. Actuation of auxiliary spray flow also adversely impacts the fatigue evaluation, which accounts for and limits the number of thermal stress cycles to be experienced by the nozzles associated with auxiliary spray.

D. **Proposed Alternative Frequency** - Full stroke exercise 2-FCV-62-84-A in conjunction with cold shutdowns, not to exceed once per quarter in the preservice test period.

9.0 ALTERNATE FREQUENCY-09

A. **Affected Component(s)** - 2-CKV-32-343, 2-CKV-32-333-A, 2-CKV-32-323-B, 2-FCV-32-81-A, 2-FCV-32-103-B, 2-FCV-32-111-B (2-47W848-1)

B. **Function of Affected Component(s)** - Closes to provide containment isolation

C. **Basis for Alternative Frequency** - Exercising these valves to the closed position interrupts the air supply to a number of critical instruments and valves inside containment. Failure of these valves to reopen could cause unstable operation and unit trip by allowing all of the valves and instruments to assume their failed condition.

D. **Proposed Alternative Frequency** - Full stroke exercise to the closed position in conjunction with cold shutdowns, not to exceed once per quarter in the preservice test period. Bi-directional open test of the check valves is verified at the same frequency as permitted by ISTC-3522(a).

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10.0 ALTERNATE FREQUENCY-10

A. **Affected Component(s)** - 2-CKV-61-658, 2-CKV-61-659, 2-CKV-61-660, 2-CKV-61-661, 2-CKV-61-662, 2-CKV-61-663, 2-CKV-61-664, 2-CKV-61-665, 2-CKV-61-666, 2-CKV-61-667, 2-CKV-61-668, 2-CKV-61-669, 2-CKV-61-670, 2-CKV-61-671, 2-CKV-61-672, 2-CKV-61-673, 2-CKV-61-674, 2-CKV-61-675, 2-CKV-61-676, 2-CKV-61-677 (2-47W814-2)

B. **Function of Affected Component(s)** - Opens during ice melt portion of an accident to drain water into lower compartment to prevent water level in the ice storage compartment from interfering with the operation of the lower inlet doors.

C. **Basis for Alternative Frequency** - Valves are installed on the end of the ice condenser drains inside the biological shield in the lower compartment. Radiation levels in this area during operation prevent entry. The drains are located some distance from the floor, requiring the construction of scaffolding to reach. Therefore it is impractical to try to test the valves during a cold shutdown.

D. **Proposed Alternative Frequency** - Full stroke exercise the valve open and closed manually once during the preservice test period.

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11.0 ALTERNATE FREQUENCY-11

A. **Affected Component(s)** - 2-CKV-62-504-S, 2-CKV-62-525-A, 2-CKV-62-532-B (2-47W809-1)
2-CKV-63-510-S, 2-CKV-63-524-A, 2-CKV-63-526-B, 2-CKV-63-543-A, 2-CKV-63-545-A, 2-CKV-63-547-B, 2-CKV-63-549-B, 2-CKV-63-551-S, 2-CKV-63-553-S, 2-CKV-63-555-S, 2-CKV-63-557-S, 2-CKV-63-558-B, 2-CKV-63-559-B, 2-CKV-63-581-S, 2-CKV-63-586-S, 2-CKV-63-587-S, 2-CKV-63-588-S, 2-CKV-63-589-S (2-47W811-1)

B. **Function of Affected Component(s)** - Valves are part of the Emergency Core Cooling System (ECCS). Open to admit flow from the refueling water storage tank through their respective ECCS pumps to the reactor vessel during accidents involving loss of primary system inventory. Several of the valves also close to provide a flow boundary (i.e., prevent reverse flow through a shutdown pump or provide second isolation to RWST during recirculation phase operation).

C. **Basis for Alternative Frequency** - The centrifugal charging pumps cannot be run at full flow through their associated valves without causing undesirable RCS temperature and/or boron concentration changes resulting in changes in reactivity during operations which could result in a plant trip and subsequent safety injection actuation or causing undesirable thermal cyclic stresses which would eventually use all of the design basis for thermal cycles due to a Safety Injection. The safety injection pumps do not develop sufficient head to deliver to the reactor vessel during normal operation. Letdown capacity precludes testing during MODE 5 without compromising cold overpressure protection provisions. Full stroke exercising 2-CKV-62-504-S or 2-CKV-63-510-S to the closed position renders both trains of their respective systems inoperable.

D. **Proposed Alternative Frequency** - Full stroke exercise to the open position once during the preservice test period. Full stroke exercise valves 2-CKV-62-504-S and 2-CKV-63-510-S to the closed position once during the preservice test period.

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12.0 ALTERNATE FREQUENCY-12

Not used for WBN Unit 2.

13.0 ALTERNATE FREQUENCY-13

A. **Affected Component(s)** - 2-CKV-62-930 (2-47W809-2)

B. **Function of Affected Component(s)** - Opens to pass emergency boration flow to the CCP suction.

C. **Basis for Alternative Frequency** - Passing emergency boration flow through this valve during operation results in undesirable boration of the RCS. This could cause undesirable changes in rod position to compensate for the negative reactivity insertion. Testing during cold shutdown would also cause a negative reactivity insertion which could adversely affect the length of time required to dilute to an operating boron concentration or adversely impact the reactivity balance during shutdown conditions.

D. **Proposed Alternative Frequency** - Full stroke exercise to the open and closed position once during the preservice test period.

14.0 ALTERNATE FREQUENCY-14

A. **Affected Component(s)** - 2-FCV-62-61-B, 2-FCV-62-63-A (2-47W809-1)

B. **Function of Affected Components** - Closes to provide containment isolation.

C. **Basis for Alternative Frequency** - Exercising valves during operation would cause loss of seal water return to and potentially damage the reactor coolant pump seals, resulting in high seal losses with resultant maintenance, contamination and clean up problems.

D. **Proposed Alternative Frequency** - Full stroke exercise to the closed position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

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15.0 ALTERNATE FREQUENCY-15

A. **Affected Component(s)** - 2-FCV-62-69-A, 2-FCV-62-70-A, 2-FCV-62-77-B, 2-FCV-62-90-A, 2-FCV-62-91-B (2-47W809-1)

B. **Function of Affected Components** - 2-FCV-62-69-A and 2-FCV-62-70-A close in response to a low Pressurizer level, prior to receipt of a reactor trip to isolate the Code Class 2 piping behind them. 2-FCV-62-90-A and 2-FCV-62-91-B close to isolate the normal charging and letdown lines during a safety injection. 2-FCV-62-77-B closes to provide containment isolation.

C. **Basis for Alternative Frequency** - Exercising these valves to the position required to fulfill their safety function causes a loss of flow in either the charging or letdown portions of the Chemical and Volume Control System. As described in the Westinghouse letter to TVA, WAT-D-8347 (RIMS T33 911231 810), isolation of the charging and letdown lines during operation can result in a thermal transient at the charging nozzle of from 500 degrees F to 70 degrees F in a two to five minute period. This results in an increase in the fatigue usage factor beyond that assumed for the original design analysis of these systems.

D. **Proposed Alternative Frequency** - Full stroke exercise the valves to the closed position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

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16.0 ALTERNATE FREQUENCY-16

A. **Affected Component(s)** - 2-FCV-62-1228-A, 2-FCV-62-1229-B, 2-LCV-62-132-A, 2-LCV-62-133-B, 2-LCV-62-135-A, 2-LCV-62-136-B (2-47W809-1)

B. **Function of Affected Component(s)** - The LCVs change position to realign charging pump suction from the Volume Control Tank to the RWST during safety injection. The FCVs are normally open to vent hydrogen from the charging pump suction but change position to provide a flow boundary during safety injection.

C. **Basis for Alternative Frequency** - Cycling these valves during operation results in the charging pumps taking suction from the RWST for normal charging requirements. This will result in addition of borated water which has a different boron concentration than that in the reactor coolant system since the likelihood of both the RWST and the RCS being at the same boron concentration at the same time is very small. The change in boron concentration in the RCS caused by charging from the RWST during testing would cause unstable unit operation, especially if any of the valves fail to return to their normal position. The FCVs are electrically interlocked with the LCVs in such a manner that if they are stroked independently of the LCVs, position indication and consequently the ability to time the valves is lost.

D. **Proposed Alternative Frequency** - Full stroke exercise 2-FCV-62-1228-A, 2-FCV-62-1229-B, 2-LCV-62-132-A and 2-LCV-62-133-B to the closed position and 2-LCV-62-135-A and 2-LCV-62-136-B to the open position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

17.0 ALTERNATE FREQUENCY-17

A. **Affected Component(s)** - 2-FCV-74-1-A, 2-FCV-74-2-B, 2-FCV-74-8-A, 2-FCV-74-9-B (2-47W810-1)

B. **Function of Affected Component(s)** - Opens to provide decay heat removal for cooling to the cold shutdown condition.

C. **Basis for Alternative Frequency** - Exercising the valve during operation would result in over pressurizing the RHR piping, causing a loss of both trains of a safety system.

D. **Proposed Alternative Frequency** - Full stroke exercise to the open position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

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18.0 ALTERNATE FREQUENCY-18

A. **Affected Component(s)** - 2-CKV-63-502-S, 2-CKV-63-632-A, 2-CKV-63-633-B, 2-CKV-63-634-A, 2-CKV-63-635-B, 2-CKV-63-640-S, 2-CKV-63-641-S, 2-CKV-63-643-S, 2-CKV-63-644-S (2-47W811-1)
2-CKV-74-514-A, 2-CKV-74-515-B, 2-CKV-74-544-A, 2-CKV-74-545-B (2-47W810-1)

B. **Function of Affected Component(s)** - Opens to admit flow from the RHR pumps to the reactor during LOCA or post LOCA recovery. Valves 2-CKV-74-544-A and 2-CKV-74-545-B also close to prevent dead heading the weaker pump when at minimum flow (i.e., when RCS pressure is at or near the pressure available during minimum flow operation) during all modes except shutdown cooling. Valves 2-CKV-74-514-A and 2-CKV-74-515-B also close to prevent recirculation of RHR flow through a tripped pump during the shutdown cooling mode when both trains are in service.

