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Docket Number 50-346

License Number NPF-3

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U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Third Ten-Year Interval Inservice Testing Program for the Davis-Besse Nuclear Power Station, Unit 1

Ladies and Gentlemen:

In accordance with 10 CFR 50.55a(f)(5)(i), the FirstEnergy Nuclear Operating Company (FENOC) herewith submits the revised Davis-Besse Nuclear Power Station (DBNPS), Unit 1 Third Ten-Year Interval Inservice Testing (IST) Program. The DBNPS IST Program is based on the requirements of 10 CFR 50.55a(f) and the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance (OM) of Nuclear Power Plants, 1995 Edition with 1996 Addenda. The DBNPS has received approval from the NRC to extend the Second Ten-Year Interval and defer the start of the Third Ten-Year Interval until February 1, 2002 (TAC No. M7958).

Included as Sections 6.0, 7.0 and 8.0 of the DBNPS Third Ten-Year Interval IST Program are several relief requests. Similar relief requests have been previously approved for the DBNPS Second Ten-Year interval, for other plants, or has been proposed for acceptance by the NRC in the proposed rule change for 10 CFR 50.55a. A table of the relief requests and supporting cross-references is provided in Attachment 1. NRC approval of these relief requests is requested by June 13, 2002 for the duration of the Third Ten-Year Interval IST Program.

A047

If you have any questions or comments, please contact David H. Lockwood, Manager-Regulatory Affairs, at (419) 321-8450.

Very truly yours,

Attachments

cc: J. E. Dyer, Regional Administrator, NRC Region III
S. P. Sands, DB-1 NRC/NRR Project Manager
C. S. Thomas, DB-1 Senior Resident Inspector
Utility Radiological Safety Board

Cross-Reference Table for DBNPS Third Ten-Year Interval IST Program Relief Requests and Corresponding Supporting Reference

DBNPS 3rd Ten-Year Interval IST Program Relief Request Number/Subject	Supporting Reference
RG-1 Authorized Nuclear Inservice Inpector	Seabrook Station NRC Safety Evaluation Report (SER), TAC No. MA8532, Section 3.4
RP-1 Digital Instrument Calibration Range	Perry Unit 1, 2nd Ten-Year IST Interval, NRC SER, March 31, 1999 (TAC No. MA3328), Section 3.2.
RP-2 Component Cooling Water Pumps	DBNPS 2nd Ten-Year IST Interval, NRC SER, TAC No. M89034, Section 3.0; Beaver Valley Unit 2 NRC SER, TAC No. M98909, Section 5.0
RP-3 EDG Fuel Oil Transfer Pumps	DBNPS 2nd Ten-Year IST Interval, TAC No. M84151, Section 3.0
RP-4 Service Water Pumps	DBNPS 2nd Ten-Year IST Interval, NRC SER, TAC No. M76025, Section 2.2.3; Beaver Valley Unit 2 NRC SER TAC No. M98909, Section 6.0
RV-1 Containment Vacuum Relief Check Valves	Perry Unit 1 2nd Ten-Year IST Interval NRC SER, August 9, 1999, TAC No. MA3328, Section 3.7; Sequoyah, Units 1 and 2 NRC SER, TAC Nos. MB1502 and MB1503, Section 2.1
RV-2 SW Header to CCW Isolation Valves	Proposed Rule 10 CFR 50.55a, Industry Codes and Standards, RIN 3150-AG61, Aug. 3, 2001, Federal Register, (Vol. 66, No. 150, 40640)

Davis-Besse Nuclear Power Station, Unit 1
Third Ten-Year Interval
Inservice Testing Program

(105 Pages, with 35 Drawings, Follow)

FirstEnergy Nuclear Operating Company

Davis-Besse Nuclear Power Station

Third Ten Year Interval

Inservice Testing Program Plan

REVIEW/APPROVAL

PREPARED BY: _____ DATE: 12/7/01

REVIEWED BY: _____ DATE: 12/11/01

APPROVED BY: _____ DATE: 12/11/01
Supervisor, Test/Performance Engineering

APPROVED BY: _____ DATE: 12/11/01
Manager, Plant Engineering

REVIEWED BY: Thomas G Lepp ANII DATE: 12/13/01
Authorized Nuclear Inservice Inspector

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1.0 INTRODUCTION

1.1 General

This document describes the Davis-Besse Nuclear Power Station (DBNPS) Inservice Testing (IST) Program for pumps and valves for the third ten year interval. The IST Program has been prepared to comply with the requirements of 10 CFR 50.55a(f), Inservice testing requirements and the ASME OM Code-1995 Edition, 1996 addenda.

