Union Electric
Callaway Plant

PO Box 620
Fulton, MO 65251

January 19, 2006

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

Ladies and Gentlemen:

ULNRC-05248
10 CFR 50.55a

DOCKET NUMBER 50-483
UNION ELECTRIC COMPANY
CALLAWAY PLANT
SUBMITTAL OF REVISION 23 OF CALLAWAY PUMP AND VALVE INSERVICE TESTING PROGRAM

Union Electric Company (AmerenUE) hereby submits Revision 23 of the Callaway Pump and Valve Inservice Testing (IST) Program. This revision, included as an attachment to this letter, is provided for your information in accordance with regularly provided updates of the Callaway IST Program.

Revision 23 of the IST Program was primarily developed for implementation of the third 10-year inservice testing interval at Callaway, for which the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), 2001 Edition (through 2003 Addenda) is applicable. Included in the attached revision of the IST program are the 10 CFR 50.55a requests (Relief Requests) that have been approved to date by the NRC for the third 10-year IST interval. Callaway's 10-year IST interval became effective on December 19, 2005.

Please contact us for any questions you may have regarding the attached.

Sincerely,

Keith D. Young
Manager-Regulatory Affairs

TBE/jdg

Attachment

A047

cc: U.S. Nuclear Regulatory Commission (Original and 1 copy)
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

Mr. Bruce S. Mallett
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. Jack N. Donohew (2 copies)
Licensing Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop 7E1
Washington, DC 20555-2738

Missouri Public Service Commission
Governor Office Building
200 Madison Street
PO Box 360
Jefferson City, MO 65102-0360

Attachment to
ULNRC-05248

Callaway Nuclear Plant
Inservice Testing Program

Revision 23

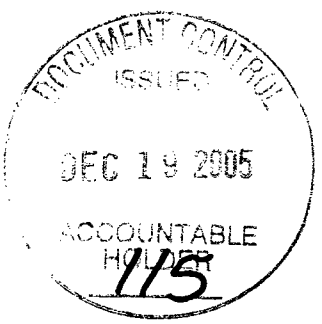
E190.0074

Ameren UE
Callaway Plant

Callaway Nuclear Plant

Inservice Testing Program

Revision 23



APPROVALS:

Prepared by: Dave Kanuch from Altran Date: 12/14/05
IST Engineer

Reviewed by: Eric Smith Date: 12/14/05
Qualified Reviewer

Approved by: Daniel J Morgell Date: 12/19/05
Supervising Engineer-Performance/ISI

IST PROGRAM REVISION INDEX

Revision	Description	Reference Docs	Date
23	3rd Ten Year Interval, Revision 23 Submittal to NRC. In Compliance with 2001 Edition through 2003 Addenda except where relief is requested.		*12/19/05*

TABLE OF CONTENTS

1.0 INTRODUCTION

The Third 10-Year Inservice Testing Program for Callaway Plant was developed in compliance with the rules and regulations of 10CFR 50.55a and American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants, (OM Code), 2001 Edition through 2003 Addenda. No Code Cases were utilized in developing Callaway's Inservice Testing Program. NRC Generic Letter 89-04 and NUREG 1482, Revision 1, have been used as guidance in the development of the IST Program.

Where the OM Code requirements were determined to be impractical, a relief request has been developed. These relief requests are included in Attachment 3 of this document.

This submittal of this Inservice Testing Program for pumps and valves will remain in effect through the next 10 year inservice testing interval ending December 19, 2014.

1.1 Purpose

To provide requirements for the performance and administration of assessing the operational readiness of those pumps and valves whose specific functions are required to:

- Shutdown the reactor to the safe shutdown condition,
- Maintain the safe shutdown condition, or
- To mitigate the consequences of an accident

The Callaway Nuclear Power Plant safe shutdown licensing basis is hot standby and the safe shutdown design basis is cold shutdown. [FSAR 5.4A] The Inservice Testing Program test pumps and valves required for hot standby. [CAR 199502105]

1.2 Scope

The program plan was prepared to meet the requirements of the following subsections of the ASME OM Code (2001 Edition through 2003 Addenda).

- Subsection ISTA, "*General Requirements*"

  ISTA contains the requirements directly applicable to inservice testing including the Owner's Responsibility and Records Requirements.

- Subsection ISTB, *"Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants"*

  Establishes the requirements for inservice testing of pumps in light-water reactor nuclear power plants. The pumps covered are those provided with an emergency power source, that are required in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident.

- Subsection ISTC, *"Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants"*

  Establishes the requirements for inservice testing of valves in light-water reactor nuclear power plants. The valves covered include those which provide overpressure protection and are required to perform a specific function, either actively by changing valve obturator position or passively by effectively maintaining required obturator position in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident.

- Mandatory Appendix I, *"Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants"*

  Provides the requirements for performance testing and monitoring of nuclear plant pressure relief devices. Methods, intervals, and record requirements for monitoring and testing are established, as well as guidelines for the evaluation of results. This Appendix may be applied to safety valves, safety relief valves, pilot-operated pressure relief valves, power-actuated pressure relief valves, nonreclosing pressure relief devices and vacuum relief devices, including all accessories and appurtenances.

- Mandatory Appendix II, *"Check Valve Condition Monitoring Program"*

  Provides an alternative to the testing or examination requirements of ISTC-3510 through ISTC-5221. The purpose of this program is both to improve valve performance and to optimize testing, examination, and preventive maintenance activities in order to maintain the continued acceptable performance of a select group of check valves.

2.0 INSERVICE TESTING PLAN FOR PUMPS

2.1 Pump Inservice Testing Plan Description

This plan establishes the test intervals and parameters to be measured to meet the requirements of ASME OM Code ISTA and ISTB with the exception of specific relief requests contained in Attachment 3.

2.2 Pump Plan Table Description

The pumps included in the Callaway Nuclear Plant IST Plan are listed in Attachment 10. The information contained in these tables identifies those pumps to be tested to the requirements of ASME OM Code, the testing parameters and frequencies, and associated relief requests. The headings for the pump tables are delineated below.

- **Pump Location** Unique pump identification number.

- **Safety Class** ASME Code classification of the pump.

1	ASME Code Class 1
2	ASME Code Class 2
3	ASME Code Class 3
NC	Non-Code, Safety Related

- **Pump Type** Pump type.

  Centrifugal
  Vertical

- **Pump Driver** Pump driver type.

Motor	Motor driven
Turbine	Steam turbine driven

- **Nominal Speed** Pump speed for variable speed pumps only.

- **P&ID** Drawing number of the pump.

- **P&ID Coor.** The P&ID Coordinate location of the pump.

- **Category** — Pump group as defined in ISTB-2000.

Group A	Pumps that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations.
Group B	Pumps in standby systems that are not operated routinely except for testing.

- **Test Type** — Measured pump test parameters.

N	Speed
DP	Differential Pressure
Q	Flow Rate
V	Vibration

  a - Denotes a Group A Pump Test
  b - Denotes a Group B Pump Test
  c - Denotes a Comprehensive Pump Test

- **Test Freq.** — Frequency of the specified inservice test.

M3	Quarterly (92 Days)
Y2	Biennially (2 Years)

- **Relief Request** — The applicable relief requests for the pump.

- **Tech. Pos.** — A technical position number is listed when the requirements of the code are not easily interpreted and clarifying information is needed. The technical position is used to document how Code requirements are being implemented at the plant. Attachment 8 contains an index of all the Technical Positions included in Attachment 9.

3.0 INSERVICE TESTING PLAN FOR VALVES

3.1 Valve Inservice Testing Plan Description

This plan establishes the test intervals and parameters to be measured to meet the requirements of ISTA, ISTC, Appendix I, and Appendix II with the limitations imposed by 10CFR50.55a(b)(3).

Where the frequency requirements for valve testing have been determined to be impracticable, Cold Shutdown or Refuel Outage Justifications have been identified and written. These justifications are provided in Attachments 5 and 7 respectively.

3.2 Valve Plan Table Description

The valves included in the Callaway Nuclear Plant IST Plan are listed in Attachment 11. The information contained in these tables identify those valves to be tested to the requirements of ISTA, ISTC, Appendix I, and Appendix II, the test parameters and frequencies, and the associated relief requests. The headings for the valve tables are delineated below.

- **Valve Location** — Unique valve identification number.
- **P&ID** — Drawing number of the valve.
- **P&ID Coor.** — The P&ID Coordinate location of the valve.
- **Safety Class** — ASME Code classification of the valve.

1	ASME Code Class 1
2	ASME Code Class 2
3	ASME Code Class 3
NC	Non-Code, Safety Related

- **Cat.** — The ASME OM Code category (or categories) as defined in ISTC-1300.

A	Seat Leakage Limited.
B	Seat Leakage Not Required.
C	Self-Actuating Valves.
AC	Both Categories A and C.
BC	Both Categories B and C.

- **Size** — The nominal pipe size of the valve, in inches.

- **Valve Type** — The valve body style abbreviation.

BF	Butterfly Valve
CK	Check Valve
DI	Diaphragm Valve
GB	Globe Valve
GT	Gate Valve
PLG	Plug Valve
RV	Relief Valve
SV	Solenoid Valve
3W	3-Way Valve

- **Act. Type** — The valve actuator type abbreviation.

AO	Air Operator
HO	Hydraulic Operator
MA	Manual
MO	Motor Operator
SA	Self-Actuating
SO	Solenoid Operator

- **Active/Passive** — Active or Passive function determination for the valve in accordance with ISTC-2000.

A	Active
P	Passive

- **Normal Position** — The normal position abbreviation. The valve's position during normal power operation. If the system does not operate during power operation, then the normal position is the position of the valve when the system is not operating.

C	Closed
LC	Locked Closed
DE	De-energized (solenoid valves)
E	Energized (solenoid valves)
O	Open
LO	Locked Open
SYS	System Condition Dependent

- **Safety Position** — The safety function position(s). For valves that perform safety functions in the open and closed positions more than one safety function position may be specified.

C	Closed
O	Open
DE	De-energized (solenoid valves)
E	Energized (solenoid valves)
DE/E	De-energized and Energized
O/C	Open and Closed

- **Test Type** — The test type abbreviation.

AT-01	Seat Leakage Rate Test (Appendix J)
AT-02	Seat Leakage Rate Test (PIV)
AT-03	Seat Leakage Rate Test (Other)
BTC	Exercise Test Closed
BTO	Exercise Test Open
CC	Exercise Test Closed – Check Valve[1]
CO	Exercise Test Open – Check Valve[1]
FC	Fail Safe Test Closed
FO	Fail Safe Test Open
LT	Leakage Test (other than Appendix J or PIV)
PIT	Position Indication Test
RT	Relief Valve Test

  [1] Three letter designations may be used for check valve condition monitoring tests to differentiate between the various methods of exercising check valves. The letter following "CC" or "CO", should be "A" for acoustics, "D" for disassembly and examination, "F" for flow indication, "M" for magnetics, "R" for radiography, "T" for temperature, or "U" for ultrasonics.

- **Test Freq.** The test frequency abbreviation.

  App-J Appendix J
  CM Condition Monitoring[1]
  CS Cold Shutdown
  M3 Quarterly
  OP Operating Activities[2]
  RR Refueling Outage
  YX X Years (X = 1,2,..., 10)

  [1]Frequency is as indicated in respect to the Condition Monitoring Plan for that valve group.

  [2]Satisfied in accordance with IST Program Technical Position, TP-01, "Bi-directional Testing of Check Valves".

- **Relief Request** The applicable relief request for the valve.

- **Deferred Just.** Deferred Test Justification. This section refers to Cold Shutdown Justifications and Refuel Outage Justifications.

  A Cold Shutdown Justification number is listed when the testing frequency coincides with Cold Shutdowns instead of being performed quarterly. Cold Shutdown Justification numbers for valves are prefixed with "CSJ". Attachment 4 contains an index of all the Cold Shutdown Justifications included in Attachment 5.

  A Refueling Justification number is listed when the testing frequency coincides with Refueling Justification instead of being performed quarterly or during Cold Shutdowns. Refueling Justification numbers for valves are prefixed with "RJ". Attachment 6 contains an index of all the Refueling Justifications included in Attachment 7.

- **Tech. Pos.** A technical position number is listed when the requirements of the code are not easily interpreted and clarifying information is needed. The technical position is used to document how Code requirements are being implemented at the plant. Attachment 8 contains an index of all the Technical Positions included in Attachment 9.

4.0 ATTACHMENTS

Attachment 1 - System and P&ID Listing

Attachment 2 - Pump Relief Request Index

Attachment 3 - Pump Relief Requests

Attachment 4 - Cold Shutdown Justification Index

Attachment 5 - Cold Shutdown Justifications

Attachment 6 - Refuel Outage Justification Index

Attachment 7 - Refuel Outage Justifications

Attachment 8 - Technical Position Index

Attachment 9 - Technical Positions

Attachment 10 - Inservice Testing Pump Table

Attachment 11 - Inservice Testing Valve Table

ATTACHMENT 1

System and P&ID Listing

System	System Name	P&ID
AB	Main Steam	M-22AB02
AE	Feedwater	M-22AE02
AL	Auxiliary Feedwater	M-22AL01
AP	Condensate Storage and Transfer	M-22AP01
BB	Reactor Coolant	M-22BB01,02,03,04
BG	Chemical and Volume Control	M-22BG01,02,03,04,05
BL	Reactor Makeup Water	M-22BL01
BM	Steam Generator Blowdown	M-22BM01
BN	Borated Refueling Water	M-22BN01
EC	Fuel Pool Cooling and Cleanup	M-22EC01,02
EF	Essential Service Water	M-22EF01,02,M-U2EF01
EG	Component Cooling Water	M-22EG01,02,03
EJ	Residual Heat Removal	M-22EJ01
EM	High Pressure Coolant Injection	M-22EM01,02
EN	Containment Spray	M-22EN01
EP	Accumulator Safety Injection	M-22EP01
FC	Auxiliary Feedwater Pump Turbine	M-22FC01,02
GK	Control Building HVAC	M-22GK01,03
GS	Containment Hydrogen Control	M-22GS01
GT	Containment Purge	M-22GT01
HB	Liquid Radwaste	M-22HB01
HD	Decontamination	M-22HD01
JE	Emergency Fuel Oil	M-22JE01
KA	Compressed Air	M-22KA01,02,05
KB	Breathing Air for Tasks	M-22KB01
KC	Fire Protection	M-22KC02
KJ	Standby Diesel Generator	M-22KJ01,02,03,04,05,06
LF	Reactor Bldg & Hot Machine Shop Floor and Equip Drain	M-22LF03,09
SJ	Nuclear Sampling System	M-22SJ01,04

ATTACHMENT 2

Pump Relief Request Index

Relief Request No.	Description
PR-01	RHR Pump Discharge Pressure Gauge Range Requirements
PR-02	Centrifugal Charging Pump Suction Pressure Gauge Range Requirements
PR-03	Boric Acid Transfer Pump Flow Measurement

ATTACHMENT 3

Pump Relief Requests

10 CFR 50.55a Request Number PR-01

RHR Pump Discharge Pressure Gauge Range Requirements

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump Number	System	Class	Category
PEJ01A	EJ	2	A
PEJ01B	EJ	2	A

2. Applicable Code Edition and Addenda

ASME OM Code 2001 Edition through 2003 Addenda

3. Applicable Code Requirement

ISTB-3510(b)(1) – The full-scale range of each analog instrument shall be not greater than three times the reference value.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3), relief is requested from the requirement of ASME OM Code ISTB-3510(b)(1). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The installed discharge pressure gauge range of the residual heat removal pumps is 0 – 700 psig. The reference values for discharge pressure during Inservice Testing is between 200 psig and 300 psig. As a result, the instrument range exceeds the requirement of ISTB-3510(b)(1).

10 CFR 50.55a Request Number PR-01

RHR Pump Discharge Pressure Gauge Range Requirements (Continued)

5. Proposed Alternative and Basis for Use

Pump discharge pressure is used along with pump suction pressure to determine pump differential pressure. Reference values for the RHR pumps during Inservice Testing is between 200 psig and 300 psig. Based on ISTB-3510(b)(1), this would require as a maximum, a gauge with a range of 0 to 600 psig (3 X 200 psig) to bound the lowest reference value for pressure. Applying the accuracy requirement of ± 2 % for the quarterly Group A pump test, the resulting inaccuracies due to pressure effects would be ± 12.0 psig (0.02 X 600 psig).

As an alternative, for the Group A quarterly test, Callaway Nuclear Plant will use the installed discharge pressure gauge (0 to 700 psig) calibrated to less than ± 2 % such that the inaccuracies due to pressure will be less than that required by the Code (± 12.0 psig). Use of the installed pressure gauge calibrated to less the ± 2 % is equivalent in terms of measuring differential pressure.

Using the provisions of this relief request as an alternative to the specific requirements of ISB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB requirements identified in this request.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120 month interval.

7. Precedents

This relief request was previously approved for 2nd 120 Month Interval at Callaway Nuclear Plant as relief request P-01.

10 CFR 50.55a Request Number PR-02

Centrifugal Charging Pump Suction Pressure Gauge Range Requirements

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump Number	System	Class	Category
PBG05A	BG	2	B
PBG05B	BG	2	B

2. Applicable Code Edition and Addenda

ASME OM Code 2001 Edition through 2003 Addenda

3. Applicable Code Requirement

ISTB-3510(b)(1) – The full-scale range of each analog instrument shall be not greater than three times the reference value.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3), relief is requested from the requirement of ASME OM Code ISTB-3510(b)(1). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The installed suction pressure gauge range of the centrifugal charging pumps is 0 – 150 psig. The reference values for suction pressure during Inservice Testing are between 30 and 40 psig. As a result, the instrument range exceeds the requirement of ISTB-3510(b)(1).

10 CFR 50.55a Request Number PR-02

Centrifugal Charging Pump Suction Pressure Gauge Range Requirements (Continued)

5. Proposed Alternative and Basis for Use

Pump suction pressure is used along with pump discharge pressure to determine pump differential pressure. Reference values for the centrifugal charging pumps during Inservice Testing are between 30 psig and 40 psig. Based on ISTB-3510(b)(1), this would require as a maximum, a gauge with a range of 0 to 90 psig (3 X 30 psig) to bound the lowest reference value for pressure. Applying the accuracy requirement of ± 2 % for the quarterly Group B pump test, the resulting inaccuracies due to pressure effects would be ± 1.8 psig (0.02 X 90 psig).

As an alternative, for the Group B quarterly test, Callaway Nuclear Plant will use the installed suction pressure gauge (0 to 150 psig) calibrated to less than ± 2 % such that the inaccuracies due to pressure will be less than that required by the Code (± 1.8 psig). Use of the installed pressure gauge calibrated to less the ± 2 % is equivalent in terms of measuring differential pressure.

Using the provisions of this relief request as an alternative to the specific requirements of ISB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB requirements identified in this request.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120 month interval.

7. Precedents

This relief request was previously approved for 2nd 120 Month Interval at Callaway Nuclear Plant as relief request P-06.

10 CFR 50.55a Request Number PR-03

Boric Acid Transfer Pump Flow Measurement

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump Number	System	Class	Category
PBG02A	BG	3	A
PBG02B	BG	3	A

2. Applicable Code Edition and Addenda

ASME OM Code 2001 Edition through 2003 Addenda

3. Applicable Code Requirement

ISTB-5121(c) – Where it is not practical to vary system resistance, flow rate and pressure shall be determined and compared to their respective reference values.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3), relief is requested from the requirement of ASME OM Code ISTB-5121. The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The normal test loop for the subject pumps consists of fixed resistance flow paths to limit flow, however, flow measuring instruments are not installed. See Attachment 1, Boric Acid Transfer Pump Test Diagram. Since the system resistance is fixed and can be assumed to be constant, pump degradation can be detected by comparing successive measurements of pump differential pressure.

10 CFR 50.55a Request Number PR-03

Boric Acid Transfer Pump Flow Measurement (Continued)

5. Proposed Alternative and Basis for Use

An alternate test circuit is available in which flow rate may be measured, however this flow path requires injection of highly concentrated boric acid solution into the reactor coolant system. During the quarterly group A test at normal power operations, this test is highly impractical since severe power level fluctuations would be created which would lead to a potential transient and subsequent trip of the reactor. Performing this test at cold shutdown intervals would also result in excessive boration of the reactor coolant system resulting in potential difficulties and delays in restarting the plant.

As an alternative to measuring differential pressure and flow during the group A quarterly test, only the differential pressure will be measured and compared to its reference value. Additionally, vibration measurements are also recorded and compared to their reference values. The Group A test will be performed on the fixed resistance mini-flow path (Attachment 1). The reference value is approximately 112 psig at a flow rate of 15 gpm. At this flow rate, the point on the pump curve is relatively flat such that a ± 25% change in flow would result in less than 1 % change in differential pressure. Based on this, it is not warranted to install additional instrumentation to ensure flow is measured and compared to its reference value.

During the comprehensive inservice test when flow may be measured, full spectrum analysis will be performed above the required vibration analysis by the Code. When performing the comprehensive pump test, all required parameters will be measured and compared to their reference values.

Performing full spectrum analysis, and continued quarterly and comprehensive testing, an accurate assessment of pump health and operational readiness is determined. This alternative provides an acceptable level of quality and safety.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-5121(c) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) we request relief from the specific ISTB requirements identified in this request.

This alternative provides an acceptable level of quality and safety.

10 CFR 50.55a Request Number PR-03

Boric Acid Transfer Pump Flow Measurement (Continued)

6. Duration of Proposed Alternative

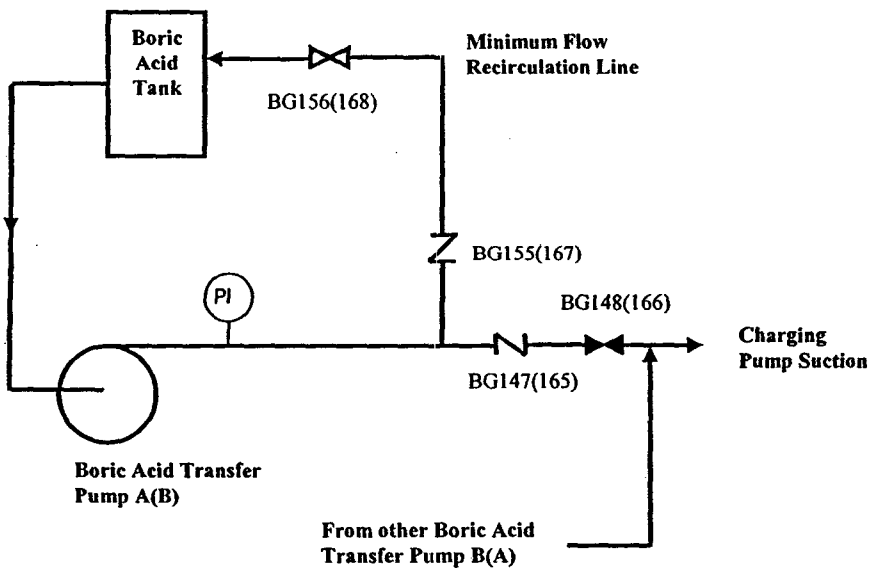
This proposed alternative will be utilized for the entire 3rd 120 month interval.

7. Precedents

This relief request was previously approved for 2nd 120 Month Interval at Callaway Nuclear Plant as relief request P-09.

Attachment 1

Boric Acid Transfer Pump Test Diagram



ATTACHMENT 4

COLD SHUTDOWN JUSTIFICATION INDEX

Cold Shutdown Justification No.	Description
CSJ-01	Main Steam Isolation Valves (ABHV0011,14,17,20)
CSJ-02	Steam Generator Power Operated Relief Valves (ABPV0001,2,3,4, ABV0345,46,47,48,49,50,51,52)
CSJ-03	SG Feedwater Supply Isolation Valves (AEFV0039,40,41,42)
CSJ-04	Auxiliary Feedwater Pump Discharge Check Valves (ALFV0030,42)
CSJ-05	Auxiliary Feedwater Pump Discharge Check Valves (ALV0054)
CSJ-06	Reactor Vessel Head Vent Valves (BBHV8001A,B, 8002A,B)
CSJ-07	Pressurizer Power Operated Relief Valves (BBPCV0455A,0456A)
CSJ-08	Hot Leg to RHR Pump Suction Isolation Valves (BBPV8702A,B)
CSJ-09	Charging to Regen Heat Exchanger Isolation Valve (BGHV8105,6)
CSJ-10	CVCS Letdown Isolation Valves (BGHV8152,8160)
CSJ-11	VCT Outlet Isolation Valves (BGLCV0112B,C)
CSJ-12	Letdown to Regen Heat Exchanger Level Control Valves (BGLCV0459,460)
CSJ-13	Boric Acid to Charging Pumps Suction Check Valves (BGV0147,165,174)
CSJ-14	Safety Injection Pumps Minimum Flow Isolation Valve (BNHV8813)
CSJ-15	RHR Heat Exchanger Outlet Check Valves (EJ8730A,B)
CSJ-16	RHR Pump Suction Isolation Valves (EJHV8701A,B)
CSJ-17	RHR to RCS Hot Leg Recirculation Isolation Valves (EJHV8716A,B)
CSJ-18	RHR to SI/CVCS Pumps Supply Isolation Valves (EJHV8804A,B)
CSJ-19	RHR Injection Supply Isolation Valves (EJHV8809A,B)
CSJ-20	Containment Sump to RHR Suction Isolation Valves (EJHV8811A,B)
CSJ-21	RHR Train A/B Hot Leg Recirculation Isolation Valve (EJHV8840)
CSJ-22	SI Pump Discharge to RCS Cold Leg Isolation Valve (EMHV8835)
CSJ-23	Containment Recirc Sump to CS Pump Isolation Valves (ENHV0001,7)
CSJ-24	SI Accumulator Tank Outlet Isolation Valves (EPHV8808A,D)
CSJ-25	SI Accumulator Tank Vent Isolation Valves (EPHV8950A,B,C,D,E,F)
CSJ-26	Reactor Building Supply Flow Control Valve (KAFV0029)
CSJ-27	SG Main Feedwater Control Valves and Bypass Valves (AEFCV0510/520/530/540/550/560/570/580)

ATTACHMENT 5

Cold Shutdown Justifications

Cold Shutdown Justification CSJ-01

Valve Number	System	Class	Category
ABHV0011	AB	2	B
ABHV0014	AB	2	B
ABHV0017	AB	2	B
ABHV0020	AB	2	B

Function

These normally open, hydraulically operated valves must close to isolate the Steam Generator from the non-safety related portion of the Main Steam header. The valves are required to close in the event of a Main Steam Line Break or Steam Generator Tube Rupture.

These valves open during normal operation to provide a flow path from the S/G to the main steam power conversion system. The open function does not support safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these valves closed during normal power operations since exercising these valves may result in a plant transient and subsequent reactor trip.

Closing these valves for testing during normal power operations would interrupt steam flow from the steam generator to the main steam/turbine systems and result in a severe transient. Testing by isolating each main steam header is also possible but would cause a power reduction which is also unacceptable from an operational viewpoint. Partial stroke exercising these valves is also impracticable since even a part-stroke exercise increases the risk of a valve closure when the unit is generating power.

Alternative Test

These valves will be exercised closed during cold shutdowns when the main steam system is not required to be operational.