C. **Basis for Alternative Frequency** - The RHR pumps do not develop sufficient head to open the valves during power operation. With the RHR pump suction being supplied from the normal loop 4 suction path during shutdown and discharging to a closed vessel, the pumps cannot develop sufficient flow to satisfy the full flow requirements for the check valves. In order to achieve full flow, the vessel must be open and the pump suction taken from the RWST. Valves 2-CKV-74-514-A and 2-CKV-74-515-B cannot be exposed to the pressure of a running RHR pump during plant operation without opening 2-HCV-74-36 and 2-HCV-74-37. Opening these valves or back-seating 2-CKV-63-502-S adversely affects both trains of a safety system. Valves 2-CKV-74-544-A and 2-CKV-74-545-B can only be back seated during operation. While in shut down conditions, the valve alignments necessary to back-seat these valves adversely affects both trains of a safety system.

D. **Proposed Alternative Frequency** - Full stroke exercise to the open position once during the preservice test period. Full stroke exercise 2-CKV-74-544-A and 2-CKV-74-545-B to the closed position quarterly during operation. Full stroke exercise 2-CKV-63-502-S to the closed position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period. Full stroke exercise 2-CKV-74-514-A and 2-CKV-74-515-B to the closed position once during the preservice test period.

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19.0 ALTERNATE FREQUENCY-19

A. **Affected Component(s)** - 2-FCV-63-1-A, 2-FCV-63-5-B (2-47W811-1)

B. **Function of Affected Component(s)** - Closes when the associated pump suction (either RHR or SIS) is transferred from the RWST to the containment sump following a LOCA.

C. **Basis for Alternative Frequency** - Exercising valve during operation results in losing suction from RWST to both trains of a safety system. If valve fails to reopen both trains of the affected safety system would be made inoperable.

D. **Proposed Alternative Frequency** - Full stroke exercise to the closed position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

20.0 ALTERNATE FREQUENCY-20

A. **Affected Component(s)** - 2-FCV-63-3-A (2-47W811-1)

B. **Function of Affected Component(s)** - Valve is closed to prevent flow to the RWST during the recirculation phase of a LOCA.

C. **Basis for Alternative Frequency** - Exercising valve during operation results in isolating the recirculation line to both trains of safety injection pumps. Failure of the valve to reopen would make both trains of a safety system inoperable.

D. **Proposed Alternative Frequency** - Full stroke exercise to the closed position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

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21.0 ALTERNATE FREQUENCY-21

A. **Affected Component(s)** - 2-FCV-63-8-A, 2-FCV-63-11-B (2-47W811-1)

B. **Function of Affected Component(s)** - Opened to establish suction flow path from the RHR pumps to safety injection and/or centrifugal charging pumps during the recirculation phase of a LOCA.

C. **Basis for Alternative Frequency** - Both valves are electrically interlocked with the safety injection pump recirculation isolation valves 2-FCV-63-3-A, 2-FCV-63-4-B and 2-FCV-63-175-B in such a manner that both trains of the Safety Injection System will have their minimum flow recirculation path isolated to cycle either valve. Isolation of these recirculation paths adversely affects both trains of a safety system and could cause failure of both trains. Additionally, the valves are interlocked with the containment sump suction valves in such a manner that they must be fully open to allow these valves to operate. Opening the containment sump valves during operation requires either draining an extensive portion of the RHR system or allowing it to drain to the containment sump. Draining and refilling these lines requires a considerable amount of time and system inoperability. Allowing the affected piping to drain to the sump requires extensive cleanup time. [See also AF-25]

D. **Proposed Alternative Frequency** - Full stroke exercise to the open position once during the preservice test period.

22.0 ALTERNATE FREQUENCY-22

A. **Affected Component(s)** - 2-FCV-63-22-B (2-47W811-1)

B. **Function of Affected Component(s)** - Closed when safety injection pumps are placed on hot leg recirculation after a LOCA.

C. **Basis for Alternative Frequency** - Exercising valve during operation isolates both trains of safety injection from their normal flow path to the cold legs. Failure of the valve to reopen results in total loss of system function.

D. **Proposed Alternative Frequency** - Full stroke exercise to the closed position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

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23.0 ALTERNATE FREQUENCY-23

A. **Affected Component(s)** - 2-FCV-63-25-B, 2-FCV-63-26-A (2-47W811-1)

B. **Function of Affected Component(s)** - Valves are part of the Emergency Core Cooling System (ECCS) and open to admit flow from the centrifugal charging pumps to the reactor vessel during accidents involving loss of primary system pressure.

C. **Basis for Alternative Frequency** - Charging header pressure during normal operation exceeds the pressure downstream of the check valves associated with these FCVs. If the FCVs are opened for testing, the pressure in the charging header will initiate flow through the high head safety injection system piping. This will:

1. Cause Pressurizer level transients, due to the additional water being added to the RCS, which will cause unstable operation and may result in unit trip and subsequent initiation of the entire safety injection system.

2. Cause a thermal stress transient in the associated piping which will have to be counted as one of the limited number of safety injection system actuations permitted during the design life of the plant.

D. **Proposed Alternative Frequency** - Full stroke exercise to the open position in conjunction with cold shutdowns, but not more often than once per quarter during the preservice test period.

24.0 ALTERNATE FREQUENCY-24

Not Used for WBN Unit 2

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25.0 ALTERNATE FREQUENCY-25

A. **Affected Component(s)** - 2-FCV-63-72-A, 2-FCV-63-73-B (2-47W811-1)
2-FCV-72-44-A, 2-FCV-72-45-B (2-47W812-1)

B. **Function of Affected Component(s)** - Opens to allow safety related systems to take suction from containment sump.

C. **Basis for Alternative Frequency** - Opening the containment sump isolation valves during operation requires either draining an extensive portion of the RHR and CS systems or allowing it to drain to the containment sump. Draining and refilling these lines requires a considerable amount of time and system inoperability. Allowing the affected piping to drain to the sump requires extensive cleanup time. [See also AF-20]

D. **Proposed Alternative Frequency** - Full stroke exercise to the open position once during the preservice test period.

26.0 ALTERNATE FREQUENCY-26

A. **Affected Component(s)** - 2-FCV-63-93-A, 2-FCV-63-94-B, 2-FCV-63-172-B (2-47W811-1)
2-FCV-74-33-A, 2-FCV-74-35-B (2-47W810-1)

B. **Function of Affected Component(s)** - All except 2-FCV-63-172-B are open during ECCS injection mode to allow either train of RHR to provide injection flow to all four RHR injection lines. The valves are closed to establish the flow boundary during the hot leg recirculation phase of a LOCA. 2-FCV-63-172B is normally closed and remains closed during the injection phase of a LOCA but opens to initiate hot leg recirculation.

C. **Basis for Alternative Frequency** - Closing any one of the four normally open valves causes operation in an unanalyzed condition by isolating two of the four cold legs from the RHR pumps. Opening 2-FCV-63-172-B would require closure of 2-FCV-74-33-A and 2-FCV-63-35-B to avoid having RHR aligned to hot leg injection and cold leg injection simultaneously. Since these valves cannot be closed without affecting both trains of RHR, 2-FCV-63-172-B cannot be opened.

D. **Proposed Alternative Frequency** - Full stroke exercise 2-FCV-63-93-A, 2-FCV-63-94-B, 2-FCV-74-33-A, and 2-FCV-74-35-B to the closed position and 2-FCV-63-172-B to the open position in conjunction with cold shutdowns, not to exceed once per quarter in the event of frequent cold shutdowns.

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27.0 ALTERNATE FREQUENCY-27

Not Used for WBN Unit 2

28.0 ALTERNATE FREQUENCY-28

A. **Affected Component(s)** - 2-FSV-68-394-A, 2-FSV-68-395-B, 2-FSV-68-396-B, 2-FSV-68-397-A, (2-47W813-1)

B. **Function of Affected Component(s)** - These FSVs open to provide a reactor head vent and close to terminate a reactor head vent.

C. **Basis for Alternative Frequency** - These valves are solenoid to open and spring to close. With any single valve open for stroke time testing, the remaining valves are required to seat against full RCS pressure upstream with the downstream pressure at Pressurizer Relief Tank pressure. If the valves that remain closed are not well seated, stroking of a single valve to the open position while at power could result in leakage from the RCS in excess of the TS limits or depressurization of the RCS. Failure of any single valve to reclose would leave a single valve to prevent leakage from the RCS.

D. **Proposed Alternative Frequency** - Full stroke exercise to the open position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

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29.0 ALTERNATE FREQUENCY-29

A. **Affected Component(s)** - 2-FCV-67-83-B, 2-FCV-67-87-A, 2-FCV-67-88-B, 2-FCV-67-89-A, 2-FCV-67-91-B, 2-FCV-67-95-A, 2-FCV-67-96-B, 2-FCV-67-97-A, 2-FCV-67-99-A, 2-FCV-67-103-B, 2-FCV-67-104-A, 2-FCV-67-105-B, 2-FCV-67-107-A, 2-FCV-67-111-B, 2-FCV-67-112-A, 2-FCV-67-113-B (2-47W845-3)
2-CKV-70-679, 2-FCV-70-87-B, 2-FCV-70-89-B, 2-FCV-70-90-A, 2-FCV-70-92-A, 2-FCV-70-100-A, 2-FCV-70-133-A, 2-FCV-70-134-B, 2-FCV-70-140-B (2-47W859-3)

B. **Function of Affected Component(s)** - 2-FCV-70-133-A closes to provide a second train of isolation to interrupt a potential source of dilution water to the containment sump. The remaining valves are containment isolation valves.

C. **Basis for Alternative Frequency** - Exercising these valves during operation causes a loss of flow to the associated equipment (Lower Compartment Coolers, Control Rod Drive Mechanism Coolers, Reactor Coolant Pump [RCP] Motor Coolers, RCP oil coolers, and/or RCP Thermal Barrier Coolers). In many cases [i.e., RCP Pump Oil Coolers or RCP Thermal Barrier Coolers] loss of flow to the associated equipment for even a brief period of time could easily result in failure of the associated equipment, unit trip, and potentially even a safety injection. Failure of the remaining valves to reopen would cause a sustained loss of flow to the associated equipment and would result in the same consequences.

D. **Proposed Alternative Frequency** - Full stroke exercise the valves to the closed position in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period. Bidirectional opening test of 2-CKV-70-679 will be performed quarterly.

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30.0 ALTERNATE FREQUENCY-30

A. **Affected Component(s)** - 2-CKV-68-849, 2-CKV-63-868 (2-47W830-6)

B. **Function of Affected Component(s)** - Closes to provide Containment Isolation

C. **Basis for Alternative Frequency** - Cycling these closed valves during power operation interrupts the nitrogen supply inside containment to a number of components and systems. Additionally personnel radiation exposure and valve inaccessibility prohibit quarterly exercising of these valves. ISTC-3522(a) permits scheduling both the open and the close tests at the same frequency.