DBNPS has received NRC approval to extend the 2nd 120-month interval and defer the start of the 3rd 120-month interval to February 1, 2002 (TAC NO. M7958). On September 11, 2000 a request for an alternative pursuant to 10 CFR 50.55a(a)(3)(i) was submitted to the NRC (Serial Number 2668) to implement a Risk-Informed Inservice Testing Program for Air Operated Valves (AOV). Currently, this request is not approved, subsequently all components meeting the scoping criteria for inclusion in the IST Program will meet the requirements of the ASME OM Code-1995 Edition, 1996 addenda.

1.2 Background

The Construction Permit for Davis-Besse Nuclear Power Station (DBNPS) was issued on March 24, 1971 therefore 10 CFR 50.55a(f)(2) applies for design and accessibility.

DBNPS is currently in the 3rd 120-month interval, which began on September 12, 2000. Full implementation of the new plan will begin on February 1, 2002. The 3rd Ten-Year Interval will end on September 12, 2010.

1.3 IST Program Scope

Pursuant to 10 CFR 50.55a(f)(4) pumps and valves which are classified as ASME Code Class 1, Class 2 and Class 3 must meet the inservice testing requirements set forth in the ASME OM Code and addenda to the extent practical within the limitations of design, geometry and materials of construction of the components.

ISTA 1.4, Owners Responsibility, states that the Owner shall determine the appropriate Code Class for each component of the power plant using the classification criteria specified in 10 CFR 50.55a. DBNPS defines 'ASME Class 1, 2, or 3' components as those components that are within the ASME XI Inservice Inspection Program boundaries for Class 1, 2, or 3, or IWE as shown on the Inservice Inspection Drawings (ISID). These classifications were developed using, Regulatory Guide 1.26, 1976 and NUREG-0800 Section 3.2.2 (10 CFR 50.55a, Footnote 9).

Certain components not meeting the DBNPS definition of 'ASME Class 1, 2, or 3' have been added to the IST Program. These components are tested in accordance with the ASME OM Code and have been given a NC (Not Classified) designation in the test tables.

Components classified as Class 1, 2 or 3 that are required to perform a specific safety function in support of any of the following (ISTB 1.1 and ISTC 1.1) are included in the IST Program:

a. Shutting down the reactor to the safe shutdown condition.

b. Maintaining the reactor in the safe shutdown condition.

c. Mitigating the consequences of an accident.

1.4 Safe Shutdown

DBNPS defines the criteria for safe shutdown as that station condition in which the reactor is 1.0 percent sub-critical, and the Reactor Coolant System temperature and pressure are in the normal operating range, as defined in Section 7.4.1 of the DBNPS Updated Safety Analysis Report (USAR). The DBNPS Technical Specifications define this condition as HOT STANDBY (MODE 3). The DBNPS licensing basis, safe shutdown condition, does not require COLD SHUTDOWN (MODE 5). Therefore pumps and valves needed to achieve Cold Shutdown from the Hot Standby condition are not required to be included in the IST Program.

1.5 Mitigating the Consequences of an Accident

DBNPS defines equipment that 'mitigates the consequences of an accident' as equipment whose malfunction could increase offsite dose beyond the licensing limits described in the USAR or the Davis-Besse Safety Evaluation Report (NUREG-0136).

1.6 Exclusions and Exemptions

The following components are excluded and/or exempted from testing under the IST Program.

1. ASME Class 1, 2, or 3 pumps not provided with an emergency power source.

2. ASME Class 1, 2, or 3 pumps provided with an emergency power source solely for operating convenience.

3. Pump drivers except where the pump and driver form an integral unit and the pump bearings are in the driver.

4. Valves that have no specific safety function as defined in Section 1.3, and are used solely for:

   a. Operating convenience (such as manual vent, drain, instrument, or test valves)

   b. System control (such as pressure regulating valves)

   c. Maintenance

5. External control and protection systems responsible for sensing plant conditions and providing signals for valve operation.

6. Skid mounted components tested as part of the major component.

1.7 Augmented Testing Program

The Augmented Testing Program provides for periodic testing of pump and valve functions that are outside the scope of the IST Program. Component functions are included in the Augmented Testing Program based on their importance, commitments, or DBNPS management decision. The Augmented Testing Program is prepared and maintained separately from the IST Program and is not subject to the requirements of 10 CFR 50.55a. It is not intended that all component testing outside the IST program be included in the Augmented Testing Program.