Cold Shutdown Justification CSJ-02

Valve Number	System	Class	Category
ABV0345	AB	NC	C
ABV0346	AB	NC	C
ABV0347	AB	NC	C
ABV0348	AB	NC	C
ABV0349	AB	NC	C
ABV0350	AB	NC	C
ABV0351	AB	NC	C
ABV0352	AB	NC	C
ABPV0001	AB	2	B
ABPV0002	AB	2	B
ABPV0003	AB	2	B
ABPV0004	AB	2	B

Function

Air operated valves ABPV0001/2/3/4 are normally closed to isolate the main steam system from atmosphere to prevent overcooling of the RCS. During accidents requiring the use of the AFW Turbine, the valve must remain closed to prevent diverting steam from the AFW Turbine. These valves fail closed on a loss of electrical power or pneumatic supply. These valves must open to allow the main steam to be directed to the atmosphere in order to remove decay heat from the Reactor Coolant System when the MSIVs are closed or the turbine bypass system is not available. These valves open automatically based on pressure to remove decay heat and reduce S/G pressure.

Check valves ABV0345/347/349/251 must open to provide a flow path of safety-related nitrogen supply from the accumulator to the actuator of the Steam Generator PORV during accident conditions.

Check valves ABV0346/348/350/352 must close to provide to prevent backflow from the nitrogen auxiliary gas supply to the Steam Generator PORV actuator thereby allowing the PORV actuator to open to remove heat from the reactor coolant system during accident conditions.

Justification

It is impracticable to routinely exercise ABPV0001/2/3/4 open or closed during normal power operations since exercising these valves may result in a plant transient and subsequent reactor trip.

Exercising these valves during normal power operations to perform testing would cause a decrease in pressure in the respective main steam header resulting in a power transient which is unacceptable from an operational viewpoint

Cold Shutdown Justification CSJ-02
(Continued)

Alternative Test

Air operated valves ABPV0001/2/3/4 will be exercised open and closed and fail safe tested during cold shutdowns.

Check valves ABV0345/347/349/251 will be exercised open and closed when ABPV0001/2/3/4 are exercised at cold shutdowns.

Check valves ABV0346/348/350/352 will be exercised in their non-safety open direction when ABPV0001/2/3/4 are exercised at cold shutdowns. NOTE: ABV0346/348/350/352 will be exercised in their safety close direction every quarter and therefore the close test is not part of this justification.

Cold Shutdown Justification CSJ-03

Valve Number	System	Class	Category
AEFV0039	AE	2	B
AEFV0040	AE	2	B
AEFV0041	AE	2	B
AEFV0042	AE	2	B

Function

These normally open system medium operated valves must close automatically on a Feedwater Isolation Signal (FWIS) during accident conditions requiring feedwater isolation. Energy for closing the valve is provided by the process fluid (feedwater), which is admitted to the volume above the actuator piston (upper piston chamber) to close the valve. The valve actuator utilize six solenoid valves, three solenoids per actuation train, to perform its design safety function.

These valves are normally open to provide feedwater flow from the feedwater system to the steam generator during normal power operation. This function is not required for safe shutdown or accident mitigation since the supply of normal feedwater is not safety related.

Justification

It is impracticable to exercise these valves closed during normal power operations since exercising these valves may result in a plant transient and subsequent reactor trip.

Exercising these valves close during normal power operations requires isolating normal feedwater flow to the steam generator. This testing may result in a severe transient in the steam generator and subsequent reactor trip. Partial stroke exercising these valves is also impracticable since even a part-stroke exercise increases the risk of a valve closure when the unit is generating power.

Alternative Test

These valves will be exercised closed and fail safe tested during cold shutdowns when the steam generators and feedwater system are not required to be in service.

Cold Shutdown Justification CSJ-04

Valve Number	System	Class	Category
ALFV0030	AL	2	C
ALFV0042	AL	2	C

Function

These check valves are required to open to provide a flow path from Auxiliary Feedwater pump discharge to the Steam Generators for emergency cool down of the RCS. The auxiliary feedwater pump flow will maintain sufficient water level in the steam generators to ensure adequate heat transfer and continuation of the decay heat removal process.

These check valves must close to prevent the back flow of the other auxiliary feedwater pumps to flow through the associated non-operating pump.

Justification

It is impracticable to exercise these valves open or closed during normal power operations since exercising these valves would result in establishing cold water flow to the steam generators.

Exercising these valves open during normal power operations requires injection of cold water into the steam generators to verify the open full flow position of the valves. This type of test places the plant in an undesirable condition since flow through these valves would unnecessarily thermally shock the steam generator feedwater nozzles. Since the closure testing of these valves can only be performed during the open testing, is also impracticable to test these valves closed during normal power operations.

Alternative Test

These valves will be exercised open and closed during cold shutdowns.

Cold Shutdown Justification CSJ-05

Valve Number	System	Class	Category
ALV0054	AL	2	C

Function

This check valve is required to open to provide a flow path from Turbine Driven Auxiliary Feedwater pump discharge to the Steam Generators for emergency cool down of the RCS. The auxiliary feedwater pump flow will maintain sufficient water level in the steam generators to ensure adequate heat transfer and continuation of the decay heat removal process.

This check valve must close to prevent the back flow of the other auxiliary feedwater pumps to flow through the associated non-operating pump.

Justification

It is impracticable to exercise this valve open or closed during normal power operations since exercising this valve would result in establishing cold water flow to the steam generators.

Exercising this valve open during normal power operations requires injection of cold water into the steam generators to verify the open full flow position of the valve. This type of test places the plant in an undesirable condition since flow through this valve would unnecessarily thermally shock the steam generator feedwater nozzles. Since the closure testing of this valve can only be performed during the open testing, is also impracticable to test this valve closed during normal power operations.

Alternative Test

This valve will be exercised open and closed during cold shutdowns.

Cold Shutdown Justification CSJ-06

Valve Number	System	Class	Category
BBHV8001A	BB	2	B
BBHV8001B	BB	2	B
BBHV8002A	BB	2	B
BBHV8002B	BB	2	B

Function

These normally closed solenoid operated valves must open to vent the reactor vessel head during post accident conditions.

The valves must close to maintain the reactor coolant pressure boundary and isolate RCS pressure from the containment atmosphere. These valves fail closed upon loss of power.

Justification

It is impracticable to exercise these valves open and closed during normal power operations since exercising these valves would place the plant in an undesirable configuration along with an increase in personnel radiation exposure to perform testing.

Exercising these valves open and closed during normal power operations would require venting of the reactor coolant system directly to containment. During normal power operations this test would result in a potential Loss of Coolant Accident since only one valve would remain to establish the reactor coolant system boundary. Additionally, containment entry is required to install the necessary vent test rig to perform this test. This would result in an increase in personnel radiation exposure.

Alternative Test

These valves will be exercised open and closed and fail safe tested during cold shutdowns when the reactor coolant system is depressurized and radiation levels permit entry into containment.

Cold Shutdown Justification CSJ-07

Valve Number	System	Class	Category
BBPCV0455A	BB	1	B
BBPCV0456A	BB	1	B

Function

These normally closed solenoid operated valves must open to provide a flow path from the pressurizer to the pressurizer relief tank to reduce reactor coolant system pressure during low temperature operation. The two pressurizer power operated relief valves are supplied with actuation logic to ensure that a redundant and independent RCS pressure control back-up feature is provided for the operator during low temperature operations.

These valves must close to maintain the reactor coolant system pressure and prevent loss of RCS inventory via the pressurizer relief tank. The valves close automatically when pressurizer pressure is below 2185 psig. Additionally, these valves fail closed upon loss of electrical power.

Justification

It is impracticable to exercise these valves open and closed during normal power operations since exercising these valves would cause an RCS pressure transient and subsequent reactor trip.

Exercising these valves open and closed during normal power operations would cause a rapid depressurization of the reactor coolant system which would cause a pressure transient and subsequent trip of the reactor. Additionally, exercising this valve each quarter at power would eventually damage the valve seat.

Alternative Test

These valves will be exercised open and closed and fail safe tested during cold shutdowns when the reactor coolant system is depressurized.

Cold Shutdown Justification CSJ-08

Valve Number	System	Class	Category
BBPV8702A	BB	1	A
BBPV8702B	BB	1	A

Function

These normally closed motor operated valves must close or remain closed to isolate the reactor coolant system from the lower pressure residual heat removal system. The valves are considered pressure isolation valves, required to maintain the RCS pressure boundary. The valves are interlocked shut such that they cannot be opened if reactor coolant system pressure in greater than 360 psig.

This valve opens to provide a flow path from the RCS hot leg to the RHR pump suction during normal unit cooldown, when RCS pressure is less than 425 psi.

Justification

It is impracticable to exercise these valves open and closed during normal power operations since exercising these valves would place the plant in an undesirable configuration.

Exercising these valves open and closed during normal power operations would require overriding the logic which maintains the valves in their closed safety position when the reactor coolant system is greater than 360 psig. In addition, opening these valves during normal power operations would over pressurize the lower pressure RHR system.

Alternative Test

These valves will be exercised open and closed during cold shutdowns when the reactor coolant system is depressurized.

Cold Shutdown Justification CSJ-09

Valve Number	System	Class	Category
BGHV8105	BG	2	A
BGHV8106	BG	2	B

Function

These normally open motor operated valves must close automatically upon receipt of a safety injection signal to isolate the normal charging return flow path during the injection mode of ECCS. Closure of these valves ensures adequate injection flow to the reactor coolant system cold legs during all modes of ECCS operation. These valves may also be closed by remote manual operation to isolate containment from the charging system. Valve BGHV8105 is also considered a containment isolation valve for penetration P-80.

These valves are open during normal operation to provide a flow path from the charging pumps, through the regenerative heat exchanger tubes to recover heat from the letdown flow, then to the reactor coolant system. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these valves closed (full or partial) during normal power operations since exercising these valves places the plant in an undesirable condition.

Exercising these valves closed during normal power operations places the plant in an undesirable configuration since closure of the valves interrupts charging flow to the reactor coolant system. Interruption of charging flow to the reactor coolant system may result in a loss of pressurizer level control and subsequent reactor trip.

Alternative Test

These valves will be exercised closed during cold shutdowns when the chemical and volume control system is not required to be in service.

Cold Shutdown Justification CSJ-10

Valve Number	System	Class	Category
BGHV8152	BG	2	A
BGHV8160	BG	2	A

Function

These normally open air operated valves must close upon receipt of a Phase A containment isolation signal to isolate containment from the chemical and volume control system. The valves are considered containment isolation valves for penetration P-23. These valves also fail closed on loss of air or electrical power.

The valves are normally open to provide a letdown flow path from the letdown orifice header to the letdown heat exchanger. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these valves closed (full or partial) during normal power operations since exercising these valves places the plant in an undesirable condition.

Exercising these valves closed during normal power operations places the plant in an undesirable configuration since failure may cause a loss of pressurizer level control and subsequent reactor trip.

Alternative Test

These valves will be exercised closed and fail safe tested during cold shutdowns when the reactor coolant system is depressurized.

Cold Shutdown Justification CSJ-11

Valve Number	System	Class	Category
BGLCV0112B	BG	2	B
BGLCV0112C	BG	2	B

Function

These normally open motor operated valves must close automatically upon receipt of a safety injection signal to isolate the volume control tank from the charging pump suction. Closure of these valves is required to ensure a flow path from the refueling water storage tank to the charging pumps during the injection mode of ECCS. The valves will also close automatically upon receipt of a volume control tank low water level signal.

The valves are normally open to provide a suction path from the volume control tank to the charging pumps during normal power operations to maintain and control reactor coolant inventory. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these valves closed (full or partial) during normal power operations since exercising these valves places the plant in an undesirable condition.

Exercising these valves closed during normal power operations places the plant in an undesirable configuration since closure of these valves isolates the normal suction of the charging pumps. Alternate charging suction paths would increase the reactor coolant system boron inventory and may result in a reactor trip.

Alternative Test

These valves will be exercised closed during cold shutdowns when the chemical and volume control system is not required to be in service.

Cold Shutdown Justification CSJ-12

Valve Number	System	Class	Category
BGLCV0459	BG	1	B
BGLCV0460	BG	1	B

Function

These normally open air operated valves must close automatically upon receipt of a pressurizer low level signal to isolate the letdown line and regenerative heat exchanger from the reactor coolant system thus preventing further loss of reactor coolant. The valves are interlocked such that they can not be opened if any orifice valves (BGHV8149A,B,C) are open. These valves also fail closed upon loss of air or electrical power.

The valves are open to provide a letdown flow path from the reactor coolant system to the regenerative heat exchanger during normal power operation. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these valves closed (full or partial) during normal power operations since closure would isolate the normal letdown flowpath which places the plant in an undesirable condition.

Exercising these valves closed during normal power operations places the plant in an undesirable configuration since normal letdown from the reactor coolant system would be isolated. Closure of these valves at power may cause a voiding effect which could lead to water hammer. Additionally, closure of these valves during normal power operation could adversely affect pressurizer level control and result in a trip of the reactor.

Alternative Test

These valves will be exercised closed and fail safe tested during cold shutdowns when the normal reactor coolant system letdown flowpath is not required.

Cold Shutdown Justification CSJ-13

Valve Number	System	Class	Category
BGV0147	BG	3	C
BGV0165	BG	3	C
BGV0174	BG	3	C

Function

These check valves must open to provide a flow path from the discharge of the boric acid transfer pumps to the charging pump suction header when emergency boration is required.

Valves BGV0147,0165 must close to prevent backflow through an idle pump while the other pump is operating for emergency boration. Closure of this valve ensures adequate flow of boric acid to the charging pump suction header, which is ultimately delivered to the reactor coolant system during emergency boration operations.

Valve BGV0174 must close to prevent the flow of RHR Heat Exchanger discharge or RWST supply to the charging pump suction header from being diverted from the suction of the charging pumps. The closing of this valve will ensure that these other charging pump suction sources will be delivered to the charging pumps, which is ultimately delivered to the reactor coolant system during an accident.

Justification

Exercising these valves open during normal power operations requires injection of a substantial amount of boron into the reactor coolant system to verify full flow. Boration of the reactor coolant system to perform this test would cause a power transient due to the negative reactivity addition and would result in reactor power fluctuations and subsequent reactor trip.

Alternative Test

These valves will be exercised open during cold shutdowns when the chemical and volume control and reactor coolant systems are not required. Also, BGV0174 will be exercised close during cold shutdowns. BGV0147 and BGV0165 are exercised closed during normal operations of (the opposite train) boric acid transfer pumps.

Cold Shutdown Justification CSJ-14

Valve Number	System	Class	Category
BNHV8813	BN	2	B

Function

This normally open motor operated valve must close to isolate the RWST from the safety injection pump discharge piping during switchover from injection mode to recirculation mode of emergency core cooling system (ECCS). The valve is closed by remote manual operation. The valve does not receive any automatic actuation signals and is maintained in the open position with power removed during normal operations.

This valve is normally open to provide a minimum flow path to recirculate flow to the RWST in the event that the pumps are started with the RCS pressure above pump shutoff head. Additionally, this valve permits pump testing during normal plant operation. These functions are not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise this valve closed (full or partial) during normal power operations since closure of this valve would place the plant in an undesirable configuration.

Exercising this valve closed during normal power operations places the plant in an undesirable configuration since both trains of safety injection pumps would be inoperable. Additionally, failure of the valve in the closed position would damage the safety injection pumps due to overheating, in the event of a safety injection signal with the reactor coolant pressure above that of the safety injection pump discharge pressure.

Alternative Test

These valves will be exercised closed during cold shutdowns when the safety injection pumps are not required to be in service.

Cold Shutdown Justification CSJ-15

Valve Number	System	Class	Category
EJ8730A	EJ	2	C
EJ8730B	EJ	2	C

Function

These check valves must open to provide a flow path from the Residual Heat Removal (RHR) Pump to the Reactor Coolant (RCS) System. The valves are located on the discharge header for the associated RHR Pump. The valve isolates one train of RHR and must open to allow flow during the Injection and Recirculation phases of ECCS.

These valves must close to prevent diverting Residual Heat Removal flow when the associated pump is secured but the opposite train pump is running. The RHR System is designed to be a redundant (two train) system. Therefore, one train of RHR could be required in an accident while the other train is secured or inoperable. In that case this valve would be required to close to prevent diverting flow from the operating train.

Justification

Exercising these valves open during normal power operations would require injection of cold water by the residual heat removal pumps into the RCS hot legs. Since the residual heat removal pump can not overcome the reactor coolant system pressure during normal power operations, this testing cannot be performed.

Alternative Test

These valves will be exercised open and closed during cold shutdowns.

Cold Shutdown Justification CSJ-16

Valve Number	System	Class	Category
EJHV8701A	EJ	1	A
EJHV8701B	EJ	1	A

Function

These normally closed motor operated valves must close to isolate containment and the Reactor Coolant System from the RHR System. Closure of these valves is by remote manual operation, and they do not receive an automatic signal to close. The valves are considered containment isolation valves for Penetration P-79/P-52. The valves are also considered a pressure isolation valves (PIV) and must close to isolate the RCS from the RHR System.

These valves open to provide a flow path from the Reactor Coolant System (RCS) to the Residual Heat Removal (RHR) Pump suction when RCS cooling is required during shutdowns. The RHR system is used to remove heat from the RCS when RCS pressure and temperature are less than 400 psig and 350F, respectively. This valve is interlocked to prevent opening when RCS pressure is greater than 360 psig.

Justification

It is impracticable to exercise these valves open during normal power operations since exercising valves places the plant in an undesirable configuration.

Exercising these valves open and closed during normal power operations would require defeating the interlock which maintains the valves closed when reactor coolant pressure is greater than 360 psig. Additionally, opening these valves at power would cause the reactor coolant system to overpressurize the lower pressure residual heat removal system.

Alternative Test

These valves will be exercised open and closed during cold shutdowns when the reactor coolant system is depressurized below 360 psig.

Cold Shutdown Justification CSJ-17

Valve Number	System	Class	Category
EJHV8716A	EJ	2	B
EJHV8716B	EJ	2	B

Function

These normally open, motor operated valves must open to provide a flow path from the Residual Heat Removal (RHR) pump to the Reactor Coolant System (RCS) cold legs during ECCS Injection. The system is designed such that either RHR pump may inject into all four of the cold legs. Therefore these valves are maintained open during modes 1 through 3. The valves must also open to provide a flow path from the RHR pump to the RCS hot legs during ECCS hot leg recirculation mode. These valves does not receive any automatic actuation signals and are operated by remote manual operation. [FSAR Table 6.3-3]

These valves must close to prevent diversion of flow away from the RCS and the Safety Injection/Charging Pumps during ECCS Cold Leg Recirculation. The RHR System includes two redundant trains. However, the trains are cross-connected on the discharge of the RHR pumps, and these valves isolate one train from the cross-connect pipe. To prevent certain failures from affecting both trains, these valves must close.

Justification

It is impracticable to exercise these valves open or closed (full or partial) during normal power operations since closing either valve places the plant in an undesirable configuration.

Exercising the valves open and closed during normal power operations places the plant in an undesirable configuration since closure of either valve isolates the respective RHR pump from two RCS cold legs. In this configuration, both trains of Emergency Core Cooling System (ECCS) are inoperable.

Alternative Test

These valves will be exercised open and closed during cold shutdowns.

Cold Shutdown Justification CSJ-18

Valve Number	System	Class	Category
EJHV8804A	EJ	2	B
EJHV8804B	EJ	2	B

Function

These normally closed, motor operated valves must open to provide a flow path from the Residual Heat Removal (RHR) System to the suction of the Centrifugal Charging Pumps (EJHV8804A) and Safety Injection Pumps (EJHV8804B). The valves are required to open to supply the high head pumps with recirculated cooling water. The valves do not receive any automatic actuation signals and are opened by the operator during switchover.

EJHV8804A must remain closed during the Injection mode of ECCS to isolate the RHR System from the suction of the Centrifugal Charging Pumps (EJHV8804A) and Safety Injection Pumps (EJHV8804B) thereby providing sufficient flow for RHR Injection. The valve is interlocked such that it cannot be opened unless the Safety Injection Pump minimum flow line is isolated (EMHV8814A/B closed) and the RHR Suction valve from the RCS (EJHV8701A/B) is closed.

Justification

It is impracticable to exercise these valves open during normal power operations since exercising valves places the plant in an undesirable configuration.

Exercising these valves open during normal power operations would require defeating the ECCS interlocks which would render both trains of safety injection inoperable.

Alternative Test

These valves will be exercised open during cold shutdowns.

Cold Shutdown Justification CSJ-19

Valve Number	System	Class	Category
EJHV8809A	EJ	2	B
EJHV8809B	EJ	2	B

Function

These normally open, motor operated valves must remain open to provide a flow path from the Residual Heat Removal (RHR) Pumps to the Reactor Coolant System cold legs during ECCS injection and cold leg recirculation. The valves are maintained open with power removed during Modes 1-3 to ensure a flow path to the RCS cold legs from the RHR System.

The valves must close to isolate the Reactor Coolant System cold legs from the RHR System during hot leg recirculation. These valves do not receive any automatic isolation signals and are closed by the operator during switchover from cold leg recirculation to hot leg recirculation. The valves are also considered containment isolation valves required to close to isolate penetration P-27/82. The valves do not receive a CIS but may be closed by the operator for containment isolation purposes.

Justification

It is impracticable to exercise these valves closed (full or partial) during normal power operations since closure of this valve would place the plant in an undesirable configuration.

Exercising the valves closed during normal power operations places the plant in an undesirable configuration since closure of these valves requires restoration of power to the valves and placing the RHR portion of ECCS in an inoperable status.

Alternative Test

These valves will be exercised closed during cold shutdowns.

Cold Shutdown Justification CSJ-20

Valve Number	System	Class	Category
EJHV8811A	EJ	2	B
EJHV8811B	EJ	2	B

Function

These normally closed, motor operated valves must open to provide a flow path from the Containment Recirculation Sump to the suction of the Residual Heat Removal (RHR) Pump when the Emergency Core Cooling (ECCS) System shifts from Injection to Recirculation modes. The valves open automatically on a Refueling Water Storage Tank (RWST) low-low 1 signal coincident with a Safety Injection signal (SIS). [FSAR Table 6.3-3] This function supports safe shutdown and accident mitigation by providing a recirculation flow path from the Containment Sump when the RWST is exhausted following the Injection mode.

The valves are considered Containment Isolation valves for Penetration P-14/15 and may be closed by remote manual operation to isolate the Containment Recirculation Sump and Containment from the Residual Heat Removal System. These valves do not receive an automatic Containment Isolation signal since it must remain open during the Recirculation mode of ECCS. During normal operations the valves are interlocked and cannot be opened unless the RHR suction valves from both the RWST and RCS are closed.

Justification

It is impracticable to exercise these valves open or closed (full or partial) during normal power operations since opening the valves places the plant in an undesirable configuration.

Exercising the valves open and closed during normal power operations places the plant in an undesirable configuration since opening these valves requires defeating the interlocks on the RHR suction isolation valves from the RWST and RCS. This test would require placing both trains of RHR in an inoperable status.

Alternative Test

These valves will be exercised open and closed during cold shutdowns when RHR is not required and the suction isolation valves from the RWST and RCS may be opened.

Cold Shutdown Justification CSJ-21

Valve Number	System	Class	Category
EJHV8840	EJ	2	B

Function

This normally closed, motor operated valve must open to provide a flow path from the Residual Heat Removal (RHR) pumps to the Reactor Coolant System (RCS) Hot Legs during the Hot Leg Recirculation mode of ECCS. This valve is opened by the operator during switchover from Cold Leg Recirculation to Hot Leg Recirculation. This valve does not receive any automatic signals. Therefore it is opened remote, manually when the Recirculation Phase of ECCS is initiated. This function supports safe shutdown and accident mitigation.

This valve must close to isolate the RCS Hot Legs from the RHR system during Injection and Cold Leg Recirculation modes of ECCS. The valve is maintained in the closed position with power locked out to prevent inadvertent operation during normal power operations. The valve is also a Containment Isolation valve for Penetration P-21 and may be closed by remote manual operation to isolate Containment from the RHR system. The valve does not receive a Containment Isolation Signal since it must open during Hot Leg Recirculation.

Justification

It is impracticable to exercise this valve open (full or partial) during normal power operations since opening this valve places the plant in an undesirable configuration.

Exercising the valve open during normal power operations places the plant in an undesirable configuration since opening this valve requires restoration of power to the valve and placing the RHR portion of ECCS in an inoperable status.

Alternative Test

These valves will be exercised open during cold shutdowns.

Cold Shutdown Justification CSJ-22

Valve Number	System	Class	Category
EMHV8835	EM	2	B

Function

This normally open motor operated valve must open to provide a flow path from the safety injection pumps to the reactor coolant system cold legs during injection and cold leg recirculation modes of ECCS. This valve is maintained in the open position and blocked from inadvertent operation by having its power removed during normal plant operation.

This valve must close to isolate the reactor coolant system cold legs from the safety injection system during hot leg recirculation. This valve is closed by the operator during switchover from cold leg recirculation to hot leg recirculation and does not receive any automatic isolation signals. This valve is considered a containment isolation valve for penetration P-49 and may be closed by remote manual operation to isolate containment from the safety injection system. This valve does not receive an automatic containment isolation signal since it must remain open during safety injection and cold leg recirculation modes of operation.

Justification

It is impracticable to exercise this valve closed and open (full or partial) during normal power operations since closing this valve places the plant in an undesirable configuration.

Exercising the valve open and closed during normal power operations places the plant in an undesirable configuration since closure of this valve isolates the cold leg injection path to the RCS. In this configuration, the cold leg injection path of Emergency Core Cooling System (ECCS) is inoperable.

Alternative Test

This valve will be exercised open and closed during cold shutdowns when the safety injection to the cold legs of the RCS is not required to be in service.

Cold Shutdown Justification CSJ-23

Valve Number	System	Class	Category
ENHV0001	EN	2	B
ENHV0007	EN	2	B

Function

This normally closed motor operated valve must open to provide a suction flow path from the containment recirculation sump to the containment spray pump when the containment spray pump suction is switched to the containment recirculation sump. This valve does not receive any automatic actuation signals and is opened remote manually by the operator during switchover to recirculation phase when the low-low-2 level in the RWST is reached.

This valve must remain closed to isolate containment from the containment spray system. The valve receives a confirmatory Phase A containment isolation signal (CIS-A) to close within 30 seconds. This valve is considered a containment isolation valve for Penetration P-13 (ENHV0007) / P-16 (ENHV0001).

Justification

Exercising the valve open during normal power operations places the plant in an undesirable configuration since opening the valve would run the risk of draining the containment spray pumps suction headers into the containment sump which would cause severe damage to the pumps and render them inoperable. The RWST would be required to be isolated during this testing to prevent flooding of containment should the single check valve fail to close. Current procedure require the containment spray suction header to be drained prior to exercising these valves for testing purposes. Due to the amount of time for system draining/filling/venting to perform this test along with the increased risk associated with the RWST isolated, this testing is considered impracticable to perform during power operations.

Alternative Test

These valves will be exercised open and closed during cold shutdowns when the the containment spray suction piping is not required to be inservice and the RWST isolated from the containment spray suction piping.