D. **Proposed Alternative Frequency** - Full stroke exercise to the closed position and perform the bidirectional open test in conjunction with cold shutdowns, not to exceed once per quarter during the preservice test period.

Table 1

Abbreviations

(Pump) Abbreviations	
DP	Differential Pressure
Q	Quarterly Group A or Group B test
CPT	Comprehensive Pump Test

(Valve) Abbreviations		
SYS	TVA system identification number. See Table 2 for system numbers and corresponding names.	
CLASS	ASME Code Class	
COORD	Drawing coordinates where valve/pump is located	
CAT	Valve category; A, B, C, active or passive	
SIZE	Nominal valve diameter in inches	
TYPE	Valve type	
	ANG	Angle body valve
	BTFY	Butterfly valve
	BYV	Bypass Valve
	CKV	Check valve
	FCV	Flow Control Valve
	FSV	Flow Solenoid Valve
	GATE	Gate valve
	GLOBE	Globe valve
	ISV	Isolation Valve
	SFV	Safety or relief valve
ACTR	Valve Actuator	
	DIAPH	Diaphragm Actuator
	CYL	Air, hydraulic or other high pressure fluid cylinder actuator
	MAN	Manual Actuator
	MOV	Motor Operated Actuator
	SELF	Self Actuating (check or relief)
	SOL	Solenoid Actuator

Table 1

(Valve) Abbreviations		
NPOSI	Position in which a valve is assumed to be prior to being called upon to perform its function. This may not be the position in which a valve is shown on the TVA Flow Diagrams (47W800 series drawings). O-Open, C-Closed, B-Both, E-Either	
APOSI	The position to which a valve must travel to fulfill its specific function. This is the position to which valves are exercised during their exercising test. O-Open, C-Closed, B-Both	
TESTS	BDC	Check Valve Bi-directional Closed (NOT a safety function)
	BDO	Check Valve Bi-directional Open (NOT a safety function)
	CMP	Check Valve Condition Monitoring Program
	CVC	Check Valve Closure
	CVO	Check Valve Open
	ET	Exercise test (no timing)
	FSC	Fail Safe Closed (same frequency as the exercise)
	FSO	Fail Safe Open (same frequency as the exercise)
	LK	Leak Test other than App J or PIV
	MS	Manual Stroke (frequency is 2 YR)
	RPI	Remote Position Indication (frequency is 2 YR)
	SLTJ	Seat Leakage Test in accordance with Appendix J
	SLTP	Seat Leakage Test for pressure isolation (Tech Spec frequency) includes CVC
	STC	Exercise and stroke time closed
	STO	Exercise and stroke time open
	RV	Relief Valve Test
	TRV	Thermal Relief Valve Test
FREQUENCY	Q	Quarterly
	CMP	Frequency established by the Check Valve Condition Monitoring Plan
	CSD	Cold Shutdown
	PS	Preservice Test period
	DIF	Disassemble Inspection Frequency by Group
	NO	Normal Operations - at least once during the Preservice Test period

Table 2

System Identification Numbers

System Number	System Name
01	Main Steam
03	Feedwater
26	High Pressure Fire Protection
30	Ventilation
31	Chilled Water
32	Control Air
33	Service Air
43	Sampling
52	System Test Facility
59	Demineralized Water
61	Ice Condenser Containment
62	Chemical and Volume Control
63	Safety Injection
67	Essential Raw Cooling Water
68	Reactor Coolant
70	Component Cooling
72	Containment Spray
74	Residual Heat Removal
77	Waste Disposal
78	Spent Fuel Cooling
81	Primary Water
84	Flood Mode Boration
90	Radiation Monitoring

Table 3

Summary Listing of Pumps

NOTE

Per ISTB-3530 and Table ISTB-3000-1, rotational speed measurements are only required for variable speed pumps. Pumps marked NR are powered by synchronous or induction motors.

Pump UNID	Pump Group	Drawing	ASME Code Class	Pump Type	Diff Press (Dp)		Flow Rate		Vib (Vel)		Pump Speed	Relief Requests
					Q	CPT	Q	CPT	Q	CPT		
Auxiliary Feed Water (Motor)												
2-PMP-3-118-A 2-PMP-3-128-B	A	2-47W803-2	3	Centrifugal	Q	2Y	Q	2Y	Q	2Y	NR	None
Auxiliary Feed Water (Steam)												
2-PMP-3-2A-S	B	2-47W803-2	3	Centrifugal	Q	2Y	Q	2Y	NR	2Y	Q	None
Centrifugal Charging												
2-PMP-62-108-A 2-PMP-62-104-B	A	2-47W809-1	2	Centrifugal	Q	2Y	Q	2Y	Q	2Y	NR	None
Safety Injection												
2-PMP-63-10-A 2-PMP-63-15-B	B	2-47W811-1	2	Centrifugal	Q	2Y	Q	2Y	NR	2Y	NR	None

Table 3

Pump UNID	Pump Group	Drawing	ASME Code	Pump Type	Diff Press (Dp)		Flow Rate		Vib (Vel)		Pump Speed	Relief Requests
Containment Spray												
2-PMP-72-27-A 2-PMP-72-10-B	B	2-47W812-1	2	Centrifugal	Q	2Y	Q	2Y	NR	2Y	NR	None
Residual Heat Removal												
2-PMP-74-10-A 2-PMP-74-20-B	A	2-47W810-1	2	Centrifugal	Q	2Y	Q	2Y	Q	2Y	NR	None