1.8 Program Changes

All IST Program changes will be documented. Changes relating to the following items may be performed without obtaining prior NRC approval.

1. Addition or removal of components from the IST Program or alteration of component testing requirements or testing frequency based upon the Code of Record.

2. Rescinding (temporarily or permanently) NRC approved Relief Requests, provided the requirements of the Code of Record are met.

3. Incorporating guidance contained in Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing Programs.

4. Incorporating guidance contained in NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants, as allowed by Generic Letter 89-04, Supplement 1.

4. Incorporating later editions of the ASME Code, entirely or in part, as allowed by 10 CFR 50.55a.

5. Adoption of approved Code Cases referenced in Regulatory Guide 1.147 and/or 10 CFR 50.55a.

1.9 Code Cases

No Code Cases are adopted as part of this update.

1.10 General Relief Requests

General Relief Request RG-1 eliminates the duties of the Authorized Nuclear Inservice Inspector.

2.0 PUMP TESTING

2.1 General Pump Relief Requests

Pump Relief Request RP-1 asks for alternate ranges for digital test instruments.

2.2 Pump Relief Requests

Pump Relief Request RP-2 asks for permission to use reference delta pressure verses flow curves in-lieu of a fixed reference point test for the Component Cooling Water Pumps.

Pump Relief Request RP-3 asks for alternate testing requirements for the Diesel Fuel Oil Transfer Pumps.

Pump Relief Request RP-4 asks for permission to use reference delta pressure verses flow curves in-lieu of a fixed reference point test for the Service Water Pumps.

3.0 VALVE TESTING

3.1 General Valve Relief Requests

None

3.2 Valve Relief Requests

Valve Relief Request RV-1 asks for a leakage test frequency in accordance with 10 CFR 50 Appendix J Option B for the Containment Vacuum Relief Check Valves.

Valve Relief Request RV-2 asks for a 2-year frequency for exercising the Service Water manual valves.

3.3 Cold Shutdown Justifications

There are 48 Cold Shutdown Justifications allowed by ISTC 4.2.2(c) and 4.5.2(b), Exercising Requirements.

3.4 Refueling Justifications

There are 8 Refueling Justifications allowed by ISTC 4.2.2(d) and 4.5.2(c), Exercising Requirements.

3.5 Sample Disassembly Justifications

There are 2 Sample Disassembly Justifications allowed by ISTC 4.5.4(c), Valve Obturator Movement.

4.0 TEST TABLE LEGENDS AND DEFINITIONS

4.1 Systems:

11	Service Water
16	Component Cooling Water
18	Station Air/ Instrument Air
20	Station Drainage
24	Diesel Air
37	Demineralized Water
38	Sampling
45	Feedwater
49	Borated Water Storage/Decay Heat
50	Auxiliary Feedwater
51	Core Flood
52	High Pressure Injection
60	Containment Ventilation
61	Containment Spray
64	Reactor Coolant System
65	Makeup System
74	Nitrogen System
83	Main Steam System

4.2 Pump Type:

CHP	Centrifugal, Horizontally Mounted Pump
CVL	Centrifugal, Vertical Line Shaft Pump

4.3 Parameter:

NM	Not Measurable, See the Relief Request
NV	Not a Variable Speed Drive

4.4 Code Classification:

1	Components classified by DBNPS as Class 1
2	Components classified by DBNPS as Class 2 or IWE
3	Components classified by DBNPS as Class 3
NC	Components Not Classified by DBNPS as 1, 2, or 3 but are tested in accordance with the ASME OM CODE.

4.5 Valve Categories:

A	Valves (other than self actuated) which require a seat leakage measurement
B	Valves (other than self actuated) which do not require a seat leakage measurement
C	Valves that are self-actuated
AC	Category C valve which also requires a seat leakage measurement
BC	A special classification for power operated stop check valves which do not require a seat leakage measurement

4.6 Valve Function:

At	Active
P	Passive

4.7 Valve Types:

AN	Angle Valve
BF	Butterfly Valve
BL	Ball Valve
BS	Balanced Stop Valve
CK	Check Valve
DA	Diaphragm Valve
GL	Globe Valve
GT	Gate Valve
RL	Safety/Relief Valve

(Continued)

4.7 Valve Types: (Continued)

SC	Stop Check Valve
SV	Solenoid Valve
TW	Three Way Valve
VR	Vacuum Relief Check Valve