Cold Shutdown Justification CSJ-24

Valve Number	System	Class	Category
EPHV8808A	EP	2	B
EPHV8808D	EP	2	B

Function

These normally open motor operated valves must remain open to provide a flow path from the safety injection tank accumulator to the reactor coolant system cold leg during accident conditions whenever the reactor coolant system pressure decreases below 600 psia. During normal operation, these valves are maintained in the open position with their power removed to prevent inadvertent operation. The valves receives a confirmatory signal to open on a safety injection signal and a safety injection signal unblock pressure and are interlocked such that they cannot be closed with an SIS present. The valves are not required to reposition to support any accident analysis events. Therefore, the open function for these valves is considered passive.

These valves must close prior to reducing RCS pressure below 1000 psig to avoid a loss of accumulator water inventory to the reactor coolant system during safe shutdown (hot standby to cold shutdown). Additionally, the valves are closed during normal plant shutdown after the RCS has been depressurized below 1000 psig to prevent a loss of accumulator water inventory to the reactor coolant system. The power to the valves is disconnected after they are closed to prevent inadvertent operation. During normal plant startup, the valve is returned to the open position and power is disconnected before the RCS pressure exceeds 1000 psig.

Justification

It is impracticable to exercise these valves closed during normal power operation since closing this valve during normal power operations places the plant in an undesirable configuration.

Exercising these valves closed during normal plant operations requires the safety injection accumulator to be isolated. Isolating the a safety injection accumulator during normal power operations places the plant in an undesirable plant configuration rendering the respective safety injection accumulator tanks inoperable.

Alternative Test

These valves will be exercised closed during cold shutdowns when the safety injection accumulators are not required to be in service.

Cold Shutdown Justification CSJ-25

Valve Number	System	Class	Category
EPHV8950A	EP	2	B
EPHV8950B	EP	2	B
EPHV8950C	EP	2	B
EPHV8950D	EP	2	B
EPHV8950E	EP	2	B
EPHV8950F	EP	2	B

Function

These normally closed solenoid operated valves must open to depressurize the safety injection accumulator tank during emergency cold shutdown conditions in the event, that the outlet valves 8808A-D cannot be closed, to prevent the loss of accumulator water to the RCS.

These valves are normally closed to isolate the safety injection accumulator tank vent to containment atmosphere, thereby providing sufficient pressure in the accumulator for injection purposes. This function is not required for safe shutdown or accident mitigation since the accumulator level and pressure is continuously monitored and alarmed in the control room. If excessive leakage is detected, the operator is required to take actions to maintain the plant operation within the requirements of Technical Specifications or bring the plant to a safe shutdown condition.

Justification

It is impracticable to exercise these valves open (partial or full) during normal power operations since exercising these valves place the plant in an undesirable configuration.

Exercising these valves open during normal power operations would place the plant in an undesirable configuration rendering the respective safety injection accumulator inoperable. The Technical Specification action statement may not allow adequate time to test the valves and restore the accumulator. Additionally, should one of the valves fail to close, insufficient time is allowed to repair/replace/retest prior to shutting down the plant.

Alternative Test

These valves will be exercised open during cold shutdowns when the safety injection accumulators are not required to be in service.

Cold Shutdown Justification CSJ-26

Valve Number	System	Class	Category
KAFV0029	KA	2	A

Function

This normally open, air operated valve must close to isolate Containment from the non-safety related Instrument Air (KA) System. This valve is a containment isolation valve for Penetration P-30. The valve receives a Phase A Containment Isolation Signal to close automatically within 5 seconds.

This valve is open during normal operation to supply Instrument Air to the Reactor Building primarily for use in operating various valves. However, supplying Instrument Air to the Reactor Building does not support safe shutdown or accident mitigation.

Justification

Exercising this valve closed during normal power operations would interrupt the instrument air supply to the valves and equipment necessary for system control and operation. Closure of the valve would affect the normal letdown flow path and isolation of the pressurizer spray feature.

Alternative Test

These valves will be exercised closed and fail safe tested during cold shutdowns when the instrument air system is not required by important plant components.

Cold Shutdown Justification CSJ-27

Valve Number	System	Class	Category
AEFCV0510	AE	NC	B
AEFCV0520	AE	NC	B
AEFCV0530	AE	NC	B
AEFCV0540	AE	NC	B
AEFCV0550	AE	NC	B
AEFCV0560	AE	NC	B
AEFCV0570	AE	NC	B
AEFCV0580	AE	NC	B

Function

These valves provide a diverse backup to the Main Feedwater Isolation Valves to limit the quantity of high energy fluid that enters the containment through the broken loop.

Justification

It is impracticable to exercise these valves closed during normal power operations since exercising these valves may result in a plant transient and subsequent reactor trip.

Exercising these valves closed during normal power operations requires isolating normal feedwater flow to the steam generator. This testing may result in a severe transient in the steam generator and subsequent reactor trip. Partial stroke exercising these valves is also impracticable since even a part-stroke exercise increases the risk of a valve closure when the unit is generating power.

Alternative Test

These valves will be exercised closed and fail safe tested during cold shutdowns when the steam generators and feedwater system are not required to be in service.

ATTACHMENT 6

REFUEL OUTAGE JUSTIFICATION INDEX

Refuel Outage Justification No.	Description
RJ-01	SG Feedwater Supply Check Valves (AEV0120,121,122,123)
RJ-02	Normal/Alternate Charging to RCS Check Valves (BB8378A,B,8379A,B)
RJ-03	RCP Thermal Barrier Cooling Water Valves (BBHV0013,14,15,16)
RJ-04	PORV Block Valve Exercising (BBHV8000A,B)
RJ-05	RCP Seal Water Supply Isolation Valves (BBHV8351A,B,C,D)
RJ-06	CCW to RCP Thermal Barrier Supply Check Valves (BBV0122,152,212,474,476,479,480
RJ-07	VCT to NCP/CCP Hdr Check (BG8440)
RJ-08	Charging Pump Discharge Check Valves (BG8481A,B)
RJ-09	RWST to Charging Pump Suction Check Valves (BG8546A,B)
RJ-10	RCP Seal Water Return Valves (BGHV8100,8112)
RJ-11	RWST to RHR Pump Suction Check Valves (EJ8958A,B)
RJ-12	Charging to RCS Cold Leg (Boron Injection) Check Valve (EM8815)
RJ-13	Safety Injection Pump Discharge Check Valves (EM8922A,B)
RJ-14	RWST to Safety Injection Pump Suction Check Valves (EM8926A,B)
RJ-15	SI Pump to Accumulator Fill Line Check Valve (EMV0006)
RJ-16	Shutdown Purge Isolation Dampers (GTHZ0006,7,8,9)

ATTACHMENT 7

Refuel Outage Justifications

Refuel Outage Justification RJ-01

Valve Number	System	Class	Category
AEV0120	AE	2	C
AEV0121	AE	2	C
AEV0122	AE	2	C
AEV0123	AE	2	C

Function

These check valves must open to provide a flow path from the auxiliary feedwater pump to the steam generator during accident conditions requiring auxiliary feedwater system initiation. The valves are open during normal power operation to provide the normal feedwater system flow to the steam generator.

These valves close to prevent reverse flow through the associated feedwater line and to prevent blowdown of the associated Steam Generator in the event of a secondary pipe break upstream of this valve but downstream of the Feedwater Isolation valve.

Justification

It is impracticable to exercise these valves closed during normal power operations or cold shutdowns since exercising these valves may result in a plant transient and subsequent reactor trip.

Exercising these valves closed during normal power operations or during cold shutdowns would require isolating feedwater to the steam generator. Isolating feedwater flow to the steam generator would result in a severe transient in the steam generator and possible reactor trip.

Alternative Test

These valves will be exercised closed during refueling outages when the feedwater system is not required to be operational.

Refuel Outage Justification RJ-02

Valve Number	System	Class	Category
BB8378A	BB	1	C
BB8378B	BB	1	C
BB8379A	BB	1	C
BB8379B	BB	1	C

Function

These check valves must close to isolate the reactor coolant system from the lower pressure charging system in the event of a pipe break in the CVCS system.

Valves BBV8378A,B open to provide a flow path for normal charging flow from the charging pumps to the RCS. Valves BBV8379A,B open to provide a flow path for alternate charging flow from the charging pumps to the RCS. The normal charging flow path maintains the required water inventory in the RCS during normal operation, power changes, startup, and shutdown. The alternate charging provides backup to the normal charging flow path. These open functions are not required for safe shutdown or accident mitigation since neither the normal charging or alternate charging flow paths are not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these check valves closed during normal power operations or cold shutdown since interrupting charging flow to the RCS places the plant in an undesirable configuration. Access to these valves requires entry behind the reactor bioshield wall inside containment, which is not practicable from a radiation exposure standpoint during normal plant operations and is not practical during cold shutdowns when the area is highly radioactive and the valve body is insulated at a temperature that exceeds non-intrusive equipment adhesive ratings.

Alternative Test

These valves will be exercised closed during refueling outages when the charging system is not required and radiation levels permit entry into containment.

Refuel Outage Justification RJ-03

Valve Number	System	Class	Category
BBHV0013	BB	3	B
BBHV0014	BB	3	B
BBHV0015	BB	3	B
BBHV0016	BB	3	B

Function

These valves must close to isolate the RCS from the component cooling water system in the event of a cooling coil tube leak. In the event of a leak in the thermal barrier, the valves close automatically upon receipt of a high flow signal in the component cooling water return line.

These normally open motor operated valves provide a cooling water return flow path from the RCP thermal barrier cooling coil to the component cooling water system. This function prevents RCP pump damage and degradation of the pump seals that could result due to blockage of RCP cooling water. This function is not required for safe shutdown or accident mitigation since the reactor coolant pumps are not relied upon for safe shutdown.

Justification

It is impracticable to exercise these valves closed during normal power operations or during cold shutdowns since interrupting thermal barrier cooling coil flow would damage the reactor coolant pump seals.

Exercising these valves closed, or partially closed during normal power operations or during cold shutdown periods would interrupt flow to the reactor coolant pump thermal barriers which could lead to damage of the pump seals and pump radial bearing which would ultimately damage the pump.

Alternative Test

These valves will be exercised closed during refueling outages when the reactor coolant pumps are not required to be in service.

Refuel Outage Justification RJ-04

Valve Number	System	Class	Category
BBHV8000A	BB	1	B
BBHV8000B	BB	1	B

Function

These normally open motor operated valves must open to provide a flow path from the pressurizer to the pressurizer relief tank when the power operated relief valve (PORV) is required to be open for reactor coolant system depressurization.

This valve must close to isolate the reactor coolant system pressurizer in the event the pressurizer power operated relief valve (PORV) develops excessive seat leakage or if it fails to close. Additionally, this valve must close by operator action to isolate the reactor coolant system in the event of a spurious PORV actuation signal or during an inadvertent ECCS system initiation.

Justification

It is impracticable to exercise these valves during normal power operations or cold shutdown when the PORV is inoperable due to excessive seat leakage. Opening the valve may result in inadvertent depressurization of the RCS.

When these valves are closed to isolate an inoperable PORV (due to excessive leakage) the valve is administratively maintained closed with power to it. If required to open to perform its intended safety function, the valve is opened by the operator. Opening of this valve at any other time, while the PORV is inoperable due to excessive seat leakage, would result in an uncontrolled RCS discharge to the pressurizer relief tank, a loss of pressurizer pressure control, and a potential inadvertent depressurization of the RCS.

Callaway Nuclear Plant Technical Specifications 3.4.11, requires that if the block valve is closed to isolate a PORV due to excessive leakage, that power be maintained to the block valve. This condition may not exceed the next refueling outage.

Additionally, these valves may not be partial stroke exercised since they are not provided with this feature.

Alternative Test

These valves will be exercised open and closed quarterly when they are not required to be closed to isolate an inoperable leaking PORV. These valves will be exercised open and closed during refueling outages when the RCS is depressurized when they are required to be closed to isolate a leaking PORV.

Refuel Outage Justification RJ-05

Valve Number	System	Class	Category
BBHV8351A	BB	2	A
BBHV8351B	BB	2	A
BBHV8351C	BB	2	A
BBHV8351D	BB	2	A

Function

These normally open motor operated valves must open to provide a flow path from CVCS charging pumps the RCP seals for emergency boration. A portion of the charging flow is directed to the RCPs through the seal water filter, to borate the reactor coolant system to achieve and maintain a safe shutdown [FSAR 9.3.4]. Additionally, the valves open to provide a flow path for RCP seal injection water from CVCS charging pumps the RCP seals. This function prevents RCP pump damage and degradation of the pump seals that could result because a blockage of RCP cooling water.

These valves must close to isolate containment from the CVCS system. The valves are closed by remote-manual control. These valves are required to provide containment isolation for penetration P-22 (8351B) / -39 (8351C) / -40 (8351D) / -41 (8351A).

Justification

It is impracticable to exercise these valves during normal power operations or cold shutdown since interrupting RCP seal water return flow would damage the reactor coolant pump seals. Interruption of reactor coolant pump seal injection flow when the reactor coolant pumps are in operation would damage the pump seal and ultimately the pump.

Alternative Test

These valves will be exercised during refueling outages when the reactor coolant pumps and seal water is not required to be in service.

Refuel Outage Justification RJ-06

Valve Number	System	Class	Category
BBV0122	BB	3	C
BBV0152	BB	3	C
BBV0182	BB	3	C
BBV0212	BB	3	C
BBV0474	BB	3	C
BBV0476	BB	3	C
BBV0479	BB	3	C
BBV0480	BB	3	C

Function

These check valves must close to isolate the RCS from the component cooling water system in the event of a cooling coil tube leak.

These valves open to provide a cooling water supply flow path from the component cooling water system to the RCP thermal barrier cooling coil. This function prevents RCP pump damage and degradation of the pump seals that could result due to blockage of RCP cooling water. This function is not required for safe shutdown or accident mitigation since the reactor coolant pumps are not relied upon for safe shutdown.

Justification

It is impracticable to exercise these check valves closed during normal power operations since interrupting thermal barrier cooling coil flow would damage the reactor coolant pump seals. Testing these check valves in the safety close direction requires isolating cooling water to the Reactor Coolant Pumps (RCP) Thermal Barrier Cooling Coils and Motor Coolers. This function is required when the RCP are operating. Loss of RCP seal injection without Thermal Barrier Coolant would cause catastrophic RCP seal failure and a subsequent Small Break Loss of Coolant Accident. Loss of RCP motor cooling would result in catastrophic motor failure which would cause a loss of forced RCS flow. The cooling water to the RCPs is provided by a common header, therefore testing cannot be performed until all four RCPs are off, which does not occur except during reactor refueling outages.

Alternative Test

These valves will be exercised closed during refueling outages when the reactor coolant pumps are not required to be in service.

Refuel Outage Justification RJ-07

Valve Number	System	Class	Category
BG8440	BG	2	C

Function

This valve must open during the injection mode of ECCS to provide a minimum flow recirculation flow path through the seal water heat exchanger to protect the charging pumps while they are in recirculation operation. This mode will occur when the RWST is still the suction source and a safety injection signal is present.

Additionally, this check valve opens to provide a flow path from the volume control tank to the charging pump suction during normal plant operations. This function is not required for safe shutdown or accident mitigation.

This valve must close to prevent backflow and isolate the seal water heat exchanger piping during recirculation modes of ECCS. Valves BGLCV112B/C close to isolate the volume control tank and check valves BG8546A/B close to isolate the refueling water storage tank during hot and cold recirculation modes of ECCS while the charging pumps are supplied by the residual heat removal pumps. BG8440 must close to prevent diversion of the residual heat removal flow and potentially lifting the seal water heat exchanger relief valve BG8123.

Justification

It is impracticable to exercise this check closed during normal power operations or during cold shutdowns. Exercising the valve requires the performance of a leakage or reverse flow test to verify the closed position.

To perform a leakage test or reverse flow test during normal operations or during cold shutdowns requires temporary test equipment to be installed to establish a differential pressure across the valve to verify closure. This test is impracticable to be performed during normal power operations or cold shutdowns since the charging and residual heat removal systems would be required to be drained/vented and out of service to perform a leakage test.

Alternative Test

This valve will be exercised closed during refueling outages when the BG and EJ systems are not required to be in service. The open direction of this valve is verified using normal system flow during normal power operations.

Refuel Outage Justification RJ-08

Valve Number	System	Class	Category
BG8481A	BG	2	C
BG8481B	BG	2	C

Function

These check valves must open to provide a flow path from the charging pump to the reactor coolant system cold legs during injection and recirculation modes of ECCS operation.

The valves must close to prevent backflow through an idle pump during ECCS injection and recirculation modes of operation. Closure of this valve ensures adequate flow to the reactor coolant system in the event of a failure of the respective charging pump to start.

Justification

It is impracticable to exercise these check valves open during normal power operations or cold shutdowns since injection into the reactor coolant system during normal operations or cold shutdowns would cause a plant transient and potential reactor trip.

Exercising these valves open requires injection of borated water into the reactor coolant system. Performance of this test during normal plant operations would cause an increase in the reactor coolant boron inventory resulting in a potential reactor trip. Performing this test during cold shutdowns may result in a cold overpressurization of the reactor coolant system.

Alternative Test

These valves will be exercised opened and closed during refueling outages when the reactor coolant system is not required to be in service.

Refuel Outage Justification RJ-09

Valve Number	System	Class	Category
BG8546A	BG	2	C
BG8546B	BG	2	C

Function

These check valves must open to provide a flow path from the refueling water storage tank to the charging pump suction. Opening of this valve is required to ensure a flow path from the refueling water storage tank to the charging pumps during the injection mode of ECCS. The valves must also open to provide a flow path from the refueling water storage tank to the charging pumps for automatic makeup to the reactor coolant system in the event of a minor leak when valves BNLCV0112D/E open automatically upon receipt of a volume control tank Low-Low Level signal.

The valves must close to prevent back flow of the residual heat removal pumps discharge to the refueling water storage tank during the recirculation phase of ECCS operation. Closure of this valve ensures an adequate suction source for the charging and safety injection pumps.

Justification

It is impracticable to exercise these check valves open during normal power operations or cold shutdowns since injection into the reactor coolant system during normal operations or cold shutdowns would cause a plant transient and potential trip of the reactor.

Exercising these valves open requires injection of borated water into the reactor coolant system. Performance of this test during normal plant operations would cause an increase in the reactor coolant boron inventory resulting in a potential trip of the reactor. Performing this test during cold shutdowns may result in a cold overpressurization of the reactor coolant system.

Alternative Test

These valves will be exercised opened and closed during refueling outages when the reactor coolant system is not required to be in service.

Refuel Outage Justification RJ-10

Valve Number	System	Class	Category
BGHV8100	BG	2	A
BGHV8112	BG	2	A

Function

Valves BGHV8100/8112 are normally open motor operated valves which must close automatically upon receipt of a Phase A Containment Isolation signal to isolate containment from the reactor coolant pump seal water return line. These valves are considered a containment isolation valves for penetration P-24. The valves are open to provide a return flow path from the reactor coolant pump seals to the seal water heat exchanger during normal power operations. This function is not required for safe shutdown or accident mitigation since the reactor coolant pump seal water return along with the reactor coolant pumps are not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these valves during normal power operations or cold shutdown since interrupting RCP seal water return flow would damage the reactor coolant pump seals. During normal power operations and during cold shutdown periods this testing would result in an increase in personnel radiation exposure along with a high potential for delaying plant startup due to the significant amount of piping required to be filled and vented. Additionally, interrupting reactor coolant pump seal injection flow when the reactor coolant pumps are in operation would damage the pump seal and ultimately the pump.

Alternative Test

These valves will be exercised during refueling outages when the reactor coolant pumps and seal water is not required to be in service.

Refuel Outage Justification RJ-11

Valve Number	System	Class	Category
EJ8958A	EJ	2	C
EJ8958B	EJ	2	C

Function

These check valves must open to provide a flow path from the Refueling Water Storage Tank (RWST) to the Residual Heat Removal Pump (RHR) suction during ECCS Injection following a LOCA.

These valves must close during switchover to the Containment Sump during recirculation to prevent reverse flow from the Containment Sump to the RWST thereby ensuring a suction source for the RHR Pump.

Justification

It is impracticable to exercise these valves open or closed during normal power operations or cold shutdowns since exercising the valves requires injection into the RCS.

Exercising these valves open during normal power operations would require injection by the RHR pump into the RCS to verify full flow. Since the RHR pump can not overcome the reactor coolant system pressure during normal power operations, this testing cannot be performed. These valves cannot be exercised during cold shutdowns due to insufficient expansion volume required by injection during cold shutdowns.

Alternative Test

These valves will be exercised open and closed during refueling outages when the reactor coolant system is depressurized and injection is possible.

Refuel Outage Justification RJ-12

Valve Number	System	Class	Category
EM8815	EM	1	AC

Function

This check valve must open to provide a flow path from the centrifugal charging pumps to the reactor coolant system cold legs during injection and recirculation modes of ECCS.

This check valve must close to isolate containment from the chemical and volume control system. The valve is considered a containment isolation valve for penetration P-88. This valve is also considered a Pressure Isolation Valve and must close to isolate the reactor coolant system from the chemical and volume control system.

Justification

It is impracticable to exercise this valve open or closed during normal power operations or cold shutdowns since exercising the valves requires injection into the RCS.

Exercising these valves open during normal power operations or cold shutdowns would require injection by the charging pumps into the RCS to verify full flow. This test cannot be performed during power operations since injection of borated water into the RCS cold legs would result in a decrease in reactor power resulting in a power transient and subsequent reactor trip. Additionally, injection during power operations would thermally shock the reactor coolant system piping. During cold shutdown this valve cannot be exercised since injection into the RCS could result in low temperature overpressurization of the reactor coolant system.

Alternative Test

This valve will be exercised open and closed during refueling outages when the reactor coolant system is depressurized and injection by the charging pumps into the RCS is possible.

Refuel Outage Justification RJ-13

Valve Number	System	Class	Category
EM8922A	EM	2	C
EM8922B	EM	2	C

Function

These check valves must open to provide a flow path from the safety injection pump to the reactor coolant system during ECCS injection and recirculation modes of operation.

The valves must close to prevent backflow through an idle pump during ECCS injection and recirculation modes of operation. Closure of this valve ensures adequate flow to the reactor coolant system in the event of a failure of the respective safety injection pump to start.

Justification

It is impracticable to exercise these valves open or closed during normal power operations or cold shutdowns since exercising the valves requires injection into the RCS.

Exercising these valves open during normal power operations or cold shutdowns would require injection by the safety injection pumps into the RCS to verify full flow. This test cannot be performed during power operations since the safety injection pump cannot overcome reactor coolant system pressure. During cold shutdown these valves cannot be exercised since injection into the RCS could result in low temperature overpressurization of the reactor coolant system.

Alternative Test

These valves will be exercised open and closed during refueling outages when the reactor coolant system is depressurized and injection by the safety injection pumps into the RCS is possible.

Refuel Outage Justification RJ-14

Valve Number	System	Class	Category
EM8926A	EM	2	C
EM8926B	EM	2	C

Function

These check valves must open to provide a flow path from the RWST to the safety injection pumps during the ECCS injection mode.

This valve must close to isolate the RWST from the safety injection pump suction piping during cold and hot leg recirculation modes of ECCS. This isolation provides a suction source from the RHR pump discharge to the safety injection pumps.

Justification

It is impracticable to exercise this valve open or closed during normal power operations or cold shutdowns since exercising the valves requires injection into the RCS.

Exercising these valves open during normal power operations or cold shutdowns would require injection by the charging pumps into the RCS to verify full flow. This test cannot be performed during power operations since the safety injection pump cannot overcome reactor coolant system pressure. During cold shutdown these valves cannot be exercised since injection into the RCS could result in low temperature overpressurization of the reactor coolant system.

Alternative Test

These valves will be exercised open and closed during refueling outages when the reactor coolant system is depressurized and injection by the safety injection pumps into the RCS is possible.

Refuel Outage Justification RJ-15

Valve Number	System	Class	Category
EMV0006	EM	2	AC

Function

This check valve must close to isolate containment from the safety injection system. This valve is considered a containment isolation valve for penetration P-58.

This valve does not have a safety function in the open direction since it opens only to facilitate maintenance and testing. This valve opens to fill the safety injection accumulators with borated water or adjust level during normal power operations or shutdown. This function is not required for safe shutdown or accident mitigation since the accumulator pressure and level is continuously monitored to assure they can perform their function.

Justification

It is impracticable to exercise this check valve closed during normal power operations or cold shutdowns since closure testing imposes an increase in personnel radiation exposure and may delay plant startup.

To verify closure of this valve requires a backflow/leakage test. This testing requires entry into containment for test alignment and performance. During normal power operations and during cold shutdown periods this testing would result in an increase in personnel radiation exposure along with a high potential for delaying plant startup due to the significant amount of piping required to be filled and vented. Additionally, during cold shutdowns, a failure of this valve to close could result in a rapid depressurization of the SI accumulator rendering it inoperable.

Alternative Test

These valves will be exercised closed during refueling outages when the safety injection accumulators and fill lines are not required to be in service.

Refuel Outage Justification RJ-16

Valve Number	System	Class	Category
GTHZ0006	GT	2	A
GTHZ0007	GT	2	A
GTHZ0008	GT	2	A
GTHZ0009	GT	2	A

Function

These normally closed air operated valves must close to isolate containment from the containment purge system. This valve closes automatically upon receipt of a containment purge isolation signal (CPIS). The CPIS is initiated by receipt of an SIS or by indication of high radioactivity levels in the purge exhaust system process effluents by one of the purge exhaust radiation monitors. These valves are required to provide containment isolation for penetration V-161. The valves fail closed upon loss of pneumatic supply or electrical power.

These valves are opened by remote manual operation to provide a flow path to/from the containment shutdown purge supply air unit to the containment atmosphere for containment purge during reactor outages. This function is not required for safe shutdown or accident mitigation.

Justification

It is impracticable to exercise these valves closed during normal power operations or during cold shutdowns since exercising these valves requires them to be opened prior to the closure test. This testing places the plant in an undesirable configuration.

Exercising these valves closed, or partially closed during normal power operations or during cold shutdown periods would require the valves to be opened. Opening these valves is not permitted during Modes 1, 2, 3, or 4 since they are primary containment boundary valves. Opening these valves would allow the containment to be vented to atmosphere.

Alternative Test

These valves will be exercised closed and fail safe tested during refueling outages when the containment boundary is not required.

ATTACHMENT 8

Technical Position Index

Technical Position No.	Description
TP-01	Bi-directional Testing of Check Valves
TP-02	Testing of Power Operated Valves with Both Active and Passive Safety Functions
TP-03	Passive Valves Without Test Requirements
TP-04	Fail Safe Testing of Valves
TP-05	Classification of Skid Mounted Components
TP-06	Manual Valve Exercise Frequency
TP-07	Method for Establishing Acceptance Criteria for Power Operated Valves
TP-08	Check Valve Condition Monitoring
TP-09	Check Valves in Regular Use
TP-10	Categorization of IST Pumps (Group A or B)
TP-11	Non-intrusive Check ValveTesting

ATTACHMENT 9

Technical Positions

Technical Position TP-01
(Page 1 of 3)

Bi-directional Testing of Check Valves with Non-Safety Positions

Purpose

The purpose of this Technical Position is to establish the station position for the verification of the non-safety direction exercise testing of check valves by normal plant operations.