Table 4

Summary Listing of Valves

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
Drawing Number 2-47W801-1												
2-FCV-1-4-T	1	2	C-3	B-Act	32	GLOBE	CYL	O	C	STC/PS FSC RPI	AF-01	None
2-FCV-1-11-T	1	2	E-3	B-Act	32	GLOBE	CYL	O	C	STC/PS FSC RPI	AF-01	None
2-FCV-1-22-T	1	2	F-3	B-Act	32	GLOBE	CYL	O	C	STC/PS FSC RPI	AF-01	None
2-FCV-1-29-T	1	2	A-3	B-Act	32	GLOBE	CYL	O	C	STC/PS FSC RPI	AF-01	None
2-FCV-1-147-A	1	2	C-3	B-Act	2	GLOBE	DIAPH	O	C	STC/CSD FSC RPI	AF-03	None
2-FCV-1-148-B	1	2	E-3	B-Act	2	GLOBE	DIAPH	O	C	STC/CSD FSC RPI	AF-03	None
2-FCV-1-149-A	1	2	G-3	B-Act	2	GLOBE	DIAPH	O	C	STC/CSD FSC RPI	AF-03	None
2-FCV-1-150-B	1	2	B-3	B-Act	2	GLOBE	DIAPH	O	C	STC/CSD FSC RPI	AF-03	None
2-PCV-1-5-T	1	2	C-2	B-Act	6	GLOBE	DIAPH	C	B	STO/PS STC/PS FSC RPI	None	None
2-PCV-1-12-T	1	2	D-2	B-Act	6	GLOBE	DIAPH	C	B	STO/PS STC/PS FSC RPI	None	None
2-PCV-1-23-T	1	2	F-2	B-Act	6	GLOBE	DIAPH	C	B	STO/PS STC/PS FSC RPI	None	None
2-PCV-1-30-T	1	2	A-2	B-Act	6	GLOBE	DIAPH	C	B	STO/PS STC/PS FSC RPI	None	None
2-ISV-1-619	1	2	C-2	B-Act	6	GATE	MAN	O	C	MS	None	None
2-ISV-1-620	1	2	D-2	B-Act	6	GATE	MAN	O	C	MS	None	None
2-ISV-1-621	1	2	F-2	B-Act	6	GATE	MAN	O	C	MS	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-ISV-1-622	1	2	A-2	B-Act	6	GATE	MAN	O	C	MS	None	None
2-SFV-1-512	1	2	F-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-513	1	2	F-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-514	1	2	F-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-515	1	2	F-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-516	1	2	F-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-517	1	2	D-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-518	1	2	D-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-519	1	2	D-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-520	1	2	D-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-521	1	2	D-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-522	1	2	B-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-523	1	2	B-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-524	1	2	B-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-525	1	2	B-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-526	1	2	B-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-527	1	2	A-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-528	1	2	A-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-SFV-1-529	1	2	A-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-530	1	2	A-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
2-SFV-1-531	1	2	A-2	C-Act	6x10	SFV	SELF	C	O	RV	None	None
Drawing Number 2-47W801-2												
2-FCV-1-7-B	1	2	C-4	B-Act	4	GLOBE	SOL	O	C	STC/Q FSC RPI	None	None
2-FCV-1-14-A	1	2	E-4	B-Act	4	GLOBE	SOL	O	C	STC/Q FSC RPI	None	None
2-FCV-1-25-B	1	2	G-4	B-Act	4	GLOBE	SOL	O	C	STC/Q FSC RPI	None	None
2-FCV-1-32-A	1	2	B-4	B-Act	4	GLOBE	SOL	O	C	STC/Q FSC RPI	None	None
2-FCV-1-181-A	1	2	D-2	B-Act	4	GLOBE	SOL	O	C	STC/Q FSC RPI	None	None
2-FCV-1-182-B	1	2	F-2	B-Act	4	GLOBE	SOL	O	C	STC/Q FSC RPI	None	None
2-FCV-1-183-A	1	2	H-2	B-Act	4	GLOBE	SOL	O	C	STC/Q FSC RPI	None	None
2-FCV-1-184-B	1	2	B-2	B-Act	4	GLOBE	SOL	O	C	STC/Q FSC RPI	None	None
Drawing Number 2-47W803-1												
2-CKV-3-508	3	2	F-2	C-Act	16	CKV	SELF	O	C	CVC/CSD BDO/NO	AF-05	None
2-CKV-3-509	3	2	E-2	C-Act	16	CKV	SELF	O	C	CVC/CSD BDO/NO	AF-05	None
2-CKV-3-510	3	2	C-2	C-Act	16	CKV	SELF	O	C	CVC/CSD BDO/NO	AF-05	None
2-CKV-3-511	3	2	B-2	C-Act	16	CKV	SELF	O	C	CVC/CSD BDO/NO	AF-05	None
2-CKV-3-638	3	2	A-3	C-Act	6	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-3-644	3	2	A-1	C-Act	6	CKV	SELF	O	C	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-645	3	2	A-1	C-Act	6	CKV	SELF	O	C	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-652	3	2	C-2	C-Act	6	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-3-655	3	2	C-1	C-Act	6	CKV	SELF	O	C	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-656	3	2	C-1	C-Act	6	CKV	SELF	O	C	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-669	3	2	D-2	C-Act	6	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-3-670	3	2	E-1	C-Act	6	CKV	SELF	O	C	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-678	3	2	E-2	C-Act	6	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-3-679	3	2	F-1	C-Act	6	CKV	SELF	O	C	CVC/CMP CVO/CMP	CKV-CMP	None
2-FCV-3-33-A	3	2	C-3	B-Act	16	GATE	MOV	O	C	STC/PS RPI	AF-06	None
2-FCV-3-35	3	*	C-4	B-Act	16	ANG	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-35A	3	N	C-4	B-Act	6	GLOBE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-47-B	3	2	E-3	B-Act	16	GATE	MOV	O	C	STC/PS RPI	AF-06	None
2-FCV-3-48	3	*	E-4	B-Act	16	ANG	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-48A	3	N	D-4	B-Act	6	GLOBE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-87-A	3	2	F-3	B-Act	16	GATE	MOV	O	C	STC/PS RPI	AF-06	None
2-FCV-3-90	3	*	F-4	B-Act	16	ANG	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-90A	3	N	F-4	B-Act	6	GLOBE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-3-100-B	3	2	B-3	B-Act	16	GATE	MOV	O	C	STC/PS RPI	AF-06	None
2-FCV-3-103	3	*	B-4	B-Act	16	ANG	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-103A	3	N	A-4	B-Act	6	GLOBE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-185	3	2	C-2	B-Act	2	GLOBE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-186	3	2	E-2	B-Act	2	GLOBE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-187	3	2	G-2	B-Act	2	GLOBE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-188	3	2	B-2	B-Act	2	GLOBE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-236	3	2	C-3	B-Act	6	GATE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-239	3	2	D-3	B-Act	6	GATE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-242	3	2	F-3	B-Act	6	GATE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
2-FCV-3-245	3	2	A-3	B-Act	6	GATE	DIAPH	O	C	STC/PS FSC RPI	AF-06	None
* ASME Section III, Class 3 valve installed in a non-ASME Code Class piping system.												
Drawing Number 2-47W803-2												
2-CKV-1-891-S	1	2	C-3	C-Act	4	CKV	SELF	C	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-1-892-S	1	2	A-3	C-Act	4	CKV	SELF	C	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-FCV-1-15-A	1	2	C-2	B-Act	4	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-1-16-A	1	2	A-2	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-1-17-A	1	3	B-4	B-Act	4	GATE	MOV	O	C	STC/CSD RPI	AF-02	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-1-18-B	1	2	B-4	B-Act	4	GATE	MOV	O	C	STC/CSD RPI	AF-02	None
2-FCV-1-51-S	1	N	B-6	B-Act	4	GATE	Note 1	B	B	STO/Q STC/Q RPI	None	None
Note 1: This valve has a motor operator for normal open/close functions and a spring actuator for trip closure.												
2-CKV-3-805-A	3	3	D-5	C-Act	8	CKV	SELF	B	B	CVO/PS CVC/PS	AF-07	None
2-CKV-3-806-B	3	3	D-7	C-Act	8	CKV	SELF	B	B	CVO/PS CVC/PS	AF-07	None
2-CKV-3-810-S	3	3	C-4	C-Act	10	CKV	SELF	B	B	CVO/PS CVC/PS	AF-07	None
2-CKV-3-814-A	3	3	E-5	C-Act	1.5	CKV	SELF	B	B	CVO/Q CVC/Q	None	None
2-CKV-3-815-B	3	3	E-6	C-Act	1.5	CKV	SELF	B	B	CVO/Q CVC/Q	None	None
2-CKV-3-818-S	3	3	B-6	C-Act	1.5	CKV	SELF	B	B	CVO/Q CVC/Q	None	None
2-CKV-3-830-B	3	2	G-2	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-831-A	3	2	E-2	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-832-A	3	2	C-2	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-833-B	3	2	B-2	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-861-B	3	2	G-1	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-862-A	3	2	E-1	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-864-S	3	3	C-6	C-Act	6	CKV	SELF	C	O	CVO/PS BDC/PS	AF-07	None
2-CKV-3-871-S	3	2	G-2	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-872-S	3	2	E-2	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-3-873-S	3	2	C-2	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-874-S	3	2	A-2	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-921-B	3	2	G-1	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-CKV-3-922-A	3	2	F-1	C-Act	4	CKV	SELF	B	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-FCV-3-355	3	3	E-5	B-Act	2	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-3-359	3	3	E-6	B-Act	2	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-3-116A-A	3	3	E-6	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-3-116B-A	3	3	E-6	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-3-126A-B	3	3	E-7	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-3-126B-B	3	3	E-7	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-3-136A-A	3	3	C-4	B-Act	6	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-3-136B-A	3	3	C-4	B-Act	6	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-3-179A-B	3	3	C-4	B-Act	6	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-3-179B-B	3	3	C-4	B-Act	6	GATE	MOV	C	O	STO/Q RPI	None	None
2-LCV-3-148-B	3	3	G-3	B-Act	4	GLOBE	DIAPH	C	O	STO/Q STC/Q FSO RPI	None	None
2-LCV-3-148A-B	3	3	G-3	B-Act	2	ANG	DIAPH	C	O	STO/Q STC/Q FSC RPI	None	None
2-LCV-3-156-A	3	3	E-3	B-Act	4	GLOBE	DIAPH	C	O	STO/Q STC/Q FSO RPI	None	None
2-LCV-3-156A-A	3	3	E-3	B-Act	2	ANG	DIAPH	C	O	STO/Q STC/Q FSC RPI	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-LCV-3-164-A	3	3	C-3	B-Act	4	GLOBE	DIAPH	C	O	STO/Q STC/Q FSO RPI	None	None
2-LCV-3-164A-A	3	3	D-3	B-Act	2	ANG	DIAPH	C	O	STO/Q STC/Q FSC RPI	None	None
2-LCV-3-171-B	3	3	B-3	B-Act	4	GLOBE	DIAPH	C	O	STO/Q STC/Q FSO RPI	None	None
2-LCV-3-171A-B	3	3	B-3	B-Act	2	ANG	DIAPH	C	O	STO/Q STC/Q FSC RPI	None	None
2-LCV-3-172-A	3	3	G-3	B-Act	3	GLOBE	DIAPH	C	O	STO/Q STC/Q FSC RPI	None	None
2-LCV-3-173-B	3	3	E-3	B-Act	3	GLOBE	DIAPH	C	O	STO/Q STC/Q FSC RPI	None	None
2-LCV-3-174-B	3	3	C-3	B-Act	3	GLOBE	DIAPH	C	O	STO/Q STC/Q FSC RPI	None	None
2-LCV-3-175-A	3	3	A-3	B-Act	3	GLOBE	DIAPH	C	O	STO/Q STC/Q FSC RPI	None	None
2-PCV-3-122	3	3	D-5	B-Act	4	GLOBE	DIAPH	C	O	STO/Q	None	None
2-PCV-3-132	3	3	D-6	B-Act	4	GLOBE	DIAPH	C	O	STO/Q	None	None
Drawing Number 2-47W850-9												
2-CKV-26-1260	26	2	B-10	AC-Act	4	CKV	SELF	C	C	CVC/CMP BDO/CMP SLTJ	CKV-CMP	None
2-CKV-26-1296	26	2	C-4	AC-Act	4	CKV	SELF	C	C	CVC/CMP BDO/CMP SLTJ	CKV-CMP	None
2-FCV-26-240-A	26	2	B-9	A-Act	4	GATE	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-26-243-A	26	2	C-3	A-Act	4	GATE	MOV	O	C	STC/Q RPI SLTJ	None	None
Drawing Number 2-47W866-1												