4.8 Actuator Types:

AO	Air Operated
MA	Manually Operated
MO	Motor Operated
SA	Self Actuated
SO	Solenoid Operated

4.9 Valve Positions:

AI	As-is
C	Closed
E	Valves whose normal position may be either open or closed, depending on plant configuration.
LC	Locked closed
LO	Locked open
N	No Fail Position
O	Open
O/C	Valves that have safety functions in both the open and closed position.
T	Throttled

4.10 Justifications:

CS	Cold Shutdown Justification
RJ	Refueling Justification
SDJ	Sample Disassembly Justification

4.11 Relief Requests:

RG	General Relief Request
RP	Pump Relief Request
RV	Valve Relief Request

4.12 Valve Test Codes:

EX	Manual exercise test open and closed
FO	Open fail-safe test
FC	Close fail-safe test
FF	Full forward flow test
LJ	Leak test per Appendix J
LK	Leak test (for reasons other than Appendix J)
TO	Stroke time open
TC	Stroke time closed
PF	Partial forward flow
PV	Valve position verification
RF	Reverse flow closure test
SC	Stroke closed, timing not required
SD	Sample disassembly
SO	Stroke open, timing not required
SR	Safety relief valve tests
WT	Weight Test

4.13 Test Frequencies:

10Y	Every ten years (also in accordance with group sampling requirements for safety/relief valves)
2Y	Every two years (or once per cycle)
5Y	Every five years (also in accordance with group sampling requirements for safety/relief valves)
B	As required by 10 CFR 50, Appendix J, Option B

(Continued)

4.13 Test Frequencies: (Continued)

C	Cold shutdown
Q	Quarterly
R	Every refueling outage
RE	Every even numbered refueling outage
RO	Every odd numbered refueling outage
Q/2Y	Quarterly to support Group A or B pump tests and every 2 years for comprehensive pump testing
SI	Testing in one direction is performed during shutdown and testing in the other direction is performed at the same interval.

4.14 Miscellaneous:

AC	Alternating Current
AFP	Auxiliary Feedwater Pump
AFPT	Auxiliary Feedwater Pump Turbine
AFW	Auxiliary Feedwater
ALARA	As Low As Reasonably Achievable
BWST	Borated Water Storage Tank
CCW	Component Cooling Water
CFT	Core Flood Tank
CIV	Containment Isolation Valve
CRDC	Control Rod Drive Cooling
CS	Containment Spray
CST	Condensate Storage Tank
CTMT	Containment
D/P	Differential Pressure
DBNPS	Davis-Besse Nuclear Power Station
DC	Direct Current
DH	Decay Heat
DW	Demineralized Water

(Continued)

4.14 Miscellaneous Acronyms: (Continued)

ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
FW	Feedwater
H2	Hydrogen
HPI	High Pressure Injection
HVAC	Heating Ventilation and Air Conditioning
HX	Heat Exchanger
IA	Instrument Air
ISID	Inservice Inspection Drawings Showing the Owner Specified Code Classifications (Class 1, 2, 3 or IWE) Piping and Components
LOCA	Loss of Coolant Accident
LPI	Low Pressure Injection
MDFP	Motor Driven Feedwater Pump
MS	Main Steam
MU	Makeup
NA	Not Applicable
OTSG	Once Through Steam Generator
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RPS	Reactor Protection System
SA	Station Air
SFAS	Safety Features Actuation System
TRN	Train

5.0 REFERENCES

Title 10 Code of Federal Regulations, Energy, March 26, 2001

Proposed Rule 10 CFR 50.55a, Industry Codes and Standards, RIN 3150-AG61, Aug. 3, 2001, Federal Register, (Vol. 66, No. 150, 40640)

Regulatory Guide 1.26, Quality Group Classifications And Standards For Water-, Steam-, And Radioactive-Waste-Containing Components Of Nuclear Power Plants, February, 1976

Regulatory Guide 1.163, Performance-Based Containment Leak-Test Program

NUREG-0800, Standard Review Plan, Section 3.2.2, System Quality Group Classification,

Generic Letter 89-04, Guidance On Developing Acceptable Inservice Testing Programs, April 3,1989

Generic Letter 89-04, Supplement 1: Guidance On Developing Acceptable Inservice Testing Programs, April 4,1995

NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants, April 1995

Summary of Public Workshop Held in NRC Regions On Inspection Procedure 73756, "Inservice Testing of Pumps and Valves," And Answers to Panel Questions on Inservice Testing