Applicability

This Technical Position is applicable to testing of the non-safety function (direction) of check valves which are included in the Inservice Testing Program. This position applies to those check valves required to be tested in accordance with Subsection ISTC (ASME OM Code 2001 Edition through 2003 Addenda) and Appendix II - Condition Monitoring (ASME OM Code 2001 Edition through 2003 Addenda). This Technical Position does not apply to testing of the safety function (direction) of check valves included in the Inservice Testing Program.

Background

The ASME OM Code 2001 through 2003 Addenda section ISTC-3550, "Valves in Regular Use", states:

> "Valves that operate in the course of plant operation at a frequency that would satisfy the exercising requirements of this Subsection need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during such operation and recorded in the plant record at intervals no greater than specified in ISTC-3510."

Section ISTC-3510 requires that check valves shall be exercised nominally every 3 months with exceptions (for extended periods) referenced.

Section ISTC-5221(a)(2) states:

> "Check valves that have a safety function in only the open direction shall be exercised by initiating flow and observing that the obturator has traveled to either the full open position or to the position required to perform its intended function(s) (see ISTC-1100), and verify closure."

Section ISTC-5221(a)(3) states:

> "Check valves that have a safety function in only the close direction shall be exercised by initiating flow and observing that the obturator has traveled [to] at least the partially open position,[3] and verify that on cessation or reversal of flow, the obturator has traveled to the seat."
>
> "[3]The partially open position should correspond to the normal or expected system flow."

Normal or expected system flow may vary with plant configuration and alignment, however, the open "safety function" of a check valve typically requires a specified design accident flow rate. Since Callaway Nuclear Plant Operations staff is trained in recognizing normal plant conditions, Operator judgment is acceptable in determining the check valve non-safety direction by obtaining normal or expected flow rates for the plant operating condition.

In summary, check valve non-safety function direction is satisfactorily demonstrated by verifying closure or passing normal or expected flow as applicable.

Position

Callaway Nuclear Plant will verify the non-safety position of check valves included in the Inservice Testing Program using the plant surveillance program. In lieu of a dedicated surveillance to perform the non-safety direction testing, the following alternate verifications may be performed as follows:

1. An appropriate means shall be determined which establishes the method for determining the open/closed non-safety function of the check valve during normal operations. The position determination may be by direct indicator, or by other positive means such as changes in system pressure, flow rate, level, temperature, seat leakage, etc. This determination shall be documented in the respective Condition Monitoring Plan for the specific check valve group. For check valves included in the Inservice Testing Program and not included in the Condition Monitoring Plan, this determination shall be documented in the IST Bases Document for the specific check valve group.

2. Observation and analysis of plant processes that a check valve is satisfying its' non-safety direction function may used. As an example, a check valve that has a safety function only in the closed direction and normally provides a flow path to maintain plant operations. If the check valve is not open to pass flow, an alarm or indication would identify a problem to the operator. The operator would respond to take appropriate actions. Abnormal plant condition which would identify the check valve failure would be documented using the Corrective Action Program.

3. Observation and analysis of plant logs and other records satisfied by Operator or Engineering reviews may be an acceptable method for verifying a check valve's non-safety direction during normal plant operations.

The open/closed non-safety function shall be recorded at a frequency required by ISTC-3510, nominally every 3 months, with exceptions as provided, in plant records such as Callaway Nuclear Plant Operating Logs, Electronic Rounds, chart recorders, automated data loggers, etc. Records as indicated above in 1 through 3 are satisfactory for the non-safety direction testing. Any issues regarding check valve operability are addressed using the Corrective Action Program.

Justification

This Technical Position requires that the method of determining the non-safety position be established and documented in either the Condition Monitoring Plan or the IST Bases Document. The plant systems and operator actions provide for the observations and analysis that the valve is satisfying its non-safety function. Additionally, the recording of parameters which demonstrate valve position is satisfied at a frequency in accordance with ISTC-3510. These actions collectively demonstrate the non-safety position of Inservice Testing Program check valves in regular use as required by ISTC-3550.

Technical Position TP-02
(Page 1 of 2)

Testing of Power Operated Valves with Both Active and Passive Safety Functions

Purpose

The purpose of this Technical Position is to establish the testing requirements for power operated valves which have both an active and passive safety function.

Applicability

This Technical Position is applicable to power operated valves which have an active safety function in one direction while performing a passive safety function in the other direction.

Background

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

Position

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

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

Power operated valves with passive functions in one direction and active in the other, will be stroke timed in only their active position. If these valves have position indication, the position indication verification will include verification of both positions.

Technical Position TP-02

Justification

Code Interpretation 01-02 (response to inquiry OMI 99-07) addressed this issue.

Question: If a valve has safety functions in both the open and closed positions and is maintained in one of these positions, but is only required to move from the initial position to the other and is not required to return to the initial position, is stroke timing in both directions required?

Reply: No

Technical Position TP-03
(Page 1 of 2)

Passive Valves Without Test Requirements

Purpose

The purpose of this Technical Position is to establish the station position for valves which perform a passive safety function, however, no testing in accordance with ISTC is required.

Applicability

This Technical Position is applicable to valves which perform a passive function in accordance with ISTC-2000 and do not have inservice testing requirements per Table ISTC-3500-1. This position is typical of Category B, passive valves which do not have position indication.

> "An example is a manual valve which must remain in its normal position during an accident, to perform its intended function."

Typically, manual valves which perform a safety function, are locked in their safety position and administratively controlled by Callaway Nuclear Plant procedures. These valves would be considered passive. If they do not have remote position indicating systems and categorized as B, they would not be subjected to any test requirements in accordance with Table ISTC-3500-1.

Position

The Callaway Nuclear Plant Inservice Testing Program, Valve Tables - Attachment 11, will not list valves which meet the following criteria.

- The valve is categorized B (seat leakage in the closed position is inconsequential for fulfillment of the valves' required function(s)) in accordance with ISTC-1300.
- The valve is considered passive (valve maintains obturator position and is not required to change obturator position to accomplish the required function(s)) in accordance with ISTC-2000.
- The valve does not have a remote position indicating system which detects and indicates valve position.

Technical Position TP-03
(Page 2 of 2)

Passive Valves Without Test Requirements

Justification

Valves which meet this position will not be listed in the Callaway Nuclear Plant Inservice Testing Program, Valve Tables - Attachment 11, however, the basis for categorization and consideration of active/passive functions shall be documented in the IST Program Basis Document.

Technical Position TP-04
(Page 1 of 1)

Fail Safe Testing of Valves

Purpose

The purpose of this Technical Position is to establish the station position for fail safe testing of valves in conjunction with stroke time exercising or position indication testing.

Applicability

This Technical Position is applicable to valves with fail safe actuators required to be tested in accordance with ISTC-3560.

Background

The ASME OM Code 2001 through 2003 Addenda section ISTC-3560 requires;

> "Valves with fail-safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power in accordance with the exercising frequency of ISTC-3510."

Section ISTC-3510 states;

> "Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months..."

Position

In cases where normal valve operator action moves the valve to the open or closed position by de-energizing the operator electrically, by venting air, or both, the exercise test will satisfy the fail safe test requirements and an additional test specific for fail safe testing will not be performed.

Callaway Nuclear Plant will also use remote position indication as applicable to verify proper fail safe operation, provided that the indication system for the valve is periodically verified in accordance with ISTC-3700.

Justification

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

Technical Position TP-05
(Page 1 of 3)

Classification of Skid Mounted Components

Purpose

The purpose of this technical position is to clarify requirements for classification of various skid mounted components, and to clarify the testing requirements of these components.

Background

The ASME Code allows classification of some components as skid mounted when their satisfactory operation is demonstrated by the satisfactory performance of the associated major components. Testing of the major component is sufficient to satisfy Inservice Testing requirements for skid mounted components. In section 3.4 of NUREG 1482 Rev. 1, the NRC supports the designation of components as skid mounted:

> "The staff has determined that the testing of the major component is an acceptable means for verifying the operational readiness of the skid-mounted and component subassemblies if the licensee documents this approach in the IST Program. This is acceptable for both Code class components and non-Code class components tested and tracked by the IST Program."

In the 1996a addenda to the ASME OM Code (endorsed by 10CFR50.55(a) in October 2000), the term skid-mounted was clarified by the addition of ISTA paragraph 1.7:

> ISTA 1.7 Definitions
>
> *Skid mounted components and component sub assemblies* – components integral to or that support operation of major components, even though these components may not be located directly on the skid. In general, these components are supplied by the manufacturer of the major component. Examples include: diesel skid-mounted fuel oil pumps and valves, steam admission and trip throttle valves for high-pressure coolant injection or auxiliary feedwater turbine-driven pumps, and solenoid-operated valve provided to control the air-operated valve.

Technical Position TP-05
(Page 2 of 3)

This definition was further clarified in the 1998 Edition of the ASME Code and is also stated in the 2001 Edition:

> ISTA-2000 DEFINITIONS
>
> *Skid mounted pumps and valves* – pumps and valves integral to or that support operation of major components, even though these components may not be located directly on the skid. In general, these pumps and valves are supplied by the manufacturer of the major component. Examples include:
>
> (a) diesel fuel oil pumps and valves;
>
> (b) steam admission and trip throttle valves for high-pressure coolant injection pumps;
> (c) steam admission and trip throttle valves for auxiliary feedwater turbine driven pumps;
> (d) solenoid-operated valves provided to control an air-operated valve.

Additionally the Subsections pertaining to pumps (ISTB) and valves (ISTC) includes exclusions/exemptions for skid mounted components;

> ISTB-1200(c) Exclusions
>
> Skid-mounted pumps that are tested as part of the major component and are justified by the Owner to be adequately tested.
>
> ISTC-1200 Exemptions
>
> Skid-mounted valves are excluded from this Subsection provided they are tested as part of the major component and are justified by the Owner to be adequately tested.

Technical Position TP-05

Position

The 2001 ASME OM Code definition of skid mounted should be used for classification of components in the Callaway Nuclear Plant Inservice Testing Program. In addition, for a component to be considered skid mounted:

- The major component associated with the skid mounted component must be surveillance tested at a frequency sufficient to meet ASME Code test frequency for the skid mounted component.

- Satisfactory operation of the skid mounted component must be demonstrated by satisfactory operation of the major component.

- The IST Bases Document should describe the bases for classifying a component as skid mounted and the IST Program Plan should reference this technical position for the component.

Justification

Classification of components as skid mounted eliminates the need for testing of sub components that are redundant with testing of major components provided testing of the major components demonstrates satisfactory operation of the "skid mounted" components.

Technical Position TP-06
(Page 1 of 1)

Manual Valve Exercise Frequency

Purpose

The purpose of this Technical Position is to establish the station position for the frequency of exercising those manual valves which are required to be exercised.

Applicability

This Technical Position is applicable to the manual valves included in the Inservice Testing Program.

Background

The ASME OM Code 2001 through 2003 Addenda section ISTC-3540 states;

> "Manual valves shall be full-stroke exercised at least once every 5 years, except where adverse conditions[2] may require the valve to be tested more frequently to ensure operational readiness."
>
> [2]Harsh service environment, lubricant hardening, corrosive or sediment laden process fluid, or degraded valve components are some examples of adverse conditions.

In the Federal Register for the Proposed Rule Change dated October 2004, the NRC stated the following with regards to manual valve exercise frequency;

> "Section 50.55a(b)(3)(vi) is revised to clarify that manual valves must be exercised on a 2-year interval rather that the 5-year interval specified in paragraph ISTC-3540 of the 1999 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(3) of this section, provided that adverse conditions do not require more frequent testing."

Position

Callaway Nuclear Plant will perform exercising of manual valves within the scope of the IST Program at a frequency not to exceed 2 years.

Justification

The NRC Rule Change will be adopted for the frequency of exercising manual valves at least once every 2 years. This interval is more frequent than required by the Edition of the Code used by Callaway Nuclear Plant, therefore no other justification is required.

Technical Position TP-07
(Page 1 of 2)

Method for Establishing Acceptance Criteria for Power Operated Valves

Purpose

The purpose of this Technical Position is to establish the station position for establishing the stroke time acceptance criteria for power operated valves, including the Maximum/Limiting Stroke time.

Applicability

Power Operated Valves Requiring Stroke Time Testing

Background

The IST Program requires that a valves' stroke time reference value be established in accordance with ASME OM Code 2001 through 2003 Addenda section ISTC-3300. In accordance with the definition in ISTA-2000, reference values are defined as follows:

> "one or more values of test parameters measure when the equipment is known to be operating acceptably."

Acceptable ranges are then determined based on these reference values in accordance with ISTC-5114 for Power Operated Relief Valves, ISTC-5122 for Motor Operated Valves, ISTC-5132 for Pneumatically Operated Valves, ISTC-5142 for Hydraulically Operated Valves, and ISTC-5152 for Solenoid Operated Valves.

In accordance with the Valve Stroke Testing requirements for the various operator types, the maximum/limiting value(s) of full-stroke time of each valve shall be specified by the Owner. Subsection ISTC does not provide specific guidance on determining the limiting value(s). In accordance with NRC Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs"

> "the limiting value should be a reasonable deviation from this reference stroke time based on the valve size, valve type, and actuator type. The deviation should not be so restrictive that it results in a valve being declared inoperable due to reasonable stroke time variations. However, the deviation used to establish the limit should be such that corrective action would be taken for a valve that may not perform its intended function. When the calculated limiting value for a full-stroke is greater than a Technical Specification (TS) or safety analysis limit, the TS or safety analysis limit should be used as the limiting value of full-stroke time.

Technical Position TP-07
(Page 2 of 2)

Position

Callaway Nuclear Plant will use Table TP-08-1 to establish Acceptable Ranges in accordance with ISTC-5114 for Power Operated Relief Valves, ISTC-5122 for Motor Operated Valves, ISTC-5132 for Pneumatically Operated Valves, ISTC-5142 for Hydraulically Operated Valves, and ISTC-5152 for Solenoid Operated Valves. Table TP-08-1 will also be used as general guidance to establish the Maximum/Limiting Value(s) for power-operated valves. Establishment of Acceptable Ranges and Maximum/Limiting Value(s) will be as follows:

- T_{Ref} is the reference value in seconds of a valve when it is known to be operating acceptably
- Reference values may be rounded off to the nearest tenth of a second. Acceptable Ranges may be rounded off to the nearest tenth of a second. Calculated IST Limiting Values may be rounded off to the nearest whole number. Standard rounding or conservative rounding techniques are both allowed.
- The most conservative maximum/limiting value between the IST calculated limit (as determined from Table TP-08-1), UFSAR limit, Technical Specification, or design drawing/specification limit should be used as the Maximum/Limiting stroke time. Any deviations from this criteria will be evaluated.
- When a valve or its control system has been replaced, repaired, or has undergone maintenance[1] that could affect the valve's performance, a new reference value shall be determined or the previous value reconfirmed by an inservice test run before it is returned to service or immediately if not removed from service.

Table TP-08-1

Valve Operator	Reference Stroke Time	Acceptable Range	Limiting Stroke Time
Motor[2]	$T_{Ref} > 10.0$	$0.85T_{Ref}$ - $1.15T_{Ref}$	$\leq 2.0T_{Ref}$
Motor	$T_{Ref} \leq 10.0$	$0.75T_{Ref}$ - $1.25T_{Ref}$	$\leq 2.5T_{Ref}$
Pneumatic/Hydraulic/ Solenoid/PORV	$T_{Ref} > 10.0$	$0.75T_{Ref}$ - $1.25T_{Ref}$	$\leq 2.0T_{Ref}$
Pneumatic/Hydraulic/ Solenoid/PORV	$T_{Ref} \leq 10.0$	$0.50T_{Ref}$ - $1.50T_{Ref}$	$\leq 2.5T_{Ref}$
All (Optional)	$T_{Ref} < 2.0$	≤ 2.0	2.0

[1] Adjustment of stem packing, limit switches, or control system valves, and removal of the bonnet, stem assembly, actuator, obturator, or control system components are examples of maintenance that could affect valve performance.

[2] The maximum/limiting values for EJHV8701A/B and BBPV8702A/B is 1.5 T_{Ref}.

Technical Position TP-08
(Page 1 of 4)

Check Valve Condition Monitoring

Purpose

The purpose of the Check Valve Condition Monitoring Program is to improve check valve performance and to optimize testing, examination, and preventive maintenance activities in order to maintain the continued acceptable performance of a select valve or group of valves.

Scope

The Callaway Nuclear Plant Check Valve Condition Monitoring Program will be applied to individual check valves or groups of check valves which are either candidates for improved performance or candidates which will be monitored for improved valve performance.

a. Candidates for improved valve performance are those check valves which may exhibit one or more of the following attributes:

   i. The valve(s) exhibits an unusually high failure rate during inservice testing or operations;
   ii. The valve(s) can not be exercised under normal operating conditions or during shutdown;
   iii. The valve(s) exhibits unusual, abnormal, or unexpected behavior during exercising or operations.

b. Candidates for monitoring for improved valve performance using optimization techniques, examination, and preventive maintenance activities are those check valves with documented acceptable performance that:

   i. Have had their performance improved under this program;
   ii. Cannot be exercised or are not readily exercised during normal operating condition or during shutdown;
   iii. Can only be disassembled and examined; or
   It is decided that all of the associated activities of the valve or group will be optimized.

Groupings

For valves which are grouped together the following valve attributes shall be considered:

a. Valves shall be of the same manufacturer, design, size, service media, materials of construction, and orientation.
b. Maintenance and modification history shall be reviewed.
c. Test history and results shall be reviewed.
d. System design shall be considered to determine potential flow instabilities, degree of disassembly, and the need for tolerance and dimensional measurements

Analysis

An analysis of the test and maintenance history shall be performed to establish the basis for specifying inservice testing, examination, and preventive maintenance activities. This analysis shall include the following:

a. Identify any common failure mode or corrective maintenance patterns.
b. Analyze these common patterns to determine their significance and to identify potential failure mechanisms:

    i. Determine if certain preventive maintenance activities would mitigate the failure or maintenance patterns;
    ii. Determine if certain condition monitoring activities are possible and effective in monitoring for these failure mechanisms;
    iii. Determine if periodic disassembly and examination would be an effective method in monitoring for these failure mechanisms.
    iv. Determine if the valve grouping is required to be changed.

Condition Monitoring Activities

Valve obturator movement during applicable test or examination activities shall be sufficient to determine the bidirectional functionality of the moving parts. A full open exercise test, or an open test to the position required to perform its intended function is not required for this assessment.

a. Performance Improvement Activities

    i. If sufficient information is not available or the results of the analysis performed above are not conclusive, an interim period not to exceed 5 years or 2 refueling outages, whichever is less, shall be established to determine the cause of the failure or maintenance patterns. The following activities shall be performed at sufficient intervals over the interim period.

1. Identify interim tests (e.g. nonintrusive) to assess the performance of the valve of group of valves.
2. Identify interim examinations to evaluate potential degradation mechanisms.
3. Identify other types of analysis to be performed which will assess check valve condition.
4. Identify which of these activities will be performed on each valve.
5. Identify the interval of each activity.

ii. Identify attributes that will be trended. Trending and evaluation of existing data must be used as the bases to reduce or extend the time interval between tests or examinations.

iii. Complete or revise the condition monitoring test plans to document the check valve program performance improvement activities and their associated frequencies.

iv. Perform these activities at their assigned intervals until:

1. Sufficient information is obtained to permit an adequate analysis.
2. Until the end of the interim period (2 refueling outages or 5 years, whichever is less).

v. After performance, a review shall be performed for each trended attribute along with results for each activity to determine if changes to the program are required. If changes are required, the program shall be revised before the next performance of the activity.

b. Optimization of Condition Monitoring Activities

i. If sufficient information is available to assess the performance adequacy of the check valve or group, then the following activities shall be performed:

1. Identify appropriate preventive maintenance activities including the intervals that are required to maintain the continued acceptable performance of the check valve or group of check valves.
2. Identify the applicable examination activities including the interval that will be used to periodically assess the condition of each check valve or group of check valves.
3. Identify the applicable test activities including intervals that will be used to periodically verify the acceptable performance of each check valve or group of check valves.

4. Identify which of these activities will be performed on each valve in the group.
5. Identify the interval of each activity. Interval extensions shall be limited to one fuel cycle per extension. Intervals shall not exceed the maximum interval shown in Table II-4000-1. All valves in a group sampling plan must be tested or examined again, before the interval can be extended again, or until the maximum interval would be exceeded. (Display Table II-4000-1)

ii. Identify attributes that will be trended. Trending and evaluation of existing data must be used to reduce or extend the time interval between tests or examinations.

iii. Revise the condition monitoring plans to document the optimized condition monitoring program activities and associated intervals for each activity.

iv. Continue performance of these activities at their associated intervals.

v. Review the results of the performance of each activity to determine if changes to the optimized condition monitoring program are required. Changes to IST intervals must consider plant safety and be supported by trending and evaluating both generic and plant-specific performance data to ensure the component is capable of performing its intended function(s) over the entire interval.

Corrective Maintenance

If corrective maintenance is performed on a check valve, the analysis used to formulate the basis of the condition-monitoring activities for that valve and its associated valve group shall be reviewed to determine if any changes are required.

Documentation

The condition monitoring program shall be documented in IST Manager or equivalent forms and shall contain as a minimum the following information:

a. The list of valves in each group including the group basis.
b. Date the valve or group of valves was evaluated for inclusion or exclusion from the condition monitoring program.
c. Safety function of valve or valve group.
d. Analysis/justification which forms the basis for the program.
e. Identification of the failure or maintenance patterns for each valve
f. Condition monitoring activities including the trended attributes and the bases for the associated intervals for each valve or valve group.

Technical Position TP-09
(Page 1 of 2)

Check Valves in Regular Use

Purpose

The purpose of this Technical Position is to establish the station position for check valves that are in regular use during normal plant operations.

Applicability

This Technical Position is applicable to the following check valves which are demonstrated to be open during routine operations. No additional open exercise testing is required.

Background

The ASME OM Code 2001 through 2003 Addenda section ISTC-3550, "Valves in Regular Use", states:

> "Valves that operate in the course of plant operation at a frequency that would satisfy the exercising requirements of this Subsection need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during such operation and recorded in the plant record at intervals no greater than specified in ISTC-3510."

Section ISTC-3510 requires that check valves shall be exercised nominally every 3 months with exceptions (for extended periods) referenced.

Normal or expected system flow may vary with plant configuration and alignment, however, the open "safety function" of a check valve typically requires a specified design accident flow rate. For the subject valves, the normal system flow is above the design accident flow rates. Since Callaway Nuclear Plant Operations staff is trained in recognizing normal plant conditions, Operator judgment is acceptable in determining the check valve open function by obtaining normal or expected flow rates for the plant operating condition.

In summary, check valve open functions are satisfactorily demonstrated by verifying normal or expected flow as applicable.

Technical Position TP-09

Position

Callaway Nuclear Plant will verify the open position of these subject check valves by observing plant logs, computer systems, strip chart records, etc. during normal plant operations. The open/closed safety function shall be recorded at a frequency required by ISTC-3510, nominally every 3 months, with exceptions as provided, in plant records such as Callaway Nuclear Plant Operating Logs, Electronic Rounds, chart recorders, automated data loggers, etc.

Justification

The plant systems and operator actions provide for the observations and analysis that these valves are satisfying their open safety function. Additionally, the recording of parameters which demonstrate valve position is satisfied at a frequency in accordance with ISTC-3510. These actions collectively demonstrate the open safety position of Inservice Testing Program check valves in regular use as required by ISTC-3550.

Technical Position TP-10
(Page 1 of 2)

Categorization of IST Pumps (Group A or B)

Position

Callaway Nuclear Plant has categorized the pumps required to be included in the Inservice Testing Program as either Group A or B in accordance with the requirements of ISTB-1300/2000.

Group A pumps are pumps that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations. The following pumps are categorized as Group A at Callaway Nuclear Power Plant:

Pump Number	Class	Group	Type	Function
PBG02A	3	A	Centrifugal	Boric Acid Transfer
PBG02B	3	A	Centrifugal	Boric Acid Transfer
PEG01A	3	A	Centrifugal	Component Cooling
PEG01B	3	A	Centrifugal	Component Cooling
PEG01C	3	A	Centrifugal	Component Cooling
PEG01D	3	A	Centrifugal	Component Cooling
PEJ01A	2	A	Centrifugal	Residual Heat Removal
PEJ01B	2	A	Centrifugal	Residual Heat Removal
PAL01A	3	A	Centrifugal	Auxiliary Feedwater
PAL01B	3	A	Centrifugal	Auxiliary Feedwater
PEF01A	3	A	Vertical	Essential Service Water
PEF01B	3	A	Vertical	Essential Service Water

Group B pumps are those pumps in standby systems that are not operated routinely except for testing. The following pumps are categorized as Group B at Callaway Nuclear Power Plant:

Pump Number	Class	Group	Type	Function
PAL02	3	B	Centrifugal	Auxiliary Feedwater
PBG05A	2	B	Centrifugal	Charging
PBG05B	2	B	Centrifugal	Charging
PEM01A	2	B	Centrifugal	Safety Injection
PEM01B	2	B	Centrifugal	Safety Injection
PEN01A	2	B	Centrifugal	Containment Spray
PEN01B	2	B	Centrifugal	Containment Spray

Group A Pump Tests – Group A tests are performed quarterly for each pump categorized as A. The following inservice test parameters are measured for each Group A pump test:

- Speed (if pump is variable speed)
- Differential Pressure
- Discharge Pressure, (for positive displacement pumps)
- Flow Rate
- Vibration

Group B Pump Tests – Group B tests are performed quarterly for each pump categorized as B. The following inservice test parameters are measured for each Group B pump test.

- Speed (if pump is variable speed)
- Differential Pressure[(1)]
- Flow Rate[(1)]

[(1)] For positive displacement pumps, flow rate shall be measured or determined, for all other pumps, differential pressure or flow rate shall be measured or determined.

Comprehensive Pump Tests – Comprehensive pump tests are performed biennially for all pumps in the Inservice Testing Program. The following inservice test parameters are measured for each Comprehensive pump test:

- Speed (if pump is variable speed)
- Differential Pressure
- Discharge Pressure, (for positive displacement pumps)
- Flow Rate
- Vibration

The following instrument accuracy requirements apply to each test type:

Parameter	Group A	Group B	Comprehensive
Pressure	+/- 2.0%	+/- 2.0%	+/- 0.5%
Flow Rate	+/- 2.0%	+/- 2.0%	+/- 2.0%
Speed	+/- 2.0%	+/- 2.0%	+/- 2.0%
Vibration	+/- 5.0%	+/- 5.0%	+/- 5.0%
Differential Pressure	+/- 2.0%	+/- 2.0%	+/- 0.5%

Technical Position TP-11
(Page 1 of 3)

Non-Intrusive Check Valve Testing

Purpose

The purpose of this Technical Position is to document the acceptability of check valve non-intrusive testing (NIT).

Applicability

This Technical Position is applicable to the following check valves:

Valves	Non-intrusive test
BB8378A,B	Close
BB8379A,B	Close
BB8948A,B,C,D	Open
BB8949B,C	Open
BBV0001,22,40,59	Open
BBV0120,1,150,1,180,1,210,1	Close
EJ8841A,B	Open
EP8818A,B,C,D	Open
EP8956A,B,C,D	Open

Background

The NRC previously determined that NIT methods appropriate for certain valve applications are acceptable to verify the capability of the valve to open, close, and fully stroke, provided that the licensee properly qualifies the testing methods used for the valve application in accordance with the plant's quality assurance program requirements. Position 1 of Generic Letter 89-04 lists the six criteria to be addressed and documented in the IST Program for the qualification of NIT. This Technical Position will address these six criteria.