2-FCV-30-7-A	30	2	C-1	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-8-B	30	2	C-2	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-30-9-B	30	2	C-1	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-10-A	30	2	C-2	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-14-A	30	2	E-1	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-15-B	30	2	E-2	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-16-B	30	2	E-1	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-17-A	30	2	E-2	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-19-B	30	2	G-1	A-Act	12	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-20-A	30	2	G-2	A-Act	12	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-37-B	30	2	D-10	A-Act	8	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-40-A	30	2	D-9	A-Act	8	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-50	30	2	C-9	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-51	30	2	C-10	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-52	30	2	C-9	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-53	30	2	C-10	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-56	30	2	E-9	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-57	30	2	E-10	A-Act	24	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-58	30	2	G-9	A-Act	12	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-30-59	30	2	G-10	A-Act	12	BTFY	CYL	O	C	STC/Q FSC RPI SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FSV-30-134-B	30	2	F-9	A-Act	0.5	GATE	SOL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FSV-30-135-A	30	2	F-10	A-Act	0.5	GATE	SOL	O	C	STC/Q FSC RPI SLTJ	None	None
Drawing Number 2-47W865-5												
2-CKV-31-3378	31	2	F-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-31-3392	31	2	E-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-31-3407	31	2	D-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-31-3421	31	2	B-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-FCV-31-305-B	31	2	B-6	A-Act	2	PLUG	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-31-306-A	31	2	B-7	A-Act	2	PLUG	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-31-308-A	31	2	C-7	A-Act	2	PLUG	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-31-309-B	31	2	C-6	A-Act	2	PLUG	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-31-326-A	31	2	E-6	A-Act	2	PLUG	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-31-327-B	31	2	E-7	A-Act	2	PLUG	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-31-329-B	31	2	F-7	A-Act	2	PLUG	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-31-330-A	31	2	F-6	A-Act	2	PLUG	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
Drawing Number 2-47W848-1												
2-BYV-32-318-B	32	2	F-9	A-Pas	2	GLOBE	MAN	C	C	SLTJ	None	None
2-BYV-32-328-A	32	2	G-9	A-Pas	2	GLOBE	MAN	C	C	SLTJ	None	None
2-BYV-32-338	32	2	H-9	A-Pas	2	GLOBE	MAN	C	C	SLTJ	None	None
2-CKV-32-323-B	32	2	E-10	AC-Act	2	CKV	SELF	O	C	BDO/CSD CVC/CSD SLTJ	AF-09	None
2-CKV-32-333-A	32	2	G-10	AC-Act	2	CKV	SELF	O	C	BDO/CSD CVC/CSD SLTJ	AF-09	None
2-CKV-32-343	32	2	H-10	AC-Act	2	CKV	SELF	O	C	BDO/CSD CVC/CSD SLTJ	AF-09	None
2-FCV-32-81-A	32	2	G-9	A-Act	2	GLOBE	DIAPH	O	C	STC/CSD FSC RPI SLTJ	AF-09	None
2-FCV-32-103-B	32	2	E-9	A-Act	2	GLOBE	DIAPH	O	C	STC/CSD FSC RPI SLTJ	AF-09	None
2-FCV-32-111-B	32	2	H-9	A-Act	2	GLOBE	DIAPH	O	C	STC/CSD FSC RPI SLTJ	AF-09	None
Drawing Number 47W846-2												
2-ISV-33-732	33	2	F-4	A-Pas	2	DIAPH	MAN	C	C	SLTJ	None	None
2-ISV-33-733	33	2	F-4	A-Pas	2	DIAPH	MAN	C	C	SLTJ	None	None
Drawing Number 2-47W625-1												
2-FCV-43-2-B	43	2	D-3	A-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-43-3-A	43	2	D-5	A-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-43-11-B	43	2	C-2	A-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-43-12-A	43	2	C-4	A-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-43-22-B	43	2	F-5	A-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-43-23-A	43	2	D-5	A-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
Drawing Number 2-47W625-2												
2-FCV-43-34-B	43	2	B-2	A-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-43-35-A	43	2	C-4	A-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-43-54D-B	43	2	C-7	B-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-43-55-A	43	2	C-6	B-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-43-56D-B	43	2	C-7	B-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-43-58-A	43	2	C-6	B-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-43-59D-B	43	2	D-8	B-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-43-61-A	43	2	D-7	B-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-43-63D-B	43	2	E-9	B-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-FCV-43-64-A	43	2	E-8	B-Act	0.375	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
Drawing Number 2-47W625-11												
2-FCV-43-201-A	43	2	H-5	A-Act	0.375	GLOBE	SOL	C	O	STO/Q RPI SLTJ	None	None
2-FCV-43-202-A	43	2	F-5	A-Act	0.375	GLOBE	SOL	C	O	STO/Q RPI SLTJ	None	None
2-FCV-43-433-A	43	2	H-4	A-Act	0.375	GLOBE	SOL	C	O	STO/Q RPI SLTJ	None	None
2-FCV-43-434-A	43	2	F-4	A-Act	0.375	GLOBE	SOL	C	O	STO/Q RPI SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
Drawing Number 47W331-3												
2-ISV-52-500	52	2	H-1	A-Pas	0.75	GATE	MAN	C	C	SLTJ	None	None
2-ISV-52-501	52	2	H-1	A-Pas	0.75	GATE	MAN	C	C	SLTJ	None	None
2-ISV-52-502	52	2	H-1	A-Pas	0.75	GATE	MAN	C	C	SLTJ	None	None
2-ISV-52-503	52	2	H-1	A-Pas	0.75	GATE	MAN	C	C	SLTJ	None	None
2-ISV-52-504	52	2	H-1	A-Pas	0.75	GATE	MAN	C	C	SLTJ	None	None
2-ISV-52-505	52	2	H-1	A-Pas	0.75	GATE	MAN	C	C	SLTJ	None	None
2-ISV-52-506	52	2	H-1	A-Pas	0.75	GATE	MAN	C	C	SLTJ	None	None
2-ISV-52-507	52	2	H-1	A-Pas	0.75	GATE	MAN	C	C	SLTJ	None	None
Drawing Number 2-47W856-1												
2-ISV-59-522	59	2	F-2	A-Pas	2	BALL	MAN	C	C	SLTJ	None	None
2-ISV-59-698	59	2	C-3	A-Pas	2	DIAPH	MAN	C	C	SLTJ	None	None
Drawing Number 2-47W814-2												
2-CKV-61-533	61	2	B-7	AC-Act	0.375	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-61-658	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-659	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-660	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-661	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-61-662	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-663	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-664	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-665	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-666	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-667	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-668	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-669	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-670	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-671	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-672	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-673	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-674	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-675	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-676	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-677	61	N	D-12	C-Act	12	CKV	SELF	C	O	CVO/PS BDC/PS	AF-10	None
2-CKV-61-680	61	2	B-7	AC-Act	0.375	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-61-692	61	2	F-9	AC-Act	0.375	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-61-745	61	2	G-8	AC-Act	0.375	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-FCV-61-96-A	61	2	E-9	A-Act	2	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-61-97-B	61	2	E-9	A-Act	2	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-61-110-A	61	2	G-8	A-Act	2	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-61-122-B	61	2	G-8	A-Act	2	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-61-191-A	61	2	B-6	A-Act	4	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-61-192-B	61	2	B-7	A-Act	4	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-61-193-A	61	2	B-6	A-Act	4	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-61-194-B	61	2	B-7	A-Act	4	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
Drawing Number 2-47W809-1												
2-CKV-62-504-S	62	2	G-9	C-Act	8	CKV	SELF	C	B	CVO/PS CVC/PS	AF-11	None
2-CKV-62-523-A	62	2	G-8	AC-Act	2	CKV	SELF	C	B	CVO/Q CVC/Q LK	None	None
2-CKV-62-525-A	62	2	G-8	AC-Act	4	CKV	SELF	O	B	CVO/PS CVC/Q LK	AF-11	None
2-CKV-62-530-B	62	2	F-8	AC-Act	2	CKV	SELF	C	B	CVO/Q CVC/Q LK	None	None
2-CKV-62-532-B	62	2	F-8	AC-Act	4	CKV	SELF	O	B	CVO/PS CVC/Q LK	AF-11	None
2-CKV-62-560-S	62	1	F-6	C-Act	2	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-561-S	62	1	F-6	C-Act	2	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-562-S	62	1	H-5	C-Act	2	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-62-563-S	62	1	H-5	C-Act	2	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-576-S	62	1	E-4	C-Act	2	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-577-S	62	1	E-2	C-Act	2	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-578-S	62	1	G-2	C-Act	2	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-579-S	62	1	G-4	C-Act	2	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-638-S	62	1	A-1	C-Act	3	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-639-S	62	2	C-6	AC-Act	0.75	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-62-640-S	62	1	A-1	C-Act	3	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-659-S	62	1	A-2	C-Act	3	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-660-S	62	1	A-2	C-Act	3	CKV	SELF	O	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-CKV-62-661-S	62	1	B-2	C-Act	2	CKV	SELF	E	C	BDO/CMP CVC/CMP	CKV-CMP	None
2-FCV-62-61-B	62	2	B-6	A-Act	4	GATE	MOV	O	C	STC/CSD RPI SLTJ	AF-14	None
2-FCV-62-63-A	62	2	B-7	A-Act	4	GATE	MOV	O	C	STC/CSD RPI SLTJ	AF-14	None
2-FCV-62-69-S	62	1	A-2	B-Act	3	GLOBE	DIAPH	C	C	STC/CSD FSC RPI	AF-15	None
2-FCV-62-70-S	62	1	A-2	B-Act	3	GLOBE	DIAPH	C	C	STC/CSD FSC RPI	AF-15	None
2-FCV-62-72-A	62	2	A-4	A-Act	2	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-62-73-A	62	2	A-4	A-Act	2	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-62-74-A	62	2	A-3	A-Act	2	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-62-76-A	62	2	A-5	A-Act	2	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-62-77-B	62	2	A-7	A-Act	2	GLOBE	DIAPH	O	C	STC/CSD FSC RPI SLTJ	AF-15	None
2-FCV-62-83	62	2	A-8	B-Pas	2	GLOBE	DIAPH	O	C	RPI	None	None
2-FCV-62-84-A	62	1	B-2	B-Act	2	GLOBE	DIAPH	E	B	STC/CSD STO/CSD FSC RPI	AF-08	None
2-FCV-62-90-A	62	2	D-7	B-Act	3	GATE	MOV	O	C	STC/CSD RPI	AF-15	None
2-FCV-62-91-B	62	2	D-7	B-Act	3	GATE	MOV	O	C	STC/CSD RPI	AF-15	None
2-FCV-62-1228-A	62	2	C-10	B-Act	1	GLOBE	DIAPH	O	C	STC/CSD FSC RPI	AF-16	None
2-FCV-62-1229-B	62	2	C-10	B-Act	1	GLOBE	DIAPH	O	C	STC/CSD FSC RPI	AF-16	None
2-LCV-62-132-A	62	2	E-9	B-Act	4	GATE	MOV	O	C	STC/CSD RPI	AF-16	None
2-LCV-62-133-B	62	2	E-9	B-Act	4	GATE	MOV	O	C	STC/CSD RPI	AF-16	None
2-LCV-62-135-A	62	2	H-9	B-Act	8	GATE	MOV	C	O	STO/CSD RPI	AF-16	None
2-LCV-62-136-B	62	2	H-9	B-Act	8	GATE	MOV	C	O	STO/CSD RPI	AF-16	None
2-RFV-62-505-S	62	2	F-10	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-62-636-S	62	2	B-6	C-Act	2x3	SFV	SELF	C	O	RV	None	None
2-RFV-62-649-S	62	2	C-8	C-Act	2x3	SFV	SELF	C	O	RV	None	None
2-RFV-62-662-S	62	2	A-3	AC-Act	2x3	SFV	SELF	C	O	RV SLTJ	None	None
2-RFV-62-675-S	62	2	B-9	C-Act	2x3	SFV	SELF	C	O	RV	None	None