References

1. GL 89-04, Guidance on Developing Acceptable Inservice Testing Program
2. NUREG 1482 Revision 1
3. NRC Information Notice (IN) 2000-21, Detached Check Valve Disc Not Detected by Use of Acoustic and Magnetic Nonintrusive test techniques

Position

- Impracticality of performing a full-flow test

Callaway currently has several configurations where total flow to multiple leg injection lines, containing the subject check valves which require full open stroke testing, is measured. However, the individual leg flowrates are not measured because the individual lines do not have permanently installed flow measuring instrumentation. So, while a full flow test is possible, measuring the flowrate in each individual injection line is impractical.

- A description of the alternative technique used and a summary of the procedures being followed.
- A description of the instrumentation used and the maintenance and calibration of the instrumentation.

NIT at Callaway involved the use of Liberty Technology "QuickCheck" system (up to RF10) and is currently using the Crane Nuclear "Viper" system. The Liberty QuickCheck system used accelerometers and a portable data acquisition unit, which had data analysis software, to collect and analyze test signatures. The Crane Viper system uses accelerometers, eddy current probes, and sound card technologies with a portable data acquisition unit to collect and analyze test signatures. In addition, other supporting test equipment used are accelerometer/eddy current mounting studs, adhesive, cables, and equipment to measure the accelerometer/eddy current probe locations.

The Liberty QuickCheck data acquisition equipment – accelerometers and data acquisition unit – was calibrated every 18 months. The Crane Viper data acquisition equipment - accelerometers, pre-amps, and data acquisition unit - is calibrated annually based on vendor recommendations. Cables are inspected before every refueling outage.

Callaway administrative procedures being followed for NIT testing are EDP-ZZ-01122, Check Valve Predictive Performance Manual and ETP-ZZ-01331, Crane Nuclear Diagnostic System for Testing Check Valves. In addition, the IST Program lists the applicable operations surveillance procedures (OSP) that test the subject check valves.

- A description of the method and results of the program to qualify the alternative technique for meeting the ASME Code.
- A description of the basis used to verify that the baseline data has been generated when the valve is known to be in good working order, such as recent inspection and maintenance of the valve internals (components).

The generic qualification of non-intrusive testing was done under the Nuclear Industry Check Valve Group (NIC) Phase 1 through 3 reports and the Check Valve Nonintrusive

Analysis Guide, also prepared by NIC. Callaway's non-intrusive check valve testing is performed by trained and qualified personnel in data acquisition and analysis.

All of the check valves listed in this Technical Position are included in the Callaway Check Valve Condition Monitoring Program. The Condition Monitoring Program contains information on the valve grouping, valve grouping basis, and system flow condition tolerances.

Trained and qualified Callaway personnel continually evaluate the quality of the NIT test signatures to verify the quality of the test data. The Corrective Action Program is used to address and document deficiencies in the quality of the test data or adverse test data trends. The Condition Monitoring Program documents these reviews and based on the evaluated results may require changes to the Condition Monitoring Program.

In general, Callaway used disassembly and inspection and/or seat leakage testing to verify a check valve was known to be in good working order before NIT began. However, Callaway identified baseline deficiencies during a review of NRC IN 2000-21 (CAR 200003220). Deficiencies were corrected under CAR 200301844. The Corrective Action Program is used to address and document any deficiencies identified during inspection and maintenance activities. The Condition Monitoring Program documents these reviews of recent inspection and maintenance work and based on these evaluated results may require changes to the Condition Monitoring Program.

ATTACHMENT 10

Inservice Testing Pump Table

Pump Location	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
PAL01A	3	Centrifugal	Motor	N/A	M-22AL01	D-4	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP A									
PAL01B	3	Centrifugal	Motor	N/A	M-22AL01	H-4	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP B									
PAL02	3	Centrifugal	Turbine	3850	M-22AL01	B-4	Group B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP									
PBG02A	3	Centrifugal	Motor	N/A	M-22BG-5	B-7	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3	PR-03	
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	CVCS BORIC ACID TRANSFER PUMP A									
PBG02B	3	Centrifugal	Motor	N/A	M-22BG05	A-7	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3	PR-03	
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	CVCS BORIC ACID TRANSFER PUMP B									

Pump Location	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
PBG05A	2	Centrifugal	Motor	N/A	M-22BG03	B-5	Group B	DPb	M3	PR-02	
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	**CENTRIFUGAL CHARGING PUMP A**									
PBG05B	2	Centrifugal	Motor	N/A	M-22BG03	C-5	Group B	DPb	M3	PR-02	
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name:	**CENTRIFUGAL CHARGING PUMP B**									
PEF01A	3	Vertical Line Shaft	Motor	N/A	M-U2EF01	G-6	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**ESSENTIAL SERVICE WATER PUMP A**									
PEF01B	3	Vertical Line Shaft	Motor	N/A	M-U2EF01	D-6	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**ESSENTIAL SERVICE WATER PUMP B**									
PEG01A	3	Centrifugal	Motor	N/A	M-22EG01	G-4	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**COMPONENT COOLING WATER PUMP A**									

Pump Location	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
PEG01		Centrifugal	Motor	N/A	M-22EG01	D-4	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**COMPONENT COOLING WATER PUMP B**									
PEG01C		Centrifugal	Motor	N/A	M-22EG01	E-4	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**COMPONENT COOLING WATER PUMP C**									
PEG01D	3	Centrifugal	Motor	N/A	M-22EG01	B-4	Group A	DPa	M3		
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**COMPONENT COOLING WATER PUMP D**									
	2	Centrifugal	Motor	N/A	M-22EJ01	G-6	Group A	DPa	M3	PR-01	
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**RESIDUAL HEAT REMOVAL PUMP A**									
		Centrifugal	Motor	N/A	M-22EJ01	C-6	Group A	DPa	M3	PR-01	
								DPc	Y2		
								Qa	M3		
								Qc	Y2		
								Va	M3		
								Vc	Y2		
	Pump Name:	**RESIDUAL HEAT REMOVAL PUMP B**									

Pump Location	Safety Class	Pump Type	Pump Driver	Nominal Speed	P&ID	P&ID Coor.	Category	Test Type	Test Freq.	Relief Request	Tech. Pos.
PEM01A	2	Centrifugal	Motor	N/A	M-22EM01	E-6	Group B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name: SAFETY INJECTION PUMP A										
PEM01B	2	Centrifugal	Motor	N/A	M-22EM01	D-6	Group B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name: SAFETY INJECTION PUMP B										
PEN01A	2	Centrifugal	Motor	N/A	M-22EN01	G-6	Group B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name: CONTAINMENT SPRAY PUMP A										
PEN01B	2	Centrifugal	Motor	N/A	M-22EN01	B-6	Group B	DPb	M3		
								DPc	Y2		
								Qc	Y2		
								Vc	Y2		
	Pump Name: CONTAINMENT SPRAY PUMP B										

ATTACHMENT 11

Inservice Testing Valve Table

Main Steam (AB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ABHV0005	M-22AB02	D-4	2	B	4.0	GB	AO	Active	C	O	BTO	M3			
											FO	M3			TP-04
											PIT	Y2			
	Valve Name:	TDAFP STM SPLY FROM MS LOOP 2													
ABHV0006	M-22AB02	C-4	2	B	4.0	GB	AO	Active	C	O	BTO	M3			
											FO	M3			TP-04
											PIT	Y2			
	Valve Name:	TDAFP STM SPLY FROM MS LOOP 3													
ABHV0011	M-22AB02	G-3	2	B	28.0	GT	HO	Active	O	C	BTC	CS		CSJ-01	
											PIT	Y2			
	Valve Name:	SG D MSIV													
ABHV0012	M-22AB02	G-3	2	B	2.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SG D MS LOOP 4 ABHV0011 BYP ISO HV													
ABHV0014	M-22AB02	F-3	2	B	28.0	GT	HO	Active	O	C	BTC	CS		CSJ-01	
											PIT	Y2			
	Valve Name:	SG A MSIV													
ABHV0015	M-22AB02	F-3	2	B	2.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SG A MS LOOP 1 ABHV0014 BYP ISO HV													
ABHV0017	M-22AB02	D-3	2	B	28.0	GT	HO	Active	O	C	BTC	CS		CSJ-01	
											PIT	Y2			
	Valve Name:	SG B MSIV													
ABHV0018	M-22AB02	D-3	2	B	2.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SG B MS LOOP 2 ABHV0017 BYP ISO HV													
ABHV0020	M-22AB02	C-3	2	B	28.0	GT	HO	Active	O	C	BTC	CS		CSJ-01	
											PIT	Y2			
	Valve Name:	SG C MSIV													
ABHV0021	M-22AB02	C-3	2	B	2.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SG C MS LOOP 3 ABHV0020 BYP ISO HV													

Main Steam (AB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ABHV0048	M-22AB02	D-4	2	B	1.0	GB	AO	A	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	MS LOOP 2 WARMUP STM SPLY TO TDAFP ISO HV													
ABHV0049	M-22AB02	C-4	2	B	1.0	GB	AO	A	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	MS LOOP 3 WARMUP STM SPLY TO TDAFP ISO HV													
ABLV0007	M-22AB02	B-4	2	B	2.0	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	MS LOOP 3 LO PNT DRN LCV													
ABLV0008	M-22AB02	D-5	2	B	2.0	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	MS LOOP 2 LO PNT DRN LCV													
ABLV0009	M-22AB02	E-4	2	B	2.0	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	MS LOOP 1 LO PNT DRN LCV													
ABLV0010	M-22AB02	G-4	2	B	2.0	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	MS LOOP 4 LO PNT DRN LCV													
ABPV0001	M-22AB01	G-3	2	B	8.0	GB	AO	Active	C	O/C	BTC	CS		CSJ-02	
											BTO	CS		CSJ-02	
											FC	CS		CSJ-02	TP-04
											PIT	Y2			
	Valve Name:	SG A MS TO ATMS PORV													

Main Steam (AB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ABPV0002	M-22AB01	C-3	2	B	8.0	GB	AO	Active	C	O/C	BTC	CS		CSJ-02	
											BTO	CS		CSJ-02	
											FC	CS		CSJ-02	TP-04
											PIT	Y2			
	Valve Name:	SG B MS TO ATMS PORV													
ABPV0003	M-22AB01	C-6	2	B	8.0	GB	AO	Active	C	O/C	BTC	CS		CSJ-02	
											BTO	CS		CSJ-02	
											FC	CS		CSJ-02	TP-04
											PIT	Y2			
	Valve Name:	SG C MS TO ATMS PORV													
ABPV0004	M-22AB01	G-6	2	B	8.0	GB	AO	Active	C	O/C	BTC	CS		CSJ-02	
											BTO	CS		CSJ-02	
											FC	CS		CSJ-02	TP-04
											PIT	Y2			
	Valve Name:	SG D MS TO ATMS PORV													
ABV0007	M-22AB01	G-6	2	B	10.0	GT	MA	Active	LO	O/C	BTC	Y2			TP-06
											BTO	Y2			TP-06
	Valve Name:	SG D MS PORV MAN ISO													
ABV0018	M-22AB01	G-3	2	B	10.0	GT	MA	Active	LO	O/C	BTC	Y2			TP-06
											BTO	Y2			TP-06
	Valve Name:	SG A MS PORV MAN ISO													
ABV0029	M-22AB01	C-6	2	B	10.0	GT	MA	Active	LO	O/C	BTC	Y2			TP-06
											BTO	Y2			TP-06
	Valve Name:	SG C MS PORV MAN ISO													
ABV0040	M-22AB01	C-2	2	B	10.0	GT	MA	Active	LO	O/C	BTC	Y2			TP-06
											BTO	Y2			TP-06
	Valve Name:	SG B MS PORV MAN ISO													
ABV0045	M-22AB02	H-7	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 4 SFTY RLF													
ABV0046	M-22AB02	H-7	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 4 SFTY RLF													

Main Steam (AB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ABV0047	M-22AB02	H-6	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 4 SFTY RLF													
ABV0048	M-22AB02	H-5	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 4 SFTY RLF													
ABV0049	M-22AB02	H-5	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 4 SFTY RLF													
ABV0055	M-22AB02	F-7	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 1 SFTY RLF													
ABV0056	M-22AB02	F-7	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 1 SFTY RLF													
ABV0057	M-22AB02	F-6	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 1 SFTY RLF													
ABV0058	M-22AB02	F-5	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 1 SFTY RLF													
ABV0059	M-22AB02	F-5	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 1 SFTY RLF													
ABV0065	M-22AB02	D-7	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 2 SFTY RLF													
ABV0066	M-22AB02	D-7	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 2 SFTY RLF													
ABV0067	M-22AB02	D-6	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 2 SFTY RLF													
ABV0068	M-22AB02	D-5	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 2 SFTY RLF													
ABV0069	M-22AB02	D-5	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 2 SFTY RLF													
ABV0075	M-22AB02	C-7	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 3 SFTY RLF													

Main Steam (AB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ABV0076	M-22AB02	C-7	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 3 SFTY RLF													
ABV0077	M-22AB02	C-6	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 3 SFTY RLF													
ABV0078	M-22AB02	C-5	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 3 SFTY RLF													
ABV0079	M-22AB02	C-5	2	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	MS LOOP 3 SFTY RLF													
ABV0085	M-22AB02	D-4	2	B	4.0	GT	MA	Active	LO	O/C	BTC	Y2			TP-06
	Valve Name:	TDAFP STM SPLY FROM MS LOOP 2 MAN ISO													
ABV0087	M-22AB02	C-4	2	B	4.0	GT	MA	Active	LO	O/C	BTC	Y2			TP-06
	Valve Name:	TDAFP STM SPLY FROM MS LOOP 3 MAN ISO													
ABV0345	M-22AB01	H-2	NC	C	0.75	CK	SA	Active	SYS	O	CC	CS		CSJ-02	TP-01
											CO	CS		CSJ-02	
	Valve Name:	N2 SPLY CHECK VLV TO ABPV0001													
ABV0346	M-22AB01	H-2	NC	C	0.75	CK	SA	Active	SYS	C	CC	M3			
											CO	CS		CSJ-02	TP-01
	Valve Name:	AIR SPLY CHECK VLV TO ABPV0001													
ABV0347	M-22AB01	D-2	NC	C	0.75	CK	SA	Active	SYS	O	CC	CS		CSJ-02	TP-01
											CO	CS		CSJ-02	
	Valve Name:	N2 SPLY CHECK VLV TO ABPV0002													
ABV0348	M-22AB01	D-2	NC	C	0.75	CK	SA	Active	SYS	C	CC	M3			
											CO	CS		CSJ-02	TP-01
	Valve Name:	AIR SPLY CHECK VLV TO ABPV0002													
ABV0349	M-22AB01	D-5	NC	C	0.75	CK	SA	Active	SYS	O	CC	CS		CSJ-02	TP-01
											CO	CS		CSJ-02	
	Valve Name:	N2 SPLY CHECK VLV TO ABPV0003													
ABV0350	M-22AB01	D-5	NC	C	0.75	CK	SA	Active	SYS	C	CC	M3			
											CO	CS		CSJ-02	TP-01
	Valve Name:	AIR SPLY CHECK VLV TO ABPV0003													

Main Steam (AB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ABV0351	M-22AB01	H-5	NC	C	0.75	CK	SA	Active	SYS	O	CC	CS		CSJ-02	TP-01
											CO	CS		CSJ-02	
	Valve Name:	N2 SPLY CHECK VLV TO ABPV0004													
ABV0352	M-22AB01	H-5	NC	C	0.75	CK	SA	Active	SYS	C	CC	M3			
											CO	CS		CSJ-02	TP-01
	Valve Name:	AIR SPLY CHECK VLV TO ABPV0004													

Feedwater (AE)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
AEFCV0510	M-22AE01	F-7	NC	B	14.0	ANG	AO	Active	O	C	BTC	CS		CSJ-27	
											PIT	Y2			
	Valve Name:	SG A MFW REG VLV													
AEFCV0520	M-22AE01	C-7	NC	B	14.0	ANG	AO	Active	O	C	BTC	CS		CSJ-27	
											PIT	Y2			
	Valve Name:	SG B MFW REG VLV													
AEFCV0530	M-22AE01	A-7	NC	B	14.0	ANG	AO	Active	O	C	BTC	CS		CSJ-27	
											PIT	Y2			
	Valve Name:	SG C MFW REG VLV													
AEFCV0540	M-22AE01	G-7	NC	B	14.0	ANG	AO	Active	O	C	BTC	CS		CSJ-27	
											PIT	Y2			
	Valve Name:	SG D MFW REG VLV													
AEFCV0550	M-22AE01	E-7	NC	B	6.0	GB	AO	Passive	C	C	BTC	CS		CSJ-27	
											FC	CS		CSJ-27	
											PIT	Y2			
	Valve Name:	SG A MFW REG VLV BYP VLV													
AEFCV0560	M-22AE01	C-7	NC	B	6.0	GB	AO	Passive	C	C	BTC	CS		CSJ-27	
											FC	CS		CSJ-27	
											PIT	Y2			
	Valve Name:	SG B MFW REG VLV BYP VLV													
AEFCV0570	M-22AE01	A-7	NC	B	6.0	GB	AO	Passive	C	C	BTC	CS		CSJ-27	
											FC	CS		CSJ-27	
											PIT	Y2			
	Valve Name:	SG C MFW REG VLV BYP VLV													
AEFCV0580	M-22AE01	G-7	NC	B	6.0	GB	AO	Passive	C	C	BTC	CS		CSJ-27	
											FC	CS		CSJ-27	
											Y2	Y2			
	Valve Name:	SG D MFW REG VLV BYP VLV													
AEFV0039	M-22AE02	G-3	2	B	14.0	GT	SA	Active	O	C	BTC	CS		CSJ-03	
											FC	CS		CSJ-03	TP-04
											PIT	Y2			
	Valve Name:	SG A FW SPLY ISO FV													

Feedwater (AE)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
AEFV0040	M-22AE02	D-3	2	B	14.0	GT	SA	Active	O	C	BTC	CS		CSJ-03	
											FC	CS		CSJ-03	TP-04
											PIT	Y2			
	Valve Name:	SG B FW SPLY ISO FV													
AEFV0041	M-22AE02	D-6	2	B	14.0	GT	SA	Active	O	C	BTC	CS		CSJ-03	
											FC	CS		CSJ-03	TP-04
											PIT	Y2			
	Valve Name:	SG C FW SPLY ISO FV													
AEFV0042	M-22AE02	H-6	2	B	14.0	GT	SA	Active	O	C	BTC	CS		CSJ-03	
											FC	CS		CSJ-03	TP-04
											PIT	Y2			
	Valve Name:	SG D FW SPLY ISO FV													
AEV0120	M-22AE02	C-4	2	C	14.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-01	
											CO	OP			TP-09
	Valve Name:	SG B FW SPLY CHECK													
AEV0121	M-22AE02	F-4	2	C	14.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-01	
											CO	OP			TP-09
	Valve Name:	SG A FW SPLY CHECK													
AEV0122	M-22AE02	F-7	2	C	14.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-01	
											CO	OP			TP-09
	Valve Name:	SG D FW SPLY CHECK													
AEV0123	M-22AE02	C-7	2	C	14.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-01	
											CO	OP			TP-09
	Valve Name:	SG C FW SPLY CHECK													
AEV0124	M-22AE02	C-3	2	C	4.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											CCT	CM			TP-08
											COD	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SG B AUX FW SPLY CHECK													

Feedwater (AE)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
AEV0125	M-22AE02	F-3	2	C	4.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											CCT	CM			TP-08
											COD	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SG A AUX FW SPLY CHECK													
AEV0126	M-22AE02	F-6	2	C	4.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											CCT	CM			TP-08
											COD	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SG D AUX FW SPLY CHECK													
AEV0127	M-22AE02	C-6	2	C	4.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											CCT	CM			TP-08
											COD	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SG C AUX FW SPLY CHECK													

Auxiliary Feedwater (AL)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ALFV0030	M-22AL01	H-5	2	C	6.0	CK	SA	Active	SYS	O/C	CC	CS		CSJ-04	
											CO	CS		CSJ-04	
	Valve Name:	MD AFP B DISCH AUTO RECIRC CONTROL CHECK VLV													
ALFV0042	M-22AL01	D-5	2	C	6.0	CK	SA	Active	SYS	O/C	CC	CS		CSJ-04	
											CO	CS		CSJ-04	
	Valve Name:	MD AFP A DISCH AUTO RECIRC CONTROL CHECK VLV													
ALHV0005	M-22AL01	H-6	2	B	4.0	GB	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	MDAFP B TO S/G D HV													
ALHV0006	M-22AL01	G-6	2	B	4.0	GB	AO	Active	O	O/C	BTC	M3			
											BTO	M3			
											FO	M3			TP-04
											PIT	Y2			
	Valve Name:	TDAFP TO S/G D HV													
ALHV0007	M-22AL01	F-6	2	B	4.0	GB	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	MDAFP B TO S/G A HV													
ALHV0008	M-22AL01	E-6	2	B	4.0	GB	AO	Active	O	O/C	BTC	M3			
											BTO	M3			
											FO	M3			TP-04
											PIT	Y2			
	Valve Name:	TDAFP TO S/G A HV													
ALHV0009	M-22AL01	D-6	2	B	4.0	GB	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	MDAFP TO S/G B HV													
ALHV0010	M-22AL01	D-6	2	B	4.0	GB	AO	Active	O	O/C	BTC	M3			
											BTO	M3			
											FO	M3			TP-04
											PIT	Y2			
	Valve Name:	TDAFP TO S/G B HV													

Auxiliary Feedwater (AL)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ALHV0011	M-22AL01	C-6	2	B	4.0	GB	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	MDAFP TO S/G C HV													
ALHV0012	M-22AL01	B-6	2	B	4.0	GB	AO	Active	O	O/C	BTC	M3			
											BTO	M3			
											FO	M3			TP-04
											PIT	Y2			
	Valve Name:	TD AFP TO S/G C HV													
ALHV0030	M-22AL01	F-3	3	B	6.0	BF	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TO MD AFP B HV													
ALHV0031	M-22AL01	E-3	3	B	6.0	BF	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TO MD AFP A HV													
ALHV0032	M-22AL01	C-3	3	B	8.0	BF	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TO TD AFP HV													
ALHV0033	M-22AL01	B-3	3	B	8.0	BF	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TO TD AFP HV													
ALHV0034	M-22AL01	H-3	3	B	8.0	GT	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	CST TO MD AFP B HV													
ALHV0035	M-22AL01	D-3	3	B	8.0	GT	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	CST TO MD AFP A HV													
ALHV0036	M-22AL01	B-3	3	B	10.0	GT	MO	Active	O	C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	CST TO TD AFP HV													

Auxiliary Feedwater (AL)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ALV0001	M-22AL01	B-4	3	C	10.0	CK	SA	A	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	CST TO TD AFP CHECK VLV													
ALV0006	M-22AL01	F-4	3	C	6.0	CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	ESW TO MD AFP B CHK VLV													
ALV0009	M-22AL01	E-4	3	C	6.0	CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	ESW TO MD AFP A CHK VLV													
ALV0012	M-22AL01	C-4	3	C	8.0	CK	SA	Active	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	ESW TO TD AFP CHK VLV													
ALV0015	M-22AL01	B-4	3	C	8.0	CK	SA	Active	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	ESW TO TD AFP CHK VLV													
ALV0033	M-22AL01	F-7	2	C	4.0	CK	SA	Active	SYS	O/C	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	MDAFP B TO S/G A CHECK VLV													
ALV0036	M-22AL01	H-7	2	C	4.0	CK	SA	Active	SYS	O/C	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	MDAFP B TO S/G D CHECK VLV													
ALV0045	M-22AL01	C-7	2	C	4.0	CK	SA	Active	SYS	O/C	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	MDAFP A TO S/G C CHECK VLV													
[illegible]0048	M-22AL01	D-7	2	C	4.0	CK	SA	Active	SYS	O/C	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	MDAFP A TO S/G B CHECK VLV													
ALV0054	M-22AL01	B-5	2	C	6.0	CK	SA	Active	SYS	O/C	CC	CS		CSJ-05	
											CO	CS		CSJ-05	
	Valve Name:	TD AFP DISCH CHECK VLV													

Auxiliary Feedwater (AL)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ALV0057	M-22AL01	E-7	2	C	4.0	CK	SA	Active	SYS	O/C	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	TDAFP TO S/G A CHECK VLV													
ALV0062	M-22AL01	G-7	2	C	4.0	CK	SA	Active	SYS	O/C	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	TDAFP TO S/G D CHECK VLV													
ALV0067	M-22AL01	D-7	2	C	4.0	CK	SA	Active	SYS	O/C	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	TDAFP TO S/G B CHECK VLV													
ALV0072	M-22AL01	B-7	2	C	4.0	CK	SA	Active	SYS	O/C	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	TDAFP TO S/G C CHECK VLV													
ALV0148	M-22AL01	G-6	NC	C		CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	N2 SPLY CHECK VLV TO ALHV0006													
ALV0149	M-22AL01	G-6	NC	C		CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	AIR SPLY CHECK VLV TO ALHV0006													
ALV0150	M-22AL01	F-6	NC	C		CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	N2 SPLY CHECK VLV TO ALHV0008													
ALV0151	M-22AL01	F-6	NC	C		CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	AIR SPLY CHECK VLV TO ALHV0008													
ALV0152	M-22AL01	D-6	NC	C		CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	N2 SPLY CHECK VLV TO ALHV0010													
ALV0153	M-22AL01	D-6	NC	C		CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	AIR SPLY CHECK VLV TO ALHV0010													

Auxiliary Feedwater (AL)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ALV0154	M-22AL01	B-6	NC	C		CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	N2 SPLY CHECK VLV TO ALHV0012													
ALV0155	M-22AL01	B-6	NC	C		CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	AIR SPLY CHECK VLV TO ALHV0012													

Reactor Coolant (BB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BB8010A	M-22BB02	G-7	1	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	RCS PZR SFTY RLF A													
BB8010B	M-22BB02	G-6	1	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	RCS PZR SFTY RLF B													
BB8010C	M-22BB02	G-5	1	C	6.0	RV	SA	Active	C	O/C	RT	Y5			
	Valve Name:	RCS PZR SFTY RLF C													
BB8378A	M-22BB01	E-4	1	C	3.0	CK	SA	Active	SYS	C	CC	RR		RJ-02	
											CO	RR		RJ-02	TP-01
	Valve Name:	RCS LOOP 1 COLD LEG CVCS REGEN HX CHG LINE DNSTRM CHECK													
BB8378B	M-22BB01	E-4	1	C	3.0	CK	SA	Active	SYS	C	CC	RR		RJ-02	
											CO	RR		RJ-02	TP-01
	Valve Name:	RCS LOOP 1 COLD LEG CVCS REGEN HX CHG LINE UPSTRM CHECK													
BB8379A	M-22BB01	E-7	1	C	3.0	CK	SA	Active	SYS	C	CC	RR		RJ-02	
											CO	RR		RJ-02	TP-01
	Valve Name:	RCS LOOP 4 COLD LEG CVCS REGEN HX CHG LINE DNSTRM CHECK													
BB8379B	M-22BB01	E-7	1	C	3.0	CK	SA	Active	SYS	C	CC	RR		RJ-02	
											CO	RR		RJ-02	TP-01
	Valve Name:	RCS LOOP 4 COLD LEG CVCS REGEN HX CHG LINE UPSTRM CHECK													
BB8948A	M-22BB01	E-4	1	AC	10.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCS LOOP 1 COLD LEG SI ACC CHECK													
BB8948B	M-22BB01	D-4	1	AC	10.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCS LOOP 2 COLD LEG SI ACC CHECK													
BB8948C	M-22BB01	D-6	1	AC	10.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCS LOOP 3 COLD LEG SI ACC CHECK													

Reactor Coolant (BB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BB8948D	M-22BB01	E-6	1	AC	10.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	**RCS LOOP 4 COLD LEG SI ACC CHECK**													
BB8949B	M-22BB01	C-5	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
	Valve Name:	**RCS LOOP 2 HOT LEG SI/RHR PMPS CHECK**													
BB8949C	M-22BB01	C-6	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
	Valve Name:	**RCS LOOP 3 HOT LEG SI/RHR PMPS CHECK**													
BB8949D	M-22BB01	G-6	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	**RCS LOOP 4 HOT LEG SI PMPS CHECK**													
BB8949E	M-22BB01	E-5	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	**RCS LOOP 1 HOT LEG SI PMPS CHECK**													
BBHV0013	M-22BB03A	C-2	3	B	3.0	GT	MO	Active	O	C	BTC	RR		RJ-03	
											PIT	Y2			
	Valve Name:	**RCP A THRM BAR COOL COIL COOL WTR OUT HV**													
BBHV0014	M-22BB03B	C-2	3	B	3.0	GT	MO	Active	O	C	BTC	RR		RJ-03	
											PIT	Y2			
	Valve Name:	**RCP B THRM BAR COOL COIL COOL WTR OUT HV**													
BBHV0015	M-22BB03C	C-2	3	B	3.0	GT	MO	Active	O	C	BTC	RR		RJ-03	
											PIT	Y2			
	Valve Name:	**RCP C THRM BAR COOL COIL COOL WTR OUT HV**													
BBHV0016	M-22BB03D	C-2	3	B	3.0	GT	MO	Active	O	C	BTC	RR		RJ-03	
											PIT	Y2			
	Valve Name:	**RCP D THRM BAR COOL COIL COOL WTR OUT HV**													

Reactor Coolant (BB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BBHV8000A	M-22BB02	E-7	1	B	3.0	GT	MO	Active	O	O/C	BTC	M3		RJ-04	
											BTO	M3		RJ-04	
											PIT	Y2			
	Valve Name:	RCS PZR OUT PWR OPER RLF HV													
BBHV8000B	M-22BB02	E-7	1	B	3.0	GT	MO	Active	O	O/C	BTC	M3		RJ-04	
											BTO	M3		RJ-04	
											PIT	Y2			
	Valve Name:	RCS PZR OUT PWR OPER RLF HV													
BBHV8001A	M-22BB04	F-4	2	B	1.0	GB	SO	Active	C	O/C	BTC	CS		CSJ-06	
											BTO	CS		CSJ-06	
											FC	CS		CSJ-06	TP-04
											PIT	Y2			
	Valve Name:	RCS RV HEAD VENT PROT A UPSTRM HV													
BBHV8001B	M-22BB04	E-4	2	B	1.0	GB	SO	Active	C	O/C	BTC	CS		CSJ-06	
											BTO	CS		CSJ-06	
											FC	CS		CSJ-06	TP-04
											PIT	Y2			
	Valve Name:	RCS RV HEAD VENT PROT B UPSTRM HV													
BBHV8002A	M-22BB04	F-3	2	B	1.0	GB	SO	Active	C	O/C	BTC	CS		CSJ-06	
											BTO	CS		CSJ-06	
											FC	CS		CSJ-06	TP-04
											PIT	Y2			
	Valve Name:	RCS RV HEAD VENT PROT A UPSTRM HV													
BBHV8002B	M-22BB04	E-3	2	B	1.0	GB	SO	Active	C	O/C	BTC	CS		CSJ-06	
											BTO	CS		CSJ-06	
											FC	CS		CSJ-06	TP-04
											PIT	Y2			
	Valve Name:	RCS RV HEAD VENT PROT B UPSTRM HV													
BBHV8026	M-22BB02	E-3	2	A	1.0	DI	AO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCS PRT N2/SERV GAS SPLY DNSTRM ISO HV													

Reactor Coolant (BB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BBHV8027	M-22BB02	E-3	2	A	1.0	DI	AO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCS PRT N2/SERV GAS SPLY UPSTRM ISO HV													
BBHV8157A	M-22BB02	E-1	2	B	1.0	GB	SO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	PRT TO EX LTDN HX PROT A ISO HV													
BBHV8157B	M-22BB02	D-1	2	B	1.0	GB	SO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	PRT TO EX LTDN HX PROT B ISO HV													
BBHV8351A	M-22BB03A	C-5	2	A	2.0	GB	MO	Active	O	O/C	AT-01	App-J			
											BTC	RR		RJ-05	
											BTO	RR		RJ-05	
											PIT	Y2			
	Valve Name:	RCP A SEAL WTR SPLY ISO HV													
BBHV8351B	M-22BB03B	C-5	2	A	2.0	GB	MO	Active	O	O/C	AT-01	App-J			
											BTC	RR		RJ-05	
											BTO	RR		RJ-05	
											PIT	Y2			
	Valve Name:	RCP B SEAL WTR SPLY ISO HV													
BBHV8351C	M-22BB03C	C-5	2	A	2.0	GB	MO	Active	O	O/C	AT-01	App-J			
											BTC	RR		RJ-05	
											BTO	RR		RJ-05	
											PIT	Y2			
	Valve Name:	RCP C SEAL WTR SPLY ISO HV													
BBHV8351D	M-22BB03D	C-5	2	A	2.0	GB	MO	Active	O	O/C	AT-01	App-J			
											BTC	RR		RJ-05	
											BTO	RR		RJ-05	
											PIT	Y2			
	Valve Name:	RCP D SEAL WTR SPLY ISO HV													

Reactor Coolant (BB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BBPCV0455A	M-22BB02	E-7	1	B	3.0	GB	SO	Active	C	O/C	BTC	CS		CSJ-07	
											BTO	CS		CSJ-07	
											FC	CS		CSJ-07	TP-04
											PIT	Y2			
	Valve Name:	RCS PRESSURIZER POWER OPERATED RELIEF VALVE													
BBPCV0456A	M-22BB02	E-8	1	B	3.0	GB	SO	Active	C	O/C	BTC	CS		CSJ-07	
											BTO	CS		CSJ-07	
											FC	CS		CSJ-07	TP-04
											PIT	Y2			
	Valve Name:	RCS PRESSURIZER POWER OPERATED RELIEF VALVE													
BBPV8702A	M-22BB01	E-4	1	A	12.0	GT	MO	Passive	C	O/C	AT-02	Y2			
											BTC	CS		CSJ-08	
											BTO	CS		CSJ-08	
											PIT	Y2			
	Valve Name:	RCS LOOP 1 HOT LEG TO RHR PMPS PCV ISO													
BBPV8702B	M-22BB01	H-6	1	A	12.0	GT	MO	Passive	C	O/C	AT-02	Y2			
											BTC	CS		CSJ-08	
											BTO	CS		CSJ-08	
											PIT	Y2			
	Valve Name:	RCS LOOP 4 HOT LEG TO RHR PMPS PCV ISO													
BBV0001	M-22BB01	D-5	1	AC	1.5	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCS LOOP 1 COLD LEG SI BIT CHECK													
BBV0022	M-22BB01	D-4	1	AC	1.5	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCS LOOP 2 COLD LEG SI BIT CHECK													

Reactor Coolant (BB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BBV0040	M-22BB01	D-6	1	AC	1.5	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCS LOOP 3 COLD LEG SI BIT CHECK													
BBV0059	M-22BB01	E-6	1	AC	1.5	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCS LOOP 4 COLD LEG SI BIT CHECK													
BBV0118	M-22BB03A	C-5	2	AC	2.0	CK	SA	Active	SYS	O/C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP A SEAL WTR SPLY ISO BBV0119 UPSTRM CHECK													
BBV0120	M-22BB03A	C-4	1	C	2.0	CK	SA	Active	SYS	O/C	CCA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP A SEAL WTR SPLY ISO BBV0119 DNSTRM CHECK													
BBV0121	M-22BB03A	C-4	1	C	2.0	CK	SA	Active	SYS	O/C	CCA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP A SEAL WTR SPLY CHECK													
BBV0122	M-22BB03A	C-4	3	C	1.5	CK	SA	Active	SYS	C	CC	RR		RJ-06	
											CO	OP			TP-01
	Valve Name:	CCW TO RCP A THERMAL BARRIER SPLY CK VLV													
BBV0148	M-22BB03B	C-5	2	AC	2.0	CK	SA	Active	SYS	O/C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP B SEAL WTR SPLY ISO BBV0149 UPSTRM CHECK													
BBV0150	M-22BB03B	C-4	1	C	2.0	CK	SA	Active	SYS	O/C	CCA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP B SEAL WTR SPLY ISO BBV0149 DNSTRM CHECK													
BBV0151	M-22BB03B	C-4	1	C	2.0	CK	SA	Active	SYS	O/C	CCA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP B SEAL WTR SPLY CHECK													

Reactor Coolant (BB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BBV0152	M-22BB03B	C-4	3	C	1.5	CK	SA	Active	SYS	C	CC	RR		RJ-06	
											CO	OP			TP-01
	Valve Name:	CCW TO RCP B THERMAL BARRIER SPLY CK VLV													
BBV0178	M-22BB03C	C-5	2	AC	2.0	CK	SA	Active	SYS	O/C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP C SEAL WTR SPLY ISO BBV0179 UPSTRM CHECK													
BBV0180	M-22BB03C	C-4	1	C	2.0	CK	SA	Active	SYS	O/C	CCA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP C SEAL WTR SPLY ISO BBV0179 DNSTRM CHECK													
BBV0181	M-22BB03C	C-4	1	C	2.0	CK	SA	Active	SYS	O/C	CCA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP C SEAL WTR SPLY CHECK													
BBV0182	M-22BB03C	C-4	3	C	1.5	CK	SA	Active	SYS	C	CC	RR		RJ-06	
											CO	OP			TP-01
	Valve Name:	CCW TO RCP C THERMAL BARRIER SPLY CK VLV													
BBV0208	M-22BB03D	C-5	2	AC	2.0	CK	SA	Active	SYS	O/C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP D SEAL WTR SPLY ISO BBV0209 UPSTRM CHECK													
BBV0210	M-22BB03D	C-4	1	C	2.0	CK	SA	Active	SYS	O/C	CCA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP D SEAL WTR SPLY ISO BBV0209 DNSTRM CHECK													
BBV0211	M-22BB03D	C-4	1	C	2.0	CK	SA	Active	SYS	O/C	CCA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RCP D SEAL WTR SPLY CHECK													
BBV0212	M-22BB03D	C-4	3	C	1.5	CK	SA	Active	SYS	C	CC	RR		RJ-06	
											CO	OP			TP-01
	Valve Name:	CCW TO RCP D THERMAL BARRIER SPLY CK VLV													
BBV0474	M-22BB03A	C-5	3	C	1.5	CK	SA	Active	SYS	C	CC	RR		RJ-06	
											CO	OP			TP-01
	Valve Name:	CCW TO RCP A THERMAL BARRIER SPLY CK VLV													

Reactor Coolant (BB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BBV0476	M-22BB03B	C-5	3	C	1.5	CK	SA	Active	SYS	C	CC	RR		RJ-06	
											CO	OP			TP-01
	Valve Name:	CCW TO RCP B THERMAL BARRIER SPLY CK VLV													
BBV0479	M-22BB03C	C-5	3	C	1.5	CK	SA	Active	SYS	C	CC	RR		RJ-06	
											CO	OP			TP-01
	Valve Name:	CCW TO RCP C THERMAL BARRIER SPLY CK VLV													
BBV0480	M-22BB03D	C-5	3	C	1.5	CK	SA	Active	SYS	C	CC	RR		RJ-06	
											CO	OP			TP-01
	Valve Name:	CCW TO RCP D THERMAL BARRIER SPLY CK VLV													

Chemical and Volume Control (BG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BG8121	M-22BG01	D-3	2	C	2.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SEAL WTR RTN HDR PRESS RELIEF													
BG8123	M-22BG03	H-3	2	C	2.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	CVCS SEAL WTR HX IN HDR PRESS RELIEF													
BG8124	M-22BG03	C-7	2	C	0.75	RV	SA	Active	C	O	RT	Y10			
	Valve Name:	CCP A & B SUCTION PRESS RELIEF													
BG8381	M-22BG01	F-4	2	AC	3.0	CK	SA	Active	SYS	C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	CCP A & B TO REGEN HX CHECK													
BG8440	M-22BG03	E-6	2	C	4.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-07	
											CO	OP			TP-09
	Valve Name:	VCT TO NCP/CCP HDR CHECK													
BG8481A	M-22BG03	C-4	2	C	4.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-08	
											CO	RR		RJ-08	
	Valve Name:	CVCS CCP A DISCH CHECK													
BG8481B	M-22BG03	B-4	2	C	4.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-08	
											CO	RR		RJ-08	
	Valve Name:	CVCS CCP B DISCH CHECK													
BG8497	M-22BG03	E-4	2	C	3.0	CK	SA	Active	SYS	C	CC	M3			
											CO	OP			TP-01
	Valve Name:	CVCS NCP DISCH CHECK													
BG8546A	M-22BG03	C-7	2	C	8.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-09	
											CO	RR		RJ-09	
	Valve Name:	RWST TO CCP A SUCT CHECK													
BG8546B	M-22BG03	B-7	2	C	8.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-09	
											CO	RR		RJ-09	
	Valve Name:	RWST TO CCP B SUCT CHECK													

Chemical and Volume Control (BG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BGHV8100	M-22BG01	D-2	2	A	2.0	GB	MO	Active	O	C	AT-01	App-J			
											BTC	RR		RJ-10	
											PIT	Y2			
	Valve Name:	SEAL WTR RTN OUTER CTMT ISO													
BGHV8104	M-22BG05	A-4	2	B	2.0	GB	MO	Active	C	O	BTO	M3			
											PIT	M3			
	Valve Name:	EMERG BORATE TO CCP A & B HDR ISO HV													
BGHV8105	M-22BG03	E-2	2	A	3.0	GT	MO	Active	O	C	AT-01	App-J			
											BTC	CS		CSJ-09	
											PIT	Y2			
	Valve Name:	CVCS CHARGING HDR TO REGEN HX OUTER CTMT ISO VLV													
BGHV8106	M-22BG03	E-2	2	B	3	GT	MO	Active	O	C	BTC	CS		CSJ-09	
											PIT	Y2			
	Valve Name:	CVCS CHARGING HDR TO REGEN HX OUTER CTMT ISO VLV													
BGHV8110	M-22BG03	E-3	2	B	2.0	GB	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	A CCP DISCH MINIFLOW TO SEAL WTR HX ISO													
BGHV8111	M-22BG03	E-4	2	B	2.0	GB	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CCP B DISCH MINIFLOW ISO VLV													
BGHV8112	M-22BG01	D-2	2	A	2.0	GB	MO	Active	O	C	AT-01	App-J			
											BTC	RR		RJ-10	
											PIT	Y2			
	Valve Name:	SEAL WTR RTN INNER CTMT ISO HV													
BGHV8152	M-22BG01	F-2	2	A	3.0	GB	AO	Active	O	C	AT-01	App-J			
											BTC	CS		CSJ-10	
											FC	CS		CSJ-10	TP-04
											PIT	Y2			
	Valve Name:	CVCS LTDN SYS OUT CTMT ISO HV													

Chemical and Volume Control (BG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BGHV8153A	M-22BG01	D-7	1	B	1.0	GB	SO	Active	C	O/C	BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCS TO CVCS EX LTDN HX DNSTRM ISO PROT A HV													
BGHV8153B	M-22BG01	D-7	1	B	1.0	GB	SO	Active	C	O/C	BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCS TO CVCS EX LTDN HX DNSTRM ISO PROT B HV													
BGHV8154A	M-22BG01	D-8	1	B	1.0	GB	SO	Active	C	O/C	BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCS TO CVCS EX LTDN HX UPSTRM ISO PROT A HV													
BGHV8154B	M-22BG01	D-8	1	B	1.0	GB	SO	Active	C	O/C	BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCS TO CVCS EX LTDN HX UPSTRM ISO PROT B HV													
BGHV8160	M-22BG01	F-3	2	A	3.0	GB	AO	Active	O	C	AT-01	App-J			
											BTC	CS		CSJ-10	
											FC	CS		CSJ-10	TP-04
											PIT	Y2			
	Valve Name:	CVCS LTDN SYS INNER CTMT ISO HV													
BGHV8357A	M-22BG03	C-4	2	B	1.0	GB	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CVCS CCP A DISCH TO RCP SEALS THROTTLE VLV													
BGHV8357B	M-22BG03	B-4	2	B	1.0	GB	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CVCS CCP B DISCH TO RCP SEALS THROTTLE VLV													

Chemical and Volume Control (BG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BGLCV0112B	M-22BG03	F-6	2	B	4.0	GT	MO	Active	O	C	BTC	CS		CSJ-11	
											PIT	Y2			
	Valve Name:	CVCS VCT OUT UPSTRM ISO													
BGLCV0112C	M-22BG03	F-6	2	B	4.0	GT	MO	Active	O	C	BTC	CS		CSJ-11	
											PIT	Y2			
	Valve Name:	CVCS VCT OUT DNSTRM ISO													
BGLCV0459	M-22BG01	G-7	1	B	3.0	GB	AO	Active	O	C	BTC	CS		CSJ-12	
											FC	CS		CSJ-12	TP-04
											PIT	Y2			
	Valve Name:	RCS LOOP 3 LTDN TO REGEN HX DNSTRM LCV													
BGLCV0460	M-22BG01	G-7	1	B	3.0	GB	AO	Active	O	C	BTC	CS		CSJ-12	
											FC	CS		CSJ-12	TP-04
											PIT	Y2			
	Valve Name:	RCS LOOP 3 LTDN TO REGEN HX UPSTRM LCV													
BGV0091	M-22BG03	E-4	2	C	2.0	CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	CCP A DISCH TO SEAL WTR HX CHECK													
BGV0095	M-22BG03	E-4	2	C	2.0	CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	CCP B DISCH TO SEAL WTR HX CHECK													
BGV0135	M-22BG01	D-3	2	AC	0.75	CK	SA	Active	SYS	O/C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SEAL WTR RTN INNER CTMT BGHV8112 DRN CHECK													
BGV0147	M-22BG05	B-6	3	C	3.0	CK	SA	Active	SYS	O/C	CC	OP			
											CO	CS		CSJ-13	
	Valve Name:	CVCS BA XFR PMP A DISCH CHECK													
BGV0155	M-22BG05	B-6	3	C	0.75	CK	SA	Active	SYS	O	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	CVCS BA XFR PMP A DISCH TO BAT A CHECK													

Chemical and Volume Control (BG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BGV0165	M-22BG05	A-6	3	C	3.0	CK	SA	Active	SYS	O/C	CC	OP			
											CO	CS		CSJ-13	
	Valve Name:	CVCS BA XFR PMP B DISCH CHECK													
BGV0167	M-22BG05	B-6	3	C	0.75	CK	SA	Active	SYS	O	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	CVCS BA XFR PMP B DISCH TO BAT B CHECK													
BGV0174	M-22BG05	A-4	2	C	3.0	CK	SA	Active	SYS	O/C	CC	CS		CSJ-13	
											CO	CS		CSJ-13	
	Valve Name:	CVCS EMERG BORATE TO CCP A & B HDR CHECK													
BGV0589	M-22BG03	B-4	2	C	1.0	CK	SA	Active	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	CCP B DISCH TO SEAL WTR INJ FLTRS HDR CHECK													
BGV0590	M-22BG03	C-4	2	C	1.0	CK	SA	Active	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	CCP A DISCH TO SEAL WTR INJ FLTRS HDR CHECK													
BGV0605	M-22BG03	C-3	2	C	3.0	CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	CCP B DISCH BGFCV0121 UPSTREAM CHECK													
BGV0606	M-22BG03	D-3	2	C	3.0	CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	CCP A DISCH BGFCV0121 UPSTREAM CHECK													
BGV0645	M-22BG03	D-4	2	C	3.0	CK	SA	Active	SYS	C	CC	M3			
											CO	OP			TP-01
	Valve Name:	CVCS NCP DISCH UPSTRM CHECK													

Reactor Makeup Water (BL)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BL8046	M-22BL01	B-3	2	AC	3.0	CK	SA	Active	SYS	C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RX M/U WTR SPLY INNER CTMT CHECK													
BLHV8047	M-22BL01	B-4	2	A	3.0	DI	AO	Active	SYS	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RX M/U WTR OUTER CTMT HV ISO													

Steam Generator Blowdown (BM)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BMHV0001	M-22BM01	F-5	2	B	4.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG A B/D ISO VLV													
BMHV0002	M-22BM01	E-5	2	B	4.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG B B/D ISO VLV													
BMHV0003	M-22BM01	C-5	2	B	4.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG C B/D ISO VLV													
BMHV0004	M-22BM01	A-5	2	B	4.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG D B/D ISO VLV													
BMHV0019	M-22BM01	G-7	2	B	1.0	GB	SO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG A B/D NUC SAMP SYS UP LINE ISO CTRL VLV													
BMHV0020	M-22BM01	E-7	2	B	1.0	GB	SO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG B B/D NUC SAMP SYS UP LINE ISO CTRL VLV													
BMHV0021	M-22BM01	D-7	2	B	1.0	GB	SO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG C B/D NUC SAMP SYS UP LINE ISO CTRL VLV													
BMHV0022	M-22BM01	B-7	2	B	1.0	GB	SO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG D B/D NUC SAMP SYS UP LINE ISO CTRL VLV													

Steam Generator Blowdown (BM)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BMHV0035	M-22BM01	G-7	2	B	1.0	GB	SO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG A B/D NUC SAMP SYS LWR LINE ISO CTRL VLV													
BMHV0036	M-22BM01	E-7	2	B	1.0	GB	SO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG B B/D NUC SAMP SYS LWR LINE ISO CTRL VLV													
BMHV0037	M-22BM01	C-7	2	B	1.0	GB	SO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG C B/D NUC SAMP SYS LWR LINE ISO CTRL VLV													
BMHV0038	M-22BM01	B-7	2	B	1.0	GB	SO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG D B/D NUC SAMP SYS LWR LINE ISO CTRL VLV													
BMHV0065	M-22BM01	G-6	2	B	1.0	GB	SO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG A B/D NUC SAMP SYS LINE ISO UPSTRM HV													
BMHV0066	M-22BM01	E-6	2	B	1.0	GB	SO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG B B/D NUC SAMP SYS LINE ISO UPSTRM HV													
BMHV0067	M-22BM01	C-6	2	B	1.0	GB	SO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG C B/D NUC SAMP SYS LINE ISO UPSTRM HV													
BMHV0068	M-22BM01	B-6	2	B	1.0	GB	SO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SG D B/D NUC SAMP SYS LINE ISO UPSTRM HV													

Steam Generator Blowdown (BM)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BMV0045	M-22BM01	A-4	2	A	3.0	GT	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	SG DRN PMPS SUCT HDR INNER CTMT ISO													
BMV0046	M-22BM01	A-3	2	A	3.0	GT	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	SG DRN PMPS SUCT HDR OUTER CTMT ISO													

Borated Refueling Water Storage (BN)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BN8717	M-22BN01	B-5	2	A	8.0	GT	MA	Passive	LC	C	AT-03	Y2			
											PIT	Y2			
	Valve Name:	RHR SPLY TO RWST ISO (3.0.3)													
BNHCV8800A	M-22BN01	E-5	2	B	3.0	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RWST TO RFP DNSTRM HV													
BNHCV8800B	M-22BN01	E-5	2	B	3.0	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RWST TO RFP UPSTRM HV													
BNHV0003	M-22BN01	C-3	2	B	12.0	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	RWST TO CTMT SPRY PMP B HV													
BNHV0004	M-22BN01	A-3	2	B	12.0	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	RWST TO CTMT SPRY PMP A HV													
BNHV8806A	M-22BN01	B-5	2	B	8.0	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	SI PMP A SUCT FROM RWST ISO													
BNHV8806B	M-22BN01	E-3	2	B	8.0	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	SI PMP B SUCT FROM RWST ISO													
BNHV8812A	M-22BN01	B-3	2	B	14.0	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	RWST TO RHR PMP A SUCT ISO VLV													
BNHV8812B	M-22BN01	D-3	2	B	14.0	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	RWST TO RHR PMP B SUCT ISO VLV													

Borated Refueling Water Storage (BN)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
BNHV8813	M-22BN01	B-7	2	A	2.0	GB	MO	Active	O	C	AT-03	Y2			
											BTC	CS		CSJ-14	
											PIT	Y2			
	Valve Name:	**SI PMPS MINIFLOW TO RWST ISO VLV (3.0.3)**													
BNLCV0112D	M-22BN01	A-5	2	B	8.0	GT	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	**CCP A SUCT FROM RWST ISO VLV**													
BNLCV0112E	M-22BN01	E-3	2	B	8.0	GT	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	**CCP B SUCT FROM RWST ISO VLV**													
BNV0011	M-22BN01	F-4	2	B	24.0	GT	MA	Passive	LO	O	PIT	Y2			
	Valve Name:	**RWST OUT ISO (3.0.3)**													

Fuel Pool Cooling and Cleanup (EC)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ECHV0011	M-22EC01	H-5	3	B	12	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	FUEL POOL HX A SHELL SIDE CCW OUT ISO													
ECHV0012	M-22EC01	F-5	3	B	12	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	FUEL POOL HX B SHELL SIDE CCW OUT ISO													
ECV0083	M-22EC02	C-5	2	A	6	GT	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	FUEL POOL CLN-UP DEMIN TO REFUEL POOL OUTER CTMT ISO													
ECV0084	M-22EC02	C-6	2	A	6	GT	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	FUEL POOL CLN/U DEMIN TO RFP INNER CTMT ISO													
ECV0087	M-22EC02	D-7	2	A	6	GT	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	RFP TO SFP INNER CTMT ISO													
ECV0088	M-22EC02	D-7	2	A	6	GT	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	REFUEL POOL TO SFP OUTER CTMT ISO													
ECV0095	M-22EC02	B-5	2	A	3	GT	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	FUEL POOL SKIMMER PUMP SUCT INNER CTMT ISO													
ECV0096	M-22EC02	B-5	2	A	3	GT	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	REFUEL POOL SKIMMER PMP SUCT OUTER CTMT ISO													

Essential Service Water (EF)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EFHV0023	M-22EF01	F-7	3	B	30.0	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	SERV WTR TO ESW TRN A UPSTRM HV													
EFHV0024	M-22EF01	E-7	3	B	30.0	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	SERV WTR TO ESW TRN B UPSTRM HV													
EFHV0025	M-22EF01	F-7	3	B	30.0	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	SERV WTR TO ESW TRN A DNSTRM HV													
EFHV0026	M-22EF01	E-7	3	B	30.0	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	SERV WTR TO ESW TRN B DNSTRM HV													
EFHV0031	M-22EF02	G-7	2	A	14.0	BF	MO	Active	O	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A TO CTMT AIR CLRS OUTER CTMT HV													
EFHV0032	M-22EF02	B-7	2	A	14.0	BF	MO	Active	O	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B TO CTMT AIR CLRS OUTER CTMT HV													
EFHV0033	M-22EF02	G-7	2	A	14.0	BF	MO	Active	O	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A TO CTMT AIR CLRS INNER CTMT HV													
EFHV0034	M-22EF02	B-7	2	A	14.0	BF	MO	Active	O	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B TO CTMT AIR CLRS INNER CTMT HV													