2-RFV-62-1221	62	2	G-10	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-RFV-62-1222	62	2	E-9	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
Drawing Number 2-47W809-2												
2-CKV-62-930	62	3	B-4	C-Act	3	CKV	SELF	C	O	CVO/PS BDC/PS	AF-12	None
2-FCV-62-138-B	62	3	A-4	B-Act	3	GLOBE	MOV	C	O	STO/Q RPI	None	None
Drawing Number 2-47W811-1												
2-CKV-63-502-S	63	2	F-9	C-Act	12	CKV	SELF	C	O	CVO/PS CVC/CSD	AF-18	None
2-CKV-63-510-S	63	2	D-9	C-Act	8	CKV	SELF	C	B	CVO/PS CVC/PS	AF-11	None
2-CKV-63-524-A	63	2	E-8	AC-Act	4	CKV	SELF	C	B	CVO/PS CVC/Q LK	AF-11	None
2-CKV-63-526-B	63	2	D-8	AC-Act	4	CKV	SELF	C	B	CVO/PS CVC/Q LK	AF-11	None
2-CKV-63-528-A	63	2	E-8	AC-Act	0.75	CKV	SELF	C	B	CVO/Q CVC/Q LK	None	None
2-CKV-63-530-B	63	2	D-8	AC-Act	0.75	CKV	SELF	C	B	CVO/Q CVC/Q LK	None	None
2-CKV-63-543-A	63	1	F-3	AC-Act	2	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-545-A	63	1	F-3	AC-Act	2	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-547-B	63	1	E-3	AC-Act	2	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-549-B	63	1	E-3	AC-Act	2	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-551-S	63	1	H-1	AC-Act	2	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-553-S	63	1	H-3	AC-Act	2	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-555-S	63	1	G-3	AC-Act	2	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-63-557-S	63	1	G-2	AC-Act	2	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-558-B	63	1	E-2	AC-Act	6	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-559-B	63	1	E-1	AC-Act	6	CKV	SELF	C	B	CVO/PS SLTP	AF-11	None
2-CKV-63-560-S	63	1	E-1	AC-Act	10	CKV	SELF	C	B	CVO/CMP SLTP	CKV-CMP	None
2-CKV-63-561-S	63	1	D-1	AC-Act	10	CKV	SELF	C	B	CVO/CMP SLTP	CKV-CMP	None
2-CKV-63-562-S	63	1	E-2	AC-Act	10	CKV	SELF	C	B	CVO/CMP SLTP	CKV-CMP	None
2-CKV-63-563-S	63	1	F-2	AC-Act	10	CKV	SELF	C	B	CVO/CMP SLTP	CKV-CMP	None
2-CKV-63-581-S	63	1	C-6	AC-Act	3	CKV	SELF	C	O	CVO/PS SLTP	AF-11	None
2-CKV-63-586-S	63	1	E-1	AC-Act	1.5	CKV	SELF	C	O	CVO/PS SLTP	AF-11	None
2-CKV-63-587-S	63	1	D-2	AC-Act	1.5	CKV	SELF	C	O	CVO/PS SLTP	AF-11	None
2-CKV-63-588-S	63	1	E-2	AC-Act	1.5	CKV	SELF	C	O	CVO/PS SLTP	AF-11	None
2-CKV-63-589-S	63	1	F-2	AC-Act	1.5	CKV	SELF	C	O	CVO/PS SLTP	AF-11	None
2-CKV-63-622-S	63	1	D-1	AC-Act	10	CKV	SELF	C	B	CVO/CMP SLTP	CKV-CMP	None
2-CKV-63-623-S	63	1	D-2	AC-Act	10	CKV	SELF	C	B	CVO/CMP SLTP	CKV-CMP	None
2-CKV-63-624-S	63	1	D-3	AC-Act	10	CKV	SELF	C	B	CVO/CMP SLTP	CKV-CMP	None
2-CKV-63-625-S	63	1	D-3	AC-Act	10	CKV	SELF	C	B	CVO/CMP SLTP	CKV-CMP	None
2-CKV-63-632-A	63	1	G-2	AC-Act	6	CKV	SELF	C	B	CVO/PS SLTP	AF-18	None
2-CKV-63-633-B	63	1	G-1	AC-Act	6	CKV	SELF	C	B	CVO/PS SLTP	AF-18	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-63-634-A	63	1	G-3	AC-Act	6	CKV	SELF	C	B	CVO/PS SLTP	AF-18	None
2-CKV-63-635-B	63	1	G-1	AC-Act	6	CKV	SELF	C	B	CVO/PS SLTP	AF-18	None
2-CKV-63-640-S	63	1	G-3	AC-Act	8	CKV	SELF	C	B	CVO/PS SLTP	AF-18	None
2-CKV-63-641-S	63	1	F-1	AC-Act	6	CKV	SELF	C	B	CVO/PS SLTP	AF-18	None
2-CKV-63-643-S	63	1	F-3	AC-Act	8	CKV	SELF	C	B	CVO/PS SLTP	AF-18	None
2-CKV-63-644-S	63	1	D-2	AC-Act	6	CKV	SELF	C	B	CVO/PS SLTP	AF-18	None
2-CKV-63-725	63	2	E-7	C-Act	2	CKV	SELF	C	B	CVO/CMP CVC/CMP	CKV-CMP	None
2-FCV-63-1-A	63	2	E-10	B-Act	14	GATE	MOV	O	C	STC/CSD RPI	AF-19	None
2-FCV-63-3-A	63	2	E-7	B-Act	2	GLOBE	MOV	O	C	STC/CSD RPI	AF-20	None
2-FCV-63-4-B	63	2	E-8	B-Act	2	GLOBE	MOV	O	C	STC/Q RPI	None	None
2-FCV-63-5-B	63	2	D-9	B-Act	8	GATE	MOV	O	C	STC/CSD RPI	AF-19	None
2-FCV-63-6-B	63	2	F-9	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-63-7-A	63	2	F-9	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-63-8-A	63	2	G-9	B-Act	8	GATE	MOV	C	O	STO/PS RPI	AF-21	None
2-FCV-63-11-B	63	2	F-9	B-Act	8	GATE	MOV	C	O	STO/PS RPI	AF-21	None
2-FCV-63-22-B	63	2	E-6	B-Act	4	GATE	MOV	O	C	STC/CSD RPI	AF-22	None
2-FCV-63-23-B	63	2	E-6	A-Act	1	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-63-25-B	63	2	B-7	B-Act	4	GATE	MOV	C	O	STO/CSD RPI	AF-23	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-63-26-A	63	2	B-7	B-Act	4	GATE	MOV	C	O	STO/CSD RPI	AF-23	None
2-FCV-63-47-A	63	2	E-9	B-Act	6	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-63-48-B	63	2	E-9	B-Act	6	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-63-67-B	63	1	B-5	B-Pas	10	GATE	MOV	O	C	RPI	None	None
2-FCV-63-71-A	63	2	D-5	A-Act	0.75	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-63-72-A	63	2	H-7	B-Act	18	GATE	MOV	C	O	STO/PS RPI	AF-25	None
2-FCV-63-73-B	63	2	G-7	B-Act	18	GATE	MOV	C	O	STO/PS RPI	AF-25	None
2-FCV-63-80-A	63	1	B-4	B-Pas	10	GATE	MOV	O	C	RPI	None	None
2-FCV-63-84-B	63	2	D-6	A-Act	0.75	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-63-93-A	63	2	G-6	B-Act	8	GATE	MOV	O	C	STC/CSD RPI	AF-26	None
2-FCV-63-94-B	63	2	G-6	B-Act	8	GATE	MOV	O	C	STC/CSD RPI	AF-26	None
2-FCV-63-98-B	63	1	B-3	B-Pas	10	GATE	MOV	O	C	RPI	None	None
2-FCV-63-118-A	63	1	B-1	B-Pas	10	GATE	MOV	O	C	RPI	None	None
2-FCV-63-152-A	63	2	F-7	B-Act	4	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-63-153-B	63	2	E-7	B-Act	4	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-63-156-A	63	2	F-6	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-63-157-B	63	2	D-6	B-Act	4	GATE	MOV	C	O	STO/Q RPI	None	None
2-FCV-63-172-B	63	2	F-6	B-Act	12	GATE	MOV	C	O	STO/CSD RPI	AF-26	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-63-175-B	63	2	E-8	B-Act	2	GLOBE	MOV	O	C	STC/Q RPI	None	None
2-FCV-63-177	63	2	F-9	B-Pas	4	GATE	MOV	O	O	RPI	None	None
2-FCV-63-185	63	2	E-6	B-Act	0.75	GLOBE	DIAPH	O	C	STC/Q FSC RPI	None	None
2-RFV-63-28	63	2	D-6	AC-Act	0.75x1	SFV	SELF	C	O	RV SLTJ	None	None
2-RFV-63-511-S	63	2	E-9	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-534-A	63	2	E-7	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-535-S	63	2	E-7	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-536-B	63	2	D-7	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-577-S	63	2	A-7	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-602-S	63	2	A-2	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-603-S	63	2	A-3	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-604-S	63	2	A-4	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-605-S	63	2	A-6	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-626-A	63	2	G-7	C-Act	2x3	SFV	SELF	C	O	RV	None	None
2-RFV-63-627-B	63	2	F-7	C-Act	2x3	SFV	SELF	C	O	RV	None	None
2-RFV-63-637-S	63	2	F-7	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-63-835	63	2	E-10	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
Drawing Number 2-47W830-6												
2-FCV-63-64-A	63	2	B-6	A-Act	1	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-68-305-A	68	2	G-7	A-Act	0.75	GLOBE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-CKV-68-849	68	2	G-8	AC-Act	1	CKV	SELF	O	C	CVC/CSD BDO/CSD SLTJ	AF-30	None
2-CKV-63-868	63	2	B-7	AC-Act	1	CKV	SELF	O	C	CVC/CSD BDO/CSD SLTJ	AF-30	None
Drawing Number 2-47W845-2												
2-RFV-67-539A-A	67	3	D-3	C-Act	2x2	SFV	SELF	C	O	RV	None	None
2-RFV-67-539B-B	67	3	D-3	C-Act	2x2	SFV	SELF	C	O	RV	None	None
2-RFV-67-1020A-A	67	3	F-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1020B-B	67	3	E-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
Drawing Number 2-47W845-3												
2-CKV-67-575A-A	67	2	H-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-575B-B	67	2	E-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-575C-A	67	2	G-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-575D-B	67	2	D-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-580A-A	67	2	C-7	AC-Act	2	CKV	SELF	O	C	CVC/Q BDO/NO SLTJ	None	None
2-CKV-67-580B-B	67	2	B-7	AC-Act	2	CKV	SELF	O	C	CVC/Q BDO/NO SLTJ	None	None
2-CKV-67-580C-A	67	2	B-7	AC-Act	2	CKV	SELF	O	C	CVC/Q BDO/NO SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-67-580D-B	67	2	A-7	AC-Act	2	CKV	SELF	O	C	CVC/Q BDO/NO SLTJ	None	None
2-CKV-67-585A-A	67	2	D-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-585B-B	67	2	B-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-585C-A	67	2	C-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-585D-B	67	2	B-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-1054A-A	67	2	H-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-1054B-B	67	2	E-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-1054C-A	67	2	G-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-67-1054D-B	67	2	D-7	AC-Act	0.5	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-FCV-67-83-B	67	2	H-8	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-87-A	67	2	H-7	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-88-B	67	2	H-8	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-89-A	67	2	H-7	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-91-B	67	2	G-8	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-95-A	67	2	F-7	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-96-B	67	2	F-8	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-97-A	67	2	G-7	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-99-A	67	2	F-8	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-67-103-B	67	2	E-7	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-104-A	67	2	E-8	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-105-B	67	2	F-7	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-107-A	67	2	E-8	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-111-B	67	2	D-7	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-112-A	67	2	D-8	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-113-B	67	2	E-7	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-67-130-A	67	2	C-8	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-131-B	67	2	D-8	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-133-A	67	2	B-8	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-134-B	67	2	C-8	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-138-B	67	2	B-8	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-139-A	67	2	B-8	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-141-B	67	2	A-8	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-142-A	67	2	A-8	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-295-A	67	2	D-7	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-296-A	67	2	C-7	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-67-297-B	67	2	B-7	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FCV-67-298-B	67	2	A-7	A-Act	2	PLUG	MOV	O	C	STC/Q RPI SLTJ	None	None
2-RFV-67-566A-A	67	3	H-5	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-566B-B	67	3	F-5	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-566C-A	67	3	G-5	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-566D-B	67	3	E-5	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-573A-A	67	3	G-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-573B-B	67	3	E-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-573C-A	67	3	F-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-573D-B	67	3	D-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-582A-A	67	3	C-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-582B-B	67	3	B-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-582C-A	67	3	B-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-582D-B	67	3	A-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1022A-A	67	3	H-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1022B-B	67	3	F-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1022C-A	67	3	G-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1022D-B	67	3	D-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1024A-A	67	3	H-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-RFV-67-1024B-B	67	3	F-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1024C-A	67	3	G-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1024D-B	67	3	D-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1025A-A	67	3	H-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1025B-B	67	3	F-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1025C-A	67	3	G-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1025D-B	67	3	D-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1026A-A	67	3	C-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1026B-B	67	3	B-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1026C-A	67	3	B-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1026D-B	67	3	A-3	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
Drawing Number 2-47W845-7												
2-FCV-67-176	67	3	D-5	B-Act	1.5	GLOBE	DIAPH	C	O	STO/Q FSO RPI	None	None
2-FCV-67-182	67	3	D-7	B-Act	1.5	GLOBE	DIAPH	C	O	STO/Q FSO RPI	None	None
2-FCV-67-184	67	3	E-5	B-Act	1.5	GLOBE	DIAPH	C	O	STO/Q FSO RPI	None	None
2-FCV-67-186	67	3	E-7	B-Act	1.5	GLOBE	DIAPH	C	O	STO/Q FSO RPI	None	None
2-RFV-67-1029A-A	67	3	C-2	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1029B-B	67	3	C-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-RFV-67-1030B	67	3	C-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1031A-A	67	3	D-2	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1031B-B	67	3	D-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1032A-A	67	3	D-2	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1032B-B	67	3	D-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1033A-A	67	3	E-2	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-67-1033B-B	67	3	E-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
Drawing Number 2-47W625-8												
2-FCV-68-307-A	68	2	B-7	A-Act	0.375	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-68-308-B	68	2	B-5	A-Act	0.375	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
Drawing Number 2-47W813-1												
2-CKV-68-559-S	68	2	H-3	C-Act	4	CKV	SELF	C	B	CVC/CMP CVO/CMP	CKV-CMP	None
2-FCV-68-22	68	2	B-8	B-Pas	0.375	GLOBE	DIAPH	O	O	RPI	None	None
2-FCV-68-332-B	68	1	B-2	B-Act	3	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-68-333-A	68	1	B-2	B-Act	3	GATE	MOV	O	C	STC/Q RPI	None	None
2-FSV-68-394-A	68	2	F-7	B-Act	1	GLOBE	SOL	C	O	STO/CSD STC/CSD FSC RPI	AF-28	None
2-FSV-68-395-B	68	2	F-7	B-Act	1	GLOBE	SOL	C	O	STO/CSD STC/CSD FSC RPI	AF-28	None
2-FSV-68-396-B	68	2	F-6	B-Act	1	GLOBE	SOL	C	O	ET/CSD FSC RPI	AF-28	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-FSV-68-397-A	68	2	F-6	B-Act	1	GLOBE	SOL	C	O	ET/CSD FSC RPI	AF-28	None
2-PCV-68-334-B	68	1	B-1	B-Act	3	GLOBE	SOL	C	B	STO/PS STC/PS FSC RPI	None	None
2-PCV-68-340A-A	68	1	B-1	B-Act	3	GLOBE	SOL	C	B	STO/PS STC/PS FSC RPI	None	None
2-RFV-68-563-S	68	1	A-2	C-Act	6x6	SFV	SELF	C	O	RV	None	None
2-RFV-68-564-S	68	1	A-2	C-Act	6x6	SFV	SELF	C	O	RV	None	None
2-RFV-68-565-S	68	1	A-2	C-Act	6x6	SFV	SELF	C	O	RV	None	None
Drawing Number 2-47W859-3												
2-CKV-70-679	70	2	H-4	AC-Act	3	CKV	SELF	O	C	CVC/CSD BDO/Q SLTJ	AF-29	None
2-CKV-70-681A	70	3	G-8	C-Act	2	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-70-681B	70	3	F-8	C-Act	2	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-70-681C	70	3	F-8	C-Act	2	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-70-681D	70	3	H-8	C-Act	2	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-70-682A	70	3	G-8	C-Act	2	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-70-682B	70	3	F-8	C-Act	2	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-70-682C	70	3	E-8	C-Act	2	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-70-682D	70	3	H-8	C-Act	2	CKV	SELF	O	C	CVC/CMP BDO/CMP	CKV-CMP	None
2-CKV-70-687	70	2	H-9	AC-Act	0.75	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-CKV-70-698	70	2	E-9	AC-Act	0.75	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-70-790	70	2	G-4	AC-Act	0.75	CKV	SELF	C	B	CVO/CMP CVC/CMP SLTJ	CKV-CMP	None
2-FCV-70-85-B	70	2	D-10	A-Act	6	BTFY	DIAPH	O	C	STC/Q RPI SLTJ	None	None
2-FCV-70-87-B	70	2	H-9	A-Act	3	GATE	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-70-89-B	70	2	E-9	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-70-90-A	70	2	F-10	A-Act	3	GATE	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-70-92-A	70	2	E-10	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-70-100-A	70	2	G-4	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-70-133-A	70	3	H-3	B-Act	3	GATE	MOV	O	C	STC/CSD RPI	AF-29	None
2-FCV-70-134-B	70	3	H-3	B-Act	3	GATE	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-70-140-B	70	3	G-3	A-Act	6	BTFY	MOV	O	C	STC/CSD RPI SLTJ	AF-29	None
2-FCV-70-143-A	70	3	E-3	A-Act	6	BTFY	MOV	O	C	STC/Q RPI SLTJ	None	None
2-FCV-70-183-A	70	3	C-9	B-Act	3	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-70-215-A	70	3	A-8	B-Act	3	GATE	MOV	O	C	STC/Q RPI	None	None
2-ISV-70-700	70	3	E-11	B-Act	6	BTFY	MAN	O	C	MS	None	None
2-RFV-70-703	70	2	E-5	AC-Act	3x4	SFV	SELF	C	O	RV SLTJ	None	None
2-RFV-70-578	70	3	A-7	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-70-835	70	3	H-4	C-Act	0.75	SFV	SELF	C	O	RV	None	None
2-RFV-70-584	70	3	B-6	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-RFV-70-683A	70	3	G-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-70-683B	70	3	F-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-70-683C	70	3	E-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-70-683D	70	3	H-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-70-694	70	3	F-4	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
Drawing Number 2-47W859-4												
2-RFV-70-551B-B	70	3	E-8	C-Act	1.5x2	SFV	SELF	C	O	RV	None	None
2-RFV-70-556B-B	70	3	A-8	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-70-565A-A	70	3	C-10	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-70-565B-B	70	3	C-8	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
2-RFV-70-561A	70	3	B-10	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-70-561B	70	3	B-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-70-570A	70	3	D-10	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
2-RFV-70-570B	70	3	D-8	C-Act	0.75x1	SFV	SELF	C	O	TRV	None	None
Drawing Number 2-47W812-1												
2-CKV-72-506-A	72	2	C-10	C-Act	12	CKV	SELF	C	O	CVO/Q CVC/Q	None	None
2-CKV-72-507-B	72	2	B-10	C-Act	12	CKV	SELF	C	O	CVO/Q CVC/Q	None	None
2-CKV-72-524-A	72	2	D-6	C-Act	10	CKV	SELF	C	O	CVO/Q BDC/Q	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-CKV-72-525-B	72	2	A-6	C-Act	10	CKV	SELF	C	O	CVO/Q BDC/Q	None	None
2-CKV-72-548-A	72	2	D-2	C-Act	10	CKV	SELF	C	O	CVO/CMP CVC/CMP	CKV-CMP	None
2-CKV-72-549-B	72	2	A-2	C-Act	10	CKV	SELF	C	O	CVO/CMP CVC/CMP	CKV-CMP	None
2-CKV-72-562-A	72	2	F-2	C-Act	8	CKV	SELF	C	O	CVO/CMP CVC/CMP	CKV-CMP	None
2-CKV-72-563-B	72	2	E-2	C-Act	8	CKV	SELF	C	O	CVO/CMP CVC/CMP	CKV-CMP	None
2-FCV-72-2-B	72	2	A-3	A-Act	10	GATE	MOV	C	O	STO/Q RPI SLTJ	None	None
2-FCV-72-13-B	72	2	B-6	B-Act	2	GLOBE	MOV	C	O	STO/Q RPI	None	None
2-FCV-72-21-B	72	2	B-10	B-Act	12	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-72-22-A	72	2	C-10	B-Act	12	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-72-34-A	72	2	C-6	B-Act	2	GLOBE	MOV	C	O	STO/Q RPI	None	None
2-FCV-72-39-A	72	2	D-3	A-Act	10	GATE	MOV	C	O	STO/Q RPI SLTJ	None	None
2-FCV-72-40-A	72	2	F-4	A-Act	8	GATE	MOV	C	O	STO/PS RPI SLTJ	AF-04	None
2-FCV-72-41-B	72	2	E-4	A-Act	8	GATE	MOV	C	O	STO/PS RPI SLTJ	AF-04	None
2-FCV-72-44-A	72	2	G-3	B-Act	12	GATE	MOV	C	O	STO/PS RPI	AF-25	None
2-FCV-72-45-B	72	2	H-3	B-Act	12	GATE	MOV	C	O	STO/PS RPI	AF-25	None
2-RFV-72-40	72	2	F-3	AC-Act	0.75x1	SFV	SELF	C	O	RV SLTJ	None	None
2-RFV-72-41	72	2	E-3	AC-Act	0.75x1	SFV	SELF	C	O	RV SLTJ	None	None
2-RFV-72-508-A	72	2	C-9	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
2-RFV-72-509-B	72	2	A-9	C-Act	0.75x1	SFV	SELF	C	O	RV	None	None
Drawing Number 2-47W810-1												
2-CKV-74-514-A	74	2	F-8	C-Act	8	CKV	SELF	C	B	CVO/PS CVC/PS	AF-18	None
2-CKV-74-515-B	74	2	C-8	C-Act	8	CKV	SELF	C	B	CVO/PS CVC/PS	AF-18	None
2-CKV-74-544-A	74	2	F-5	C-Act	8	CKV	SELF	C	B	CVO/PS CVC/Q	AF-18	None
2-CKV-74-545-B	74	2	C-5	C-Act	8	CKV	SELF	C	B	CVO/PS CVC/Q	AF-18	None
2-FCV-74-1-A	74	1	G-2	A-Act	14	GATE	MOV	C	O	STO/CSD SLTP RPI	AF-17	None
2-FCV-74-2-B	74	1	G-3	A-Act	14	GATE	MOV	C	O	STO/CSD SLTP RPI	AF-17	None
2-FCV-74-3-A	74	2	F-9	B-Act	14	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-74-8-A	74	1	H-3	A-Act	10	GATE	MOV	C	O	STO/CSD SLTP RPI	AF-17	None
2-FCV-74-9-B	74	1	G-2	A-Act	10	GATE	MOV	C	O	STO/CSD SLTP RPI	AF-17	None
2-FCV-74-12-A	74	2	G-7	B-Act	3	GLOBE	MOV	O	B	STC/Q STO/Q RPI	None	None
2-FCV-74-21-B	74	2	C-9	B-Act	14	GATE	MOV	O	C	STC/Q RPI	None	None
2-FCV-74-24-B	74	2	B-6	B-Act	3	GLOBE	MOV	O	B	STC/Q STO/Q RPI	None	None
2-FCV-74-33-A	74	2	E-4	B-Act	8	GATE	MOV	O	C	STC/CSD RPI	AF-26	None
2-FCV-74-35-B	74	2	C-4	B-Act	8	GATE	MOV	O	C	STC/CSD RPI	AF-26	None
2-RFV-74-505-S	74	2	H-3	C-Act	3x4	SFV	SELF	C	O	RV	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
Drawing Number 2-47W830-1												
2-FCV-77-9-B	77	2	D-1	A-Act	3	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-77-10-A	77	2	E-1	A-Act	3	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-77-16-B	77	2	B-5	A-Act	0.75	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-77-17-A	77	2	B-6	A-Act	0.75	DIAPH	DIAPH	O	C	STV/Q FSC RPI SLTJ	None	None
2-FCV-77-18-B	77	2	B-5	A-Act	1	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-77-19-A	77	2	B-6	A-Act	1	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-77-20-A	77	2	C-6	A-Act	1	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
Drawing Number 2-47W851-1												
2-FCV-77-127-B	77	2	F-7	A-Act	2	PLUG	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-77-128-A	77	2	F-8	A-Act	2	PLUG	CYL	O	C	STC/Q FSC RPI SLTJ	None	None
2-RFV-77-2875	77	2	F-7	AC-Act	2	SFV	SELF	C	B	RV SLTJ	None	None
Drawing Number 2-47W855-1												
2-ISV-78-557	78	2	G-4	A-Pas	4	DIAPH	MAN	C	C	SLTJ	None	None
2-ISV-78-558	78	2	G-4	A-Pas	4	DIAPH	MAN	C	C	SLTJ	None	None
2-ISV-78-560	78	2	G-4	A-Pas	6	DIAPH	MAN	C	C	SLTJ	None	None
2-ISV-78-561	78	2	G-4	A-Pas	6	DIAPH	MAN	C	C	SLTJ	None	None