Essential Service Water (EF)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EFHV0037	M-22EF02	G-2	3	B	30.0	BF	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A TO UHS HV													
EFHV0038	M-22EF02	C-2	3	B	30.0	BF	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B TO UHS HV													
EFHV0039	M-22EF02	F-2	3	B	30.0	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A TO SERV WTR UPSTRM HV													
EFHV0040	M-22EF02	D-2	3	B	30.0	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B TO SERV WTR UPSTRM HV													
EFHV0041	M-22EF02	E-2	3	B	30.0	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A TO SERV WTR DNSTRM HV													
EFHV0042	M-22EF02	D-2	3	B	30.0	BF	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B TO SERV WTR DNSTRM HV													
EFHV0043	M-22EF02	E-7	3	B	2.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	ESW TRN A TO SERV AIR CMPSR A ISO													
EFHV0044	M-22EF01	B-7	3	B	2.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	ESW TRN B TO SERV AIR CMPSR B ISO													
EFHV0045	M-22EF02	G-6	2	A	14.0	BF	MO	Active	O	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A FROM CTMT AIR CLRS INNER CTMT HV													

Essential Service Water (EF)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EFHV0046	M-22EF02	B-6	2	A	14.0	BF	MO	Active	O	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B FROM CTMT AIR CLRS INNER CTMT HV													
EFHV0047	M-22EF02	G-6	2	A	10.0	BF	MO	Active	O	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A FROM CTMT AIR CLRS BYP ISO HV													
EFHV0048	M-22EF02	C-6	2	A	10.0	BF	MO	Active	O	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B FROM CTMT AIR CLRS BYP ISO HV													
EFHV0049	M-22EF02	G-6	2	A	14.0	BF	MO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A FROM CTMT AIR CLRS OUTER CTMT HV													
EFHV0050	M-22EF02	B-6	2	A	14.0	BF	MO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B FROM CTMT AIR CLRS OUTER CTMT HV													
EFHV0051	M-22EF02	G-4	3	B	24.0	BF	MO	Active	O/C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A TO CCW HX A HV													
EFHV0052	M-22EF02	C-4	3	B	24.0	BF	MO	Active	O/C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN B TO CCW HX B HV													
EFHV0059	M-22EF02	G-3	3	B	24.0	BF	MO	Active	O/C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TRN A FROM CCW HX A HV													

Essential Service Water (EF)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EFHV0060	M-22EF02	C-3	3	B	24.0	BF	MO	Active	O/C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	**ESW TRN B FROM CCW HX B HV**													
EFHV0065	M-U2EF01	B-6	3	B	30.0	BF	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	**ESW UHS COOL-TWR TRN A BYP HV**													
EFHV0066	M-U2EF01	B-3	3	B	30.0	BF	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	**ESW UHS COOL-TWR TRN B BYP HV**													
EFHV0097	M-U2EF01	F-6	3	B	3.0	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	**ESW PMP A DISCH RECIRC HV**													
EFHV0098	M-U2EF01	D-6	3	B	3.0	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	**ESW PMP B DISCH RECIRC HV**													
EFPDV0019	M-U2EF01	F-4	3	B	3.0	GT	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	**ESW S-C STR A DRN DP CTRL VLV**													
EFPDV0020	M-U2EF01	D-4	3	B	3.0	GT	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	**ESW S-C STR B DRN DP CTRL VLV**													
EFV0001	M-U2EF01	G-5	3	C	30.0	CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	**ESW PMP A DISCH CHECK**													
EFV0004	M-U2EF01	D-5	3	C	30.0	CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	**ESW PMP B DISCH CHECK**													

Essential Service Water (EF)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EFV0046	M-22EF02	E-6	3	C	2.5	CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	ESW TRN A FROM SERV AIR CMPSR CHECK VALVE													
EFV0076	M-22EF01	B-6	3	C	2.5	CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	ESW TRN B FROM SERV AIR CMPSR CHECK VLV													

Component Cooling Water (EG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EGHV0011	M-22EG01	F-8	3	B	1.5	GB	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TO CCW TRN A UPSTRM HV													
EGHV0012	M-22EG01	C-8	3	B	1.5	GB	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TO CCW TRN B UPSTRM HV													
EGHV0013	M-22EG01	F-7	3	B	1.5	GB	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TO CCW TRN A DNSTRM HV													
EGHV0014	M-22EG01	C-7	3	B	1.5	GB	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	ESW TO CCW TRN B DNSTRM HV													
EGHV0015	M-22EG01	D-6	3	B	18.0	BF	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	M3			
	Valve Name:	CCW TRN A SPLY/RTN ISO HV													
EGHV0016	M-22EG01	D-6	3	B	18.0	BF	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	M3			
	Valve Name:	CCW TRN B SPLY/RTN ISO HV													
EGHV0053	M-22EG02	G-5	3	B	18.0	BF	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CCW TRN A SPLY ISO HV													
EGHV0054	M-22EG02	E-5	3	B	18.0	BF	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CCW TRN B SPLY ISO HV													
EGHV0058	M-22EG03	H-5	2	A	12.0	GT	MO	Active	O	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	CCW TO CTMT OUTER ISO HV													

Component Cooling Water (EG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EGHV0059	M-22EG03	C-5	2	A	12.0	GT	MO	Active	O	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	CCW FROM CTMT OUTER ISO VLV													
EGHV0060	M-22EG03	B-5	2	A	12.0	GT	MO	Active	O	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	CCW FROM RCS IN CTMT ISO HV													
EGHV0061	M-22EG03	C-4	2	A	4.0	GT	MO	Active	O	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	CCW FROM RCP THRM BAR OUTER CTMT ISO													
EGHV0062	M-22EG03	B-4	2	A	4.0	GT	MO	Active	O	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	CCW FROM RCS IN CTMT ISO HV													
EGHV0069A	M-22EG03	F-8	3	B	14.0	BF	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CCW TO RW PROT A SPLY ISO HV													
EGHV0069B	M-22EG03	F-6	3	B	14.0	BF	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CCW FROM RW PROT A RTN ISO HV													
EGHV0070A	M-22EG03	F-8	3	B	14.0	BF	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CCW TO RW PROT B SPLY ISO HV													
EGHV0070B	M-22EG03	F-6	3	B	14.0	BF	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CCW FROM RW PROT B RTN ISO HV													

Component Cooling Water (EG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EGHV0101	M-22EG02	G-4	3	B	18.0	BF	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CCW TO RHR HX A ISO													
EGHV0102	M-22EG02	C-4	3	B	18.0	BF	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CCW TO RHR HX B ISO													
EGHV0127	M-22EG03	G-5	2	A	12.0	GT	MO	Passive	C	C	AT-01	App-J			
											PIT	Y2			
	Valve Name:	CCW TO CTMT BYP ISO HV													
EGHV0130	M-22EG03	B-5	2	A	12.0	GT	MO	Passive	LC	C	AT-01	App-J			
											PIT	Y2			
	Valve Name:	CCW FROM RCS CTMT EGHV0060 BYP ISO HV													
EGHV0131	M-22EG03	C-5	2	A	12.0	GT	MO	Passive	LC	C	AT-01	App-J			
											PIT	Y2			
	Valve Name:	CCW FROM CTMT EGHV0059 BYP ISO													
EGHV0132	M-22EG03	B-4	2	A	4.0	GT	MO	Passive	LC	C	AT-01	App-J			
											PIT	Y2			
	Valve Name:	CCW FROM RCS CTMT EGHV0062 BYP ISO HV													
EGHV0133	M-22EG03	C-5	2	A	4.0	GT	MO	Passive	LC	C	AT-01	App-J			
											PIT	Y2			
	Valve Name:	CCW FROM RCP THRM BAR EGHV0061 BYP ISO													
EGLV0001	M-22EG01	G-7	3	B	3.0	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	DI WTR TO CCW SRG TK A LV													
EGLV0002	M-22EG01	C-7	3	B	3.0	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	DI WTR TO CCW SRG TK B LV													

Component Cooling Water (EG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EGRV0009	M-22EG01	G-6	3	B	2.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	**CCW SRG TK A VENT CTRL VLV**													
EGRV0010	M-22EG01	C-6	3	B	2.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	**CCW SRG TK B VENT CTRL VLV**													
EGTV0029	M-22EG02	G-6	3	B	20.0	BF	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	**CCW HX A CCW BYP TV**													
EGTV0030	M-22EG02	C-6	3	B	20.0	BF	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	**CCW HX B CCW BYP TV**													
EGV0003	M-22EG01	G-3	3	C	20.0	CK	SA	Active	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**CCW PMP A DISCH CHECK**													
EGV0007	M-22EG01	E-3	3	C	20.0	CK	SA	Active	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**CCW PMP C DISCH CHECK**													
EGV0012	M-22EG01	D-3	3	C	20.0	CK	SA	Active	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**CCW PMP B DISCH CHECK**													
EGV0016	M-22EG01	C-3	3	C	20.0	CK	SA	Active	SYS	O/C	CC	M3			
											CO	M3			
	Valve Name:	**CCW PMP D DISCH CHECK**													
EGV0159	M-22EG01	G-6	3	C	2.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**CCW SRG TK A RELIEF**													
EGV0170	M-22EG01	C-6	3	C	2.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**CCW SRG TK B RELIEF**													

Component Cooling Water (EG)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EGV0204	M-22EG03	H-4	2	AC	12.0	CK	SA	Active	SYS	C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	CCW TO RCS IN CTMT CHECK													
EGV0305	M-22EG01	G-6	3	C	1.0	RV	SA	Active	C	O/C	RT	Y4			
	Valve Name:	CCW SRG TK A VAC BRK													
EGV0306	M-22EG01	C-6	3	C	1.0	RV	SA	Active	C	O/C	RT	Y4			
	Valve Name:	CCW SRG TK B VAC BRK													

Residual Heat Removal System (EJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EJ8708A	M-22EJ01	F-7	2	C	3.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**RHR PUMP A SUCT PRESS RLF**													
EJ8708B	M-22EJ01	C-7	2	C	3.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**RHR PUMP B SUCT PRESS RLF**													
EJ8730A	M-22EJ01	G-4	2	C	10.0	CK	SA	Active	SYS	O/C	CC	CS		CSJ-15	
											CO	CS		CSJ-15	
	Valve Name:	**RHR HX A OUTLET CHECK VLV**													
EJ8730B	M-22EJ01	C-4	2	C	10.0	CK	SA	Active	SYS	O/C	CC	CS		CSJ-15	
											CO	CS		CSJ-15	
	Valve Name:	**RHR HX B OUTLET CHECK VLV**													
EJ8841A	M-22EJ01	E-2	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
	Valve Name:	**RHR TRNS SIS HOT LEG LOOP 2 RECIRC SPLY HDR CHECK**													
EJ8841B	M-22EJ01	D-2	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
	Valve Name:	**RHR TRNS SIS HOT LEG LOOP 3 RECIRC SPLY HDR CHECK**													
EJ8842	M-22EJ01	D-3	2	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**RHR TRNS A & B SI SYS HOT LEG RECIRC SPLY HDR PRESS RELIEF**													
EJ8856A	M-22EJ01	G-3	2	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**RHR TRN A ACC INJ SPLY HDR RELIEF**													
EJ8856B	M-22EJ01	B-3	2	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**RHR TRN B ACC INJ SPLY HDR RELIEF**													
EJ8958A	M-22EJ01	F-6	2	C	14.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-11	
											CO	RR		RJ-11	
	Valve Name:	**RHR PUMP A SUCT FROM RWST CHECK VLV**													
EJ8958B	M-22EJ01	B-6	2	C	14.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-11	
											CO	RR		RJ-11	
	Valve Name:	**RHR PUMP B SUCT FROM RWST CHECK VLV**													

Residual Heat Removal System (EJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EJ8969A	M-22EJ01	H-4	2	C	8.0	CK	SA	Active	SYS	O	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RHR TRN A CHARGING PUMPS SPLY HDR CHECK VLV													
EJ8969B	M-22EJ01	A-4	2	C	8.0	CK	SA	Active	SYS	O	CCF	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RHR TRN B SAFETY INJ PUMPS SPLY HDR CHECK VLV													
EJFCV0610	M-22EJ01	H-6	2	B	3.0	GT	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	RHR PUMP A MINIMUM FLOW CTRL VLV													
EJFCV0611	M-22EJ01	A-5	2	B	3.0	GT	MO	Active	O	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	RHR PUMP B MINIMUM FLOW CTRL VLV													
EJFCV0618	M-22EJ01	F-5	2	B	8.0	BF	AO	Passive	C	C	PIT	Y2			
	Valve Name:	RHR HX A BYP FLOW CTRL VLV													
EJFCV0619	M-22EJ01	B-5	2	B	8.0	BF	AO	Passive	C	C	PIT	Y2			
	Valve Name:	RHR HX B BYP FLOW CTRL VLV													
EJHCV0606	M-22EJ01	G-4	2	B	10.0	BF	AO	Passive	O	O	PIT	Y2			
	Valve Name:	RHR HX A OUTLET FLOW CTRL VLV													
EJHCV0607	M-22EJ01	C-4	2	B	10.0	BF	AO	Passive	O	O	PIT	Y2			
	Valve Name:	RHR HX B OUTLET FLOW CTRL VLV													
EJHCV8825	M-22EJ01	E-2	2	A	0.75	GB	AO	Passive	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RHR TRN A&B SIS HOT LEG RECIRC SIS TEST LINE ISO													
EJHCV8890A	M-22EJ01	F-2	2	A	0.75	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RHR TRN A ACC INJ SIS TEST LINE ISO													

Residual Heat Removal System (EJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EJHCV8890B	M-22EJ01	C-2	2	A	0.75	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RHR TRN B ACC INJ SIS TEST LINE ISO													
EJHV0014	M-22EJ01	H-5	2	B	1.0	GB	SO	Passive	C	C	PIT	Y2			
	Valve Name:	RHR PMP A MIN FLOW TO NUCLEAR SAMP SYS ISO													
EJHV0015	M-22EJ01	A-5	2	B	1.0	GB	SO	Passive	C	C	PIT	Y2			
	Valve Name:	RHR PMP B MIN FLOW TO NUCLEAR SAMP SYS ISO													
EJHV8701A	M-22EJ01	F-8	1	A	12.0	GT	MO	Active	C	C	AT-02	Y2			
											BTC	CS		CSJ-16	
											PIT	Y2			
	Valve Name:	RHR PUMP A SUCT ISO													
EJHV8701B	M-22EJ01	B-8	1	A	12.0	GT	MO	Active	C	C	AT-02	Y2			
											BTC	CS		CSJ-16	
											PIT	Y2			
	Valve Name:	RHR PUMP B SUCT ISO													
EJHV8716A	M-22EJ01	E-4	2	B	10.0	GT	MO	Active	O	O/C	BTC	CS		CSJ-17	
											BTO	CS		CSJ-17	
											PIT	Y2			
	Valve Name:	RHR TRN A SI SYS HOT LEG RECIRC ISO													
EJHV8716B	M-22EJ01	D-4	2	B	10.0	GT	MO	Active	O	O/C	BTC	CS		CSJ-17	
											BTO	CS		CSJ-17	
											PIT	Y2			
	Valve Name:	RHR TRN B SI SYS HOT LEG RECIRC ISO													
EJHV8804A	M-22EJ01	G-4	2	B	8.0	GT	MO	Active	C	O/C	BTO	CS		CSJ-18	TP-02
											PIT	Y2			
	Valve Name:	RHR TRN A CHARGING PUMPS SPLY ISO													
EJHV8804B	M-22EJ01	A-4	2	B	8.0	GT	MO	Active	C	O/C	BTO	CS		CSJ-18	TP-02
											PIT	Y2			
	Valve Name:	RHR TRN B SI PUMPS SPLY ISO													

Residual Heat Removal System (EJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EJHV8809A	M-22EJ01	G-3	2	B	10.0	GT	MO	Active	O	O/C	BTC	CS		CSJ-18	TP-02
											PIT	Y2			
	Valve Name:	RHR TRN A ACC INJ SPLY ISO													
EJHV8809B	M-22EJ01	C-3	2	B	10.0	GT	MO	Active	O	O/C	BTC	CS		CSJ-18	TP-02
											PIT	Y2			
	Valve Name:	RHR TRN B ACC INJ SPLY ISO													
EJHV8811A	M-22EJ01	E-7	2	B	14.0	GT	MO	Active	C	O/C	BTC	CS		CSJ-20	
											BTO	CS		CSJ-20	
											PIT	Y2			
	Valve Name:	CTMT RECIRC SUMP A TO RHR PUMP A SUCT ISO													
EJHV8811B	M-22EJ01	D-7	2	B	14.0	GT	MO	Active	C	O/C	BTC	CS		CSJ-20	
											BTO	CS		CSJ-20	
											PIT	Y2			
	Valve Name:	CTMT RECIRC SUMP B TO RHR PUMP B SUCT ISO													
EJHV8840	M-22EJ01	E-3	2	B	10.0	GT	MO	Active	C	O/C	BTO	CS		CSJ-21	TP-02
											PIT	Y2			
	Valve Name:	RHR TRAIN A & B SI SYS HOT LEG RECIRC ISO													

High Pressure Coolant Injection (EM)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EM8815	M-22EM02	D-3	1	AC	3	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CC	RR		RJ-12	
											CO	RR		RJ-12	
	Valve Name:	BORON INJ HDR OUT CHECK													
EM8851	M-22EM01	C-4	2	C	0.75	RV	SA	Active	C	O/C	RT	Y4			
	Valve Name:	SI PMPS DISCH TO COLD LEGS INJ PRESS RELIEF													
EM8853A	M-22EM01	F-5	2	C	0.75	RV	SA	Active	C	O/C	RT	Y4			
	Valve Name:	SI PMP A DISCH PRESS RELIEF													
EM8853B	M-22EM01	E-5	2	C	0.75	RV	SA	Active	C	O/C	RT	Y4			
	Valve Name:	SI PMP B DISCH PRESS RELIEF													
EM8858A	M-22EM01	E-7	2	C	0.75	RV	SA	Active	C	O/C	RT	Y4			
	Valve Name:	SI PMP A SUCT PRESS RELIEF													
EM8858B	M-22EM01	D-7	2	C	0.75	RV	SA	Active	C	O/C	RT	Y4			
	Valve Name:	SI PMP B SUCT PRESS RELIEF													
EM8922A	M-22EM01	E-5	2	C	4.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-13	
											CO	RR		RJ-13	
	Valve Name:	SI PMP A DISCH CHECK													
EM8922B	M-22EM01	D-5	2	C	4.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-13	
											CO	RR		RJ-13	
	Valve Name:	SI PMP B DISCH CHECK													
EM8926A	M-22EM01	E-7	2	C	8.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-14	
											CO	RR		RJ-14	
	Valve Name:	SI PMPS SUCT CHECK A													
EM8926B	M-22EM01	D-7	2	C	8.0	CK	SA	Active	SYS	O/C	CC	RR		RJ-14	
											CO	RR		RJ-14	
	Valve Name:	SI PMPS SUCT CHECK B													
EMHV8801A	M-22EM02	D-4	2	B	4	GT	MO	Active	C	O/C	BTO	M3			TP-02
											PIT	Y2			
	Valve Name:	BORON INJ HDR TRAIN A OUT TO COLD LEGS ISO													

High Pressure Coolant Injection (EM)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EMHV8801B	M-22EM02	D-4	2	B	4	GT	MO	Active	C	O/C	BTO	M3			TP-02
											PIT	Y2			
	Valve Name:	BORON INJ HDR TRAIN B OUT TO COLD LEGS ISO													
EMHV8802A	M-22EM01	E-4	2	B	4	GT	MO	Active	C	O/C	BTO	M3			TP-02
											PIT	Y2			
	Valve Name:	SI PMP A DISCH TO HOT LEG INJ ISO (3.0.3)													
EMHV8802B	M-22EM01	D-4	2	B	4	GT	MO	Active	C	O/C	BTO	M3			TP-02
											PIT	Y2			
	Valve Name:	SI PMP B DISCH TO HOT LEG INJ ISO (3.0.3)													
EMHV8803A	M-22EM02	C-7	2	B	4	GT	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	BORON INJ HDR SPLY FROM CCP A ISO													
EMHV8803B	M-22EM02	A-7	2	B	4	GT	MO	Active	C	O	BTO	M3			
											PIT	Y2			
	Valve Name:	BORON INJ HDR SPLY FROM CCP B ISO													
EMHV8807A	M-22EM01	G-7	2	B	6	GT	MO	Active	C	O/C	BTO	M3			TP-02
											PIT	Y2			
	Valve Name:	RHR HX A TO SI PMPS SUCT DNSTRM ISO VLV A													
EMHV8807B	M-22EM01	F-7	2	B	6	GT	MO	Active	C	O/C	BTO	M3			TP-02
											PIT	Y2			
	Valve Name:	RHR HX A TO SI PMPS SUCT DNSTRM ISO VLV B													
EMHV8814A	M-22EM01	B-6	2	A	1.5	GB	MO	Active	O	O/C	AT-02	Y2			
											BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	SI PMP A RECIRC TO RWST ISO													
EMHV8814B	M-22EM01	B-5	2	A	1.5	GB	MO	Active	O	O/C	AT-02	Y2			
											BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	SI PMP B RECIRC TO RWST ISO													
EMHV8821A	M-22EM01	E-4	2	B	4	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	SI PMP A DISCH TO COLD LEG INJ ISO													

High Pressure Coolant Injection (EM)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EMHV8821B	M-22EM01	D-4	2	B	4	GT	MO	Active	O	O/C	BTC	M3			TP-02
											PIT	Y2			
	Valve Name:	SI PMP B DISCH TO COLD LEG INJ ISO													
EMHV8823	M-22EM01	C-4	2	B	0.75	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SI/ACC INJ TEST LINE ISO HV													
EMHV8824	M-22EM01	D-3	2	B	0.75	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SI PMP B DISCH TEST LINE ISO HV													
EMHV8835	M-22EM01	B-4	2	B	4.0	GT	MO	Active	O	O/C	BTC	CS		CSJ-22	TP-02
											PIT	Y2			
	Valve Name:	SI PMPS DISCH TO COLD LEG INJ ISO (3.0.3)													
EMHV8843	M-22EM02	C-4	2	B	0.75	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	BORON INJ HDR OUT UPSTRM TEST LINE ISO HV													
EMHV8871	M-22EM01	G-5	2	A	0.75	GB	AO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SI SYS IN CTMT TEST LINE ISO HV													
EMHV8881	M-22EM01	G-4	2	B	0.75	GB	AO	Active	C	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SI PMP A DISCH TEST LINE ISO HV													
EMHV8882	M-22EM02	C-3	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	BORON INJ HDR OUT DNSTRM TEST LINE ISO HV													

High Pressure Coolant Injection (EM)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EMHV8888	M-22EM01	F-6	2	A	1.0	GB	AO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	ACC TKS FILL LINE FROM SI PMPS ISO													
EMHV8889A	M-22EM01	G-2	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI PMP B LOOP 1 HOT LEG TEST LINE ISO NV													
EMHV8889B	M-22EM01	G-3	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI PMP A LOOP 2 HOT LEG TEST LINE ISO HV													
EMHV8889C	M-22EM01	G-2	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI PMP A LOOP 3 HOT LEG TEST LINE ISO HV													
EMHV8889D	M-22EM01	G-2	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI PMP B LOOP 4 HOT LEG TEST LINE ISO HV													
EMHV8923A	M-22EM01	E-7	2	B	6.0	GT	MO	Passive	O	O	PIT	Y2			
	Valve Name:	RWST TO SI PMP A SUCT ISO HV (3.0.3)													
EMHV8923B	M-22EM01	D-7	2	B	6.0	GT	MO	Passive	O	O	PIT	Y2			
	Valve Name:	RWST TO SI PMP B SUCT ISO HV													
EMHV8924	M-22EM01	F-8	2	B	6	GT	MO	Passive	O	O	PIT	Y2			
	Valve Name:	RHR HX A TO SI PMPS SUCT UP STRM ISO (3.0.3)													
EMHV8964	M-22EM01	G-6	2	A	0.75	GB	AO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SI SYS OUT CTMT TEST LINE ISO													
EMV0001	M-22EM01	F-3	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SI PMP A DISCH TO HOT LEG LOOP 2 UPSTRM CHECK													

High Pressure Coolant Injection (EM)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EMV0002	M-22EM01	E-3	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SI PMP A DISCH TO HOT LEG LOOP 3 UPSTRM CHECK													
EMV0003	M-22EM01	D-3	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SI PMP B DISCH TO HOT LEG LOOP 1 UPSTRM CHECK													
EMV0004	M-22EM01	C-3	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COA	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SI PMP B DISCH TO HOT LEG LOOP 4 UPSTRM CHECK													
EMV0005	M-22EM01	A-6	2	C	1.5	CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	SI PMP A DISCH TO RWST CHECK													
EMV0006	M-22EM01	F-6	2	AC	1	CK	SA	Active	SYS	C	AT-01	App-J			
											CC	RR		RJ-15	
											CO	OP			TP-01
	Valve Name:	SI PMPS ACC TKS FILL LINE CHECK													
EMV0007	M-22EM01	A-5	2	C	1.5	CK	SA	Active	SYS	O	CC	M3			TP-01
											CO	M3			
	Valve Name:	SI PMP B DISCH TO RWST CHECK													

Containment Spray (EN)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ENHV0001	M-22EN01	G-7	2	B	12.0	GT	MO	Active	C	O/C	BTC	CS		CSJ-23	TP-02
											BTO	CS		CSJ-23	TP-02
											PIT	Y2			
	Valve Name:	CTMT RECIRC SMP TO CTMT SPRY PMP A HV													
ENHV0006	M-22EN01	G-4	2	B	10.0	GT	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CTMT SPRY PMP A DISCH HV													
ENHV0007	M-22EN01	B-7	2	B	12.0	GT	MO	Active	C	O/C	BTC	CS		CSJ-23	
											BTO	CS		CSJ-23	
											PIT	Y2			
	Valve Name:	CTMT RECIRC SMP TO CTMT SPRY PMP B HV													
ENHV0012	M-22EN01	B-4	2	B	10.0	GT	MO	Active	C	O/C	BTC	M3			
											BTO	M3			
											PIT	Y2			
	Valve Name:	CTMT SPRY PMP B DISCH HV													
ENV0002	M-22EN01	G-7	2	C	12.0	CK	SA	Active	SYS	O	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	CTMT SPRY ISO VLV ENCAP A OUT CHECK													
ENV0003	M-22EN01	G-7	2	C	12.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	RWST TO CTMT SPRY PMP A CHECK													
ENV0004	M-22EN01	G-6	2	C	10.0	CK	SA	Active	SYS	O	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	CTMT SPRY PMP A DISCH CHECK													
ENV0008	M-22EN01	B-7	2	C	12.0	CK	SA	Active	SYS	O	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	CTMT SPRY ISO VLV ENCAP B OUT CHECK													
ENV0009	M-22EN01	B-7	2	C	12.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	RWST TO CTMT SPRAY PMP B CHECK													