Table 4

VALVE NUMBER	SYS	CLASS	COORD	CAT	SIZE	TYPE	ACTR	NPOSI	APOSI	TESTS	ALT. FREQ. JUST.	REL. REQ. NUM.
Drawing Number 2-47W819-1												
2-CKV-81-502	81	2	B-4	AC-Act	3	CKV	SELF	O	C	CVC/CMP BDO/CMP SLTJ	CKV-CMP	None
2-FCV-81-12-A	81	2	B-4	A-Act	3	DIAPH	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
Drawing Number 2-47W809-7												
2-ISV-84-530	84	2	F-3	A-Pas	1	GLOBE	MAN	C	C	SLTJ	None	None
Drawing Number 2-47W610-90-3												
2-FCV-90-107-A	90	2	B-8	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-108-B	90	2	C-7	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-109-B	90	2	C-7	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-110-B	90	2	D-7	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-111-A	90	2	D-8	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-113-A	90	2	D-3	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-114-B	90	2	E-2	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-115-B	90	2	E-2	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-116-B	90	2	E-2	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None
2-FCV-90-117-A	90	2	F-3	A-Act	1.5	GATE	DIAPH	O	C	STC/Q FSC RPI SLTJ	None	None

Table 5

Relief Valve Groups

Class 1			
Test Group 1 - Pressurizer Safety Valves			
2-RFV-68-563	2-RFV-68-564	2-RFV-68-565	
Class 2 Valves Tested to Class 1 Requirements			
Test Group 2 - Main Steam Safety Valves (MSSVs)			
2-SFV-1-512	2-SFV-1-517	2-SFV-1-522	2-SFV-1-527
2-SFV-1-513	2-SFV-1-518	2-SFV-1-523	2-SFV-1-528
2-SFV-1-514	2-SFV-1-519	2-SFV-1-524	2-SFV-1-529
2-SFV-1-515	2-SFV-1-520	2-SFV-1-525	2-SFV-1-530
2-SFV-1-516	2-SFV-1-521	2-SFV-1-526	2-SFV-1-531
Class 2 and 3			
Test Group 3			
2-RFV-70-551B	2-RFV-70-835	2-RFV-77-2875	
Test Group 4			
2-RFV-63-602	2-RFV-63-603	2-RFV-63-604	2-RFV-63-605
Test Group 5			
2-RFV-62-636	2-RFV-62-675	2-RFV-63-626-A	
2-RFV-62-649	2-RFV-62-662	2-RFV-63-627-B	
	2-RFV-74-505		
Test Group 6			
2-RFV-62-505-S	2-RFV-63-28	2-RFV-63-535-S	2-RFV-63-637-S
2-RFV-62-1221	2-RFV-63-511	2-RFV-63-536-B	2-RFV-63-835
2-RFV-62-1222	2-RFV-63-534-A	2-RFV-63-577	2-RFV-72-508-A
	2-RFV-72-509-B		
Test Group 7			
2-RFV-70-703			
Test Group 8			
2-RFV-70-556B	2-RFV-70-565A	2-RFV-70-565B	2-RFV-70-578
Test Group 9			
2-RFV-67-539A	2-RFV-67-539B	2-RFV-72-40	2-RFV-72-41

Table 6

Pressure Isolation Valve Listing

2-CKV-63-543	HOT LEG 1 SAFETY INJECTION SECONDARY CHECK.
2-CKV-63-545	HOT LEG 3 SAFETY INJECTION SECONDARY CHECK.
2-CKV-63-547	HOT LEG 2 SAFETY INJECTION SECONDARY CHECK.
2-CKV-63-549	HOT LEG 4 SAFETY INJECTION SECONDARY CHECK.
2-CKV-63-551	COLD LEG 1 SAFETY INJECTION SECONDARY CHECK.
2-CKV-63-553	COLD LEG 2 SAFETY INJECTION SECONDARY CHECK.
2-CKV-63-555	COLD LEG 3 SAFETY INJECTION SECONDARY CHECK.
2-CKV-63-557	COLD LEG 4 SAFETY INJECTION SECONDARY CHECK.
2-CKV-63-581	BORON INJECTION LINE CHECK.
2-CKV-63-561	COLD LEG 2 INJECTION HEADER CHECK
2-CKV-63-562	COLD LEG 3 INJECTION HEADER CHECK
2-CKV-63-632	COLD LEG 2 INJECTION HEADER CHECK
2-CKV-63-634	COLD LEG 3 INJECTION HEADER CHECK
2-CKV-63-560	COLD LEG 1 INJECTION HEADER CHECK
2-CKV-63-563	COLD LEG 4 INJECTION HEADER CHECK
2-CKV-63-633	COLD LEG 1 INJECTION HEADER CHECK
2-CKV-63-635	COLD LEG 4 INJECTION HEADER CHECK
2-CKV-63-640	HOT LEG 1 RHR INJECTION SECONDARY CHECK.
2-CKV-63-643	HOT LEG 3 RHR INJECTION SECONDARY CHECK.
2-CKV-63-558	HOT LEG 4 SAFETY INJECTION PRIMARY CHECK.
2-CKV-63-559	HOT LEG 2 SAFETY INJECTION PRIMARY CHECK.
2-CKV-63-586	COLD LEG 1 BORON INJECTION PRIMARY CHECK.
2-CKV-63-587	COLD LEG 2 BORON INJECTION PRIMARY CHECK.
2-CKV-63-588	COLD LEG 3 BORON INJECTION PRIMARY CHECK.
2-CKV-63-589	COLD LEG 4 BORON INJECTION PRIMARY CHECK.
2-CKV-63-641	HOT LEG 1 RHR INJECTION PRIMARY CHECK.
2-CKV-63-644	HOT LEG 3 SIS/RHR INJECTION PRIMARY CHECK.
2-CKV-63-622	ACCUMULATOR 1 OUTLET CHECK.
2-CKV-63-623	ACCUMULATOR 2 OUTLET CHECK.
2-CKV-63-624	ACCUMULATOR 3 OUTLET CHECK.
2-CKV-63-625	ACCUMULATOR 4 OUTLET CHECK
2-FCV-74-1	LOOP 4 HOT LEG TO RHR SUCTION
2-FCV-74-2	LOOP 4 HOT LEG TO RHR SUCTION
2-FCV-74-8	2-FCV-74-2 BYPASS RHR SUCTION
2-FCV-74-9	2-FCV-74-1 BYPASS RHR SUCTION