Containment Spray (EN)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
ENV0010	M-22EN01	B-5	2	C	10.0	CK	SA	Active	SYS	O	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	CTMT SPRY PMP B DISCH CHECK													
ENV0013	M-22EN01	G-4	2	C	10.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	CTMT SPRY PMP A DISCH IN CTMT CHECK													
ENV0017	M-22EN01	B-4	2	C	10.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	CTMT SPRY PMP B DISCH IN CTMT CHECK													

Accumulator Safety Injection (EP)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EP8818A	M-22EP01	G-3	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCD	CM			TP-08
											CCL	CM			TP-08
											COD	CM			TP-08
	Valve Name:	RHR PMPS TO RCS COLD LEG LOOP 1 CHECK													
EP8818B	M-22EP01	F-3	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RHR PMPS TO RCS COLD LEG LOOP 2 CHECK													
EP8818C	M-22EP01	D-3	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RHR PMPS TO RCS COLD LEG LOOP 3 CHECK													
EP8818D	M-22EP01	C-3	1	AC	6.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCD	CM			TP-08
											CCL	CM			TP-08
											COD	CM			TP-08
	Valve Name:	RHR PMPS TO RCS COLD LEG LOOP 4 CHECK													
EP8855A	M-22EP01	H-7	2	C	1.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SI ACC TK A PRESS RELIEF													
EP8855B	M-22EP01	E-7	2	C	1.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SI ACC TK B PRESS RELIEF													
EP8855C	M-22EP01	D-7	2	C	1.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SI ACC TK C PRESS RELIEF													
EP8855D	M-22EP01	C-7	2	C	1.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SI ACC TK D PRESS RELIEF													
EP8956A	M-22EP01	G-4	1	AC	10.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SI ACC TK A OUT UPSTRM CHECK													

Accumulator Safety Injection (EP)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EP8956B	M-22EP01	E-4	1	AC	10.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	**SI ACC TK B OUT UPSTRM CHECK**													
EP8956C	M-22EP01	C-4	1	AC	10.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	**SI ACC TK C OUT UPSTRM CHECK**													
EP8956D	M-22EP01	B-4	1	AC	10.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	**SI ACC TK D OUT UPSTRM CHECK**													
EPHV8808A	M-22EP01	G-5	2	B	10.0	GT	MO	Active	O	O/C	BTC	CS		CSJ-24	TP-02
											PIT	Y2			
	Valve Name:	**SI ACC TK A OUT ISO**													
EPHV8808B	M-22EP01	E-5	2	B	10.0	GT	MO	Passive	O	O	PIT	Y2			
	Valve Name:	**SI ACC TK B OUT ISO**													
EPHV8808C	M-22EP01	C-5	2	B	10.0	GT	MO	Passive	O	O	PIT	Y2			
	Valve Name:	**SI ACC TK C OUT ISO**													
EPHV8808D	M-22EP01	B-5	2	B	10.0	GT	MO	Active	O	O/C	BTC	CS		CSJ-24	TP-02
											PIT	Y2			
	Valve Name:	**SI ACC TK D OUT ISO**													
EPHV8875A	M-22EP01	G-6	2	B	1.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	**SI ACC TK A N2 SPLY HV**													
EPHV8875B	M-22EP01	F-6	2	B	1.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	**SI ACC TK B N2 SPLY HV**													
EPHV8875C	M-22EP01	D-6	2	B	1.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	**SI ACC TK C N2 SPLY HV**													
EPHV8875D	M-22EP01	B-6	2	B	1.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	**SI ACC TK D N2 SPLY HV**													

Accumulator Safety Injection (EP)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EPHV8877A	M-22EP01	F-4	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC A OUT UPSTRM CHECK TEST LINE ISO													
EPHV8877B	M-22EP01	E-4	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC B OUT UPSTRM CHECK TEST LINE ISO													
EPHV8877C	M-22EP01	C-4	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC C OUT UPSTRM CHECK TEST LINE ISO													
EPHV8877D	M-22EP01	A-4	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC D OUT UPSTRM CHECK TEST LINE ISO													
EPHV8878A	M-22EP01	G-5	2	B	1.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC TK A FILL LINE ISO HV													
EPHV8878B	M-22EP01	E-5	2	B	1.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC TK B FILL LINE ISO HV													
EPHV8878C	M-22EP01	D-5	2	B	1.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC TK C FILL LINE ISO HV													
EPHV8878D	M-22EP01	B-5	2	B	1.0	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC TK D FILL LINE ISO HV													
EPHV8879A	M-22EP01	G-4	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC A OUT DNSTRM CHECK TEST LINE ISO													
EPHV8879B	M-22EP01	E-4	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC B OUT DNSTRM CHECK TEST LINE ISO													
EPHV8879C	M-22EP01	D-4	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC C OUT DNSTRM CHECK TEST LINE ISO													
EPHV8879D	M-22EP01	C-2	2	B	0.75	GB	AO	Passive	C	C	PIT	Y2			
	Valve Name:	SI ACC D OUT DNSTRM CHECK TEST LINE ISO													
EPHV8880	M-22EP01	A-3	2	A	1.0	GB	AO	Passive	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	SI ACC TKS N2 SPLY HV													

Accumulator Safety Injection (EP)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EPHV8950A	M-22EP01	H-8	2	B	1.0	GB	SO	Active	C	O	BTO	CS		CSJ-25	
											PIT	Y2			
	Valve Name:	SI ACC TK A VENT HV													
EPHV8950B	M-22EP01	F-8	2	B	1.0	GB	SO	Active	C	O	BTO	CS		CSJ-25	
											PIT	Y2			
	Valve Name:	SI ACC TK B VENT HV													
EPHV8950C	M-22EP01	F-7	2	B	1.0	GB	SO	Active	C	O	BTO	CS		CSJ-25	
											PIT	Y2			
	Valve Name:	SI ACC TK B VENT HV													
EPHV8950D	M-22EP01	D-8	2	B	1.0	GB	SO	Active	C	O	BTO	CS		CSJ-25	
											PIT	Y2			
	Valve Name:	SI ACC TK C VENT HV													
EPHV8950E	M-22EP01	D-7	2	B	1.0	GB	SO	Active	C	O	BTO	CS		CSJ-25	
											PIT	Y2			
	Valve Name:	SI ACC TK C VENT HV													
EPHV8950F	M-22EP01	C-8	2	B	1.0	GB	SO	Active	C	O	BTO	CS		CSJ-25	
											PIT	Y2			
	Valve Name:	SI ACC TK D VENT HV													
EPV0010	M-22EP01	G-3	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SI PMPS TO RCS COLD LEG LOOP 1 CHECK													
EPV0020	M-22EP01	F-3	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SI PMPS TO RCS COLD LEG LOOP 2 CHECK													
EPV0030	M-22EP01	D-3	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	SI PMPS TO RCS COLD LEG LOOP 3 CHECK													

Accumulator Safety Injection (EP)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
EPV0040	M-22EP01	C-3	1	AC	2.0	CK	SA	Active	SYS	O/C	AT-02	Y2			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	**SI PMPS TO RCS COLD LEG LOOP 4 CHECK**													
EPV0046	M-22EP01	A-5	2	AC	1.0	CK	SA	Active	SYS	C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	**SI ACC TKS N2 SPLY CHECK**													

AFW Pump Turbine (FC)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
FCFV0310	M-22FC02	D-7	3	B	1.0	GB	AO	Active	O	C	BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	AFP TURB STMLINE DRN FLOW VLV													
FCHV0312	M-22FC02	F-5	3	B	4.0	GB	MO	Active	C	O	BTO	M3			TP-05
	Valve Name:	AFP TURB MECH TRIP/THROT HV													
FCV0001	M-22FC02	G-6	2	C	4.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	MS LOOP 2 TO AFP TURB UPSTRM CHECK													
FCV0002	M-22FC02	G-6	2	C	4.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	MS LOOP 3 TO AFP TURB UPSTRM CHECK													
FCV0024	M-22FC02	G-6	2	C	4.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	MS LOOP 2 TO AFP TURB DNSTRM CHECK													
FCV0025	M-22FC02	G-6	2	C	4.0	CK	SA	Active	SYS	O/C	CCD	CM			TP-08
											COD	CM			TP-08
	Valve Name:	MS LOOP 3 TO AFP TURB DNSTRM CHECK													

Control Building HVAC (GK)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
SGK04AV1	N/A		3	C	1.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	CTRL RM AIR CNDR UNIT A REFRIG PRESS RELIEF													
SGK04BV1	N/A		3	C	1.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	CTRL RM AIR CNDR UNIT B REFRIG PRESS RELIEF													
SGK05AV1	N/A		3	C	1.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	ELEC EQUIP AIR CNDR UNIT A REFRIG PRESS RELIEF													
SGK05BV1	N/A		3	C	1.0	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	ELEC EQUIP AIR CNDR UNIT B REFRIG PRESS RELIEF													

Containment Hydrogen Control (GS)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
GSHV0003	M-22GS01	E-6	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANALYZER B SPLY OUTER CTMT ISO HV													
GSHV0004	M-22GS01	E-5	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANLZ B SPLY IN CTMT ISO HV													
GSHV0005	M-22GS01	D-5	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANALYZER B SPLY INNER CTMT ISO HV													
GSHV0008	M-22GS01	B-6	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANALYZER B RTN OUTER CTMT ISO HV													
GSHV0009	M-22GS01	B-6	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANLZ B RTN IN CTMT ISO HV													

Containment Hydrogen Control (GS)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
GSHV0012	M-22GS01	E-4	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANALYZER A SPLY OUTER CTMT ISO HV													
GSHV0013	M-22GS01	E-5	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANLZ A SPLY IN CTMT ISO HV													
GSHV0014	M-22GS01	D-5	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANLZ A SPLY IN CTMT ISO HV													
GSHV0017	M-22GS01	B-4	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANALYZER A RTN OUTER CTMT ISO HV													
GSHV0018	M-22GS01	B-5	2	A	1.0	GT	SO	Active	C	O/C	AT-01	App-J			
											BTC	M3			
											BTO	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	H2 ANLZ A RTN IN CTMT ISO HV													
GSHV0020	M-22GS01	F-5	2	A	6.0	BF	MO	Passive	C	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	H2 PURGE IN CTMT ISO HV													

Containment Hydrogen Control (GS)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
GSHV0021	M-22GS01	F-4	2	A	6.0	BF	MO	Passive	C	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	H2 PURGE OUTER CTMT ISO HV													
GSHV0031	M-22GS01	D-4	2	A	1.0	GT	SO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT ATMS MON SPLY IN CTMT ISO HV													
GSHV0032	M-22GS01	D-3	2	A	1.0	GT	SO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT ATMS MON SPLY OUTER CTMT ISO HV													
GSHV0033	M-22GS01	C-4	2	A	1.0	GT	SO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT ATMS MON RTN OUTER CTMT ISO HV													
GSHV0034	M-22GS01	C-4	2	A	1.0	GT	SO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT ATMS MON RTN IN CTMT ISO HV													
GSHV0036	M-22GS01	D-6	2	A	1.0	GT	SO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT ATMS MON SPLY IN CTMT ISO HV													
GSHV0037	M-22GS01	D-7	2	A	1.0	GT	SO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT ATMS MON SPLY OUTER CTMT ISO HV													

Containment Hydrogen Control (GS)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
GSHV0038	M-22GS01	C-6	2	A	1.0	GT	SO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	**CTMT ATMS MON RTN OUTER CTMT ISO HV**													
GSHV0039	M-22GS01	C-6	2	A	1.0	GT	SO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	**CTMT ATMS MON RTN IN CTMT ISO HV**													

Containment Purge (GT)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
GTHZ0004	M-22GT01	D-4	2	A	18.0	BF	AO	Active	SYS	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT MINI PURGE AIR SPLY OUTER CTMT DMPR													
GTHZ0005	M-22GT01	A-5	2	A	18.0	BF	AO	Active	SYS	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT MINI PURGE AIR SPLY INNER CTMT UPSTRM DMPR													
GTHZ0006	M-22GT01	C-4	2	A	36.0	BF	AO	Active	C	C	AT-01	App-J			
											BTC	RR		RJ-16	
											FC	RR		RJ-16	TP-04
											PIT	Y2			
	Valve Name:	CTMT S/D PURGE AIR SPLY OUTER CTMT DMPR													
GTHZ0007	M-22GT01	C-5	2	A	36.0	BF	AO	Active	C	C	AT-01	App-J			
											BTC	RR		RJ-16	
											FC	RR		RJ-16	TP-04
											PIT	Y2			
	Valve Name:	CTMT S/D PURGE AIR SPLY INNER CTMT DMPR													
GTHZ0008	M-22GT01	C-6	2	A	36.0	BF	AO	Active	C	C	AT-01	App-J			
											BTC	RR		RJ-16	
											FC	RR		RJ-16	TP-04
											PIT	Y2			
	Valve Name:	CTMT S/D PURGE EXH INNER CTMT DMPR													
GTHZ0009	M-22GT01	C-7	2	A	36.0	BF	AO	Active	C	C	AT-01	App-J			
											BTC	RR		RJ-16	
											FC	RR		RJ-16	TP-04
											PIT	Y2			
	Valve Name:	CTMT S/D PURGE EXH OUTER CTMT DMPR													

Containment Purge (GT)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
GTHZ0011	M-22GT01	A-6	2	A	18.0	BF	AO	Active	SYS	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT MINI PURGE EXH INNER CTMT DNSTRM DMPR													
GTHZ0012	M-22GT01	A-7	2	A	18.0	BF	AO	Active	SYS	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT MINI PURGE EXH OUTER CTMT DMPR													

Liquid Radwaste (HB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
HBHV7126	M-22HB01	G-6	2	A	0.75	DI	AO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCDT TO GRW CMPSR IN CTMT HV													
HBHV7136	M-22HB01	F-3	2	A	3.0	DI	AO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCDT HX OUT HDR OUTER CTMT HV													
HBHV7150	M-22HB01	G-6	2	A	0.75	DI	AO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCDT OUT TO GRW SYS OUTER CTMT HV													
HBHV7176	M-22HB01	F-3	2	A	3.0	DI	AO	Active	O	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	RCDT HX OUT HDR IN CTMT ISO HV													

Decontamination (HD)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
HDV0016	M-22HD01	B-7	2	A	2.0	GB	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	**RX HEAD DECON AUX STM SPLY OUTER CTMT ISO**													
HDV0017	M-22HD01	B-7	2	A	2.0	GB	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	**RX HEAD DCON AUX STEAM SPLY IN CTMT ISO**													

Emergency Fuel Oil (JE)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
JEV0085	M-22JE01	H-5	3	C	2.0	CK	SA	Active	SYS	O	CO	M3			TP-05
	Valve Name:	EMERG F.O. DAY TK A IN CHECK													
JEV0086	M-22JE01	D-5	3	C	2.0	CK	SA	Active	SYS	O	CO	M3			TP-05
	Valve Name:	EMERG F.O. DAY TK B IN CHECK													

Compressed Air (KA)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
KAFV0029	M-22KA01	B-1	2	A	2.0	GB	AO	Active	O	C	AT-01	App-J			
											BTC	CS		CSJ-26	
											FC	CS		CSJ-26	TP-04
											PIT	Y2			
	Valve Name:	RX BLD INST AIR SPLY FLOW CTRL VLV													
KAV0039	M-22KA02	D-6	2	AC	4.0	CK	SA	Passive	C	C	AT-01	App-J			
	Valve Name:	RX BLD SERV AIR HDR SPLY CHECK													
KAV0118	M-22KA02	D-6	2	A	4.0	GB	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	RX BLD SERV AIR HDR SPLY OUTER CTMT ISO													
KAV0204	M-22KA01	B-1	2	AC	1.5	CK	SA	Active	SYS	C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	RX BLD INST AIR SPLY CHECK													
KAV0648	M-22KA05	G-6	3	AC	0.75	CK	SA	Active	SYS	C	AT-03	Y2			
											CC	M3			
											CO	OP			TP-01
	Valve Name:	SG A AFW CTRL/MS ATMS RELIEF VLVS N2 SPLY ACC IN													
KAV0649	M-22KA05	F-5	3	AC	0.75	CK	SA	Active	SYS	C	AT-03	Y2			
											CC	M3			
											CO	OP			TP-01
	Valve Name:	SG C AFW CTRL/MS ATMS RELIEF VLVS N2 SPLY ACC IN													
KAV0650	M-22KA05	D-6	3	AC	0.75	CK	SA	Active	SYS	C	AT-03	Y2			
											CC	M3			
											CO	OP			TP-01
	Valve Name:	SG B AFW CTRL/MS ATMS RELIEF VLVS N2 SPLY ACC IN													
KAV0651	M-22KA05	B-5	3	AC	0.75	CK	SA	Active	SYS	C	AT-03	Y2			
											CC	M3			
											CO	OP			TP-01
	Valve Name:	SG D AFW CTRL/MS ATMS RELIEF VLVS N2 SPLY ACC IN													
KAV0703	M-22KA05	H-7	3	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SG A AFW CTRL/MS RLF VLV N2 SPLY ACC PRESS RELIEF													

Compressed Air (KA)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
KAV0704	M-22KA05	F-6	3	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SG C AFW CTRL/MS RLF VLV N2 SPLY ACC PRESS RELIEF													
KAV0705	M-22KA05	D-7	3	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SG B AFW CTRL/MS RLF VLV N2 SPLY ACC PRESS RELIEF													
KAV0706	M-22KA05	B-6	3	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SG D AFW CTRL/MS RLF VLV N2 SPLY ACC PRESS RELIEF													
KAV0710	M-22KA05	H-8	3	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SG A AFW CTRL/MS RLF VLV N2 SPLY ACC OUT RELIEF													
KAV0711	M-22KA05	F-7	3	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SG C AFW STRL/MS RLF VLV N2 SPLY ACC OUT RELIEF													
KAV0712	M-22KA05	D-8	3	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SG B AFW CTRL/MS RLF VLV N2 SPLY ACC OUT RELIEF													
KAV0713	M-22KA05	B-7	3	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	SG D AFW CTRL/MS RLF VLV N2 SPLY ACC OUT RELIEF													

Breathing Air for Tasks (KB)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
KBV0001	M-22KB01	A-1	2	A	2.0	GB	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	BRTH AIR SYS IN CTMT ISO													
KBV0002	M-22KB01	A-2	2	A	2.0	GB	MA	Passive	LC	C	AT-01	App-J			
	Valve Name:	BRTH AIR SYS OUT CTMT ISO													

Fire Protection (KC)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
KCHV0253	M-22KC02	B-6	2	A	4.0	GT	MO	Passive	C	C	AT-01	App-J			
											PIT	Y2			
	Valve Name:	F-PROT LOOP TO RX BLD OUTER CTMT DNSTRM ISO													
KCV0478	M-22KC02	B-6	2	AC	4.0	CK	SA	Active	SYS	C	AT-01	App-J			
											CCL	CM			TP-08
											COF	CM			TP-08
	Valve Name:	FIRE PROT LOOP TO RX BLD IN CTMT CHECK													

Standby Diesel Generator (KJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
KJPV0001A	M-22KJ02	F-3	NC	B	0.375	3W	SO	Active	C	O	BTO	M3			TP-05
	Valve Name:	DG A STARTING AIR SPLY PRESS CTRL VLV A													
KJPV0001B	M-22KJ02	F-3	NC	B	0.375	3W	SO	Active	C	O	BTO	M3			TP-05
	Valve Name:	DG A STARTING AIR SPLY PRESS CTRL VLV B													
KJPV0008	M-22KJ02	F-4	NC	B		3W	SO	Passive	DE	C	BTC	M3			TP-05
	Valve Name:	DG A FUEL RACK AIR SPLY PRESS CTRL VLV													
KJPV0101A	M-22KJ05	F-3	NC	B	0.375	3W	SO	Active	C	O	BTO	M3			TP-05
	Valve Name:	DG B STARTING AIR SPLY PRESS CTRL VLV A													
KJPV0101B	M-22KJ05	F-3	NC	B	0.375	3W	SO	Active	C	O	BTO	M3			TP-05
	Valve Name:	DG B STARTING AIR SPLY PRESS CTRL VLV B													
KJPV0108	M-22KJ05	F-4	NC	B		3W	SO	Passive	DE	C	BTC	M3			TP-05
	Valve Name:	DG B FUEL RACK AIR SPLY PRESS CTRL VLV													
KJV0711A	M-22KJ02	C-2	NC	C	0.75	CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	DG STARTING AIR TK A SPLY CHECK													
KJV0711B	M-22KJ05	B-2	NC	C	0.75	CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	DG STARTING AIR TK C SPLY CHECK													
KJV0712A	M-22KJ02	D-5	NC	C	0.75	CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	DG STARTING AIR TK B SPLY CHECK													
KJV0712B	M-22KJ05	D-5	NC	C	0.75	CK	SA	Active	SYS	C	CC	M3			
											CO	M3			TP-01
	Valve Name:	DG STARTING AIR TK D SPLY CHECK													
KJV0716A	M-22KJ02	C-2	NC	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	DG STARTING AIR TK A PRESS RELIEF													
KJV0716B	M-22KJ05	C-2	NC	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	DG STARTING AIR TR C PRESS RELIEF													

Standby Diesel Generator (KJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
KJV0717A	M-22KJ02	C-4	NC	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**DG STARTING AIR TK B PRESS RELIEF**													
KJV0717B	M-22KJ05	C-4	NC	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**DG STARTING AIR TK D PRESS RELIEF**													
KJV0757A	M-22KJ02	G-2	NC	C	1.5	CK	SA	Active	SYS	O	CC	M3			TP-05
											CO	M3			TP-05
	Valve Name:	**DG A ENGINE DR F/O PMP DISCH CHECK VLV**													
KJV0757B	M-22KJ05	G-2	NC	C	1.5	CK	SA	Active	SYS	O	CC	M3			TP-05
											CO	M3			TP-05
	Valve Name:	**DG B ENGINE DR F/O PMP DISCH CHECK VLV**													
KJV0771A	M-22KJ01	G-3	NC	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**DG A JACKET WTR HTR OUT PRESS RELIEF**													
KJV0771B	M-22KJ04	G-3	NC	C	0.75	RV	SA	Active	C	O/C	RT	Y10			
	Valve Name:	**DG B JACKET WTR HTR OUT PRESS RELIEF**													
KJV0773A	M-22KJ01	F-3	NC	C	1.5	CK	SA	Active	SYS	O	CC	M3			TP-05
											CO	M3			TP-05
	Valve Name:	**DG A JACKET WTR HTR OUT CHECK**													
KJV0773B	M-22KJ04	F-3	NC	C	1.5	CK	SA	Active	SYS	O	CC	M3			TP-05
											CO	M3			TP-05
	Valve Name:	**DG B JACKET WTR HTR OUT CHECK**													
KJV0779A	M-22KJ01	F-6	NC	C	5.0	CK	MA	N/A	SYS	O	CC	M3			TP-05
											CO	M3			TP-05
	Valve Name:	**DG A ENGINE DRIVEN JACKET WTR PMP DISCH CHECK**													
KJV0779B	M-22KJ04	F-6	NC	C	5.0	CK	MA	N/A	SYS	O	CC	M3			TP-05
											CO	M3			TP-05
	Valve Name:	**DG B ENGINE DRIVEN JACKET WTR PMP DISCH CHECK**													
KJV0818A	M-22KJ03	C-3	NC	C	2.0	CK	SA	Active	SYS	O/C	CC	M3			TP-05
											CO	M3			TP-05
	Valve Name:	**DG A LUBE OIL FILTER OUT CHECK**													

Standby Diesel Generator (KJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
KJV0818B	M-22KJ06	C-3	NC	C	2.0	CK	SA	Active	SYS	O/C	CC	M3			TP-05
											CO	M3			TP-05
	Valve Name:	DG B LUBE OIL FILTER OUT CHECK													
KJV0820A	M-22KJ03	C-3	NC	C		RV	SA	Active	C	O	RT	Y10			
	Valve Name:	DG A AUX L-O PMP PRESS RLF VLV													
KJV0820B	M-22KJ06	D-3	NC	C		RV	SA	Active	C	O	RT	Y10			
	Valve Name:	DG B AUX L-O PMP PRESS RLF VLV													
KJV0877A	M-22KJ03	D-6	NC	C		RV	SA	Active	C	O	RT	Y10			
	Valve Name:	DG A ENGINE DRIVEN L-O PMP PRESS RLF													
KJV0877B	M-22KJ06	D-6	NC	C		RV	SA	Active	C	O	RT	Y10			
	Valve Name:	DG B ENGINE DRIVEN L-O PMP PRESS RLF													

Rx Bldg and Hot Machine Shop Floor and Equip Drain (LF)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
LFFV0095	M-22LF09	F-2	2	A	6.0	GT	MO	Active	O	C	AT-01	App-J			
											BTC	M3			
											PIT	Y2			
	Valve Name:	CTMT NORM SMP PMPS DISCH HDR CTMT FV													
LFFV0096	M-22LF09	F-2	2	A	6.0	GB	AO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	CTMT NORM SMP PMPS DISCH HDR AUX BLD FCV													
LFHV0105	M-22LF03	C-5	3	B	6.0	GT	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	DRW SMPS DISCH HDR DNSTRM HV													
LFHV0106	M-22LF03	C-5	3	B	6.0	GT	MO	Active	O	C	BTC	M3			
											PIT	Y2			
	Valve Name:	DRW SMPS DISCH HDR UPSTRM HV													

Nuclear Sampling (SJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
SJHV0005	M-22SJ04	F-6	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	PASS HOT LEG 1 SAMP IN CTMT DNSTRM ISO HV													
SJHV0006	M-22SJ04	F-6	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	PASS HOT LEG 1 SAMP OUT CTMT ISO TRN A HV													
SJHV0012	M-22SJ01	F-7	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	PZR VAPOR SAMP IN CTMT ISO HV													
SJHV0013	M-22SJ01	E-7	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	PZR VAPOR SAMP OUT CTMT ISO HV													
SJHV0018	M-22SJ01	G-3	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	ACC SAMP IN CTMT ISO HV													
SJHV0019	M-22SJ01	F-3	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	ACC SAMP OUT CTMT ISO HV													

Nuclear Sampling (SJ)

Valve Location	P&ID	P&ID Coor.	Safety Class	Cat.	Size	Valve Type	Act. Type	Active / Passive	Normal Position	Safety Position	Test Type	Test Freq.	Relief Request	Deferred Just.	Tech. Pos.
SJHV0127	M-22SJ04	F-6	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	PASS HOT LEG 1 SAMP OUT CTMT ISO TRN B HV													
SJHV0128	M-22SJ04	H-6	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	PASS PZR & RCS SAMP IN CTMT ISO HV													
SJHV0129	M-22SJ04	H-5	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	PASS PZR & RCS SAMP OUT CTMT ISO TRN B HV													
SJHV0130	M-22SJ04	G-5	2	A	1.0	GB	SO	Active	C	C	AT-01	App-J			
											BTC	M3			
											FC	M3			TP-04
											PIT	Y2			
	Valve Name:	PASS PZR & RCS SAMP OUT CTMT ISO TRN A HV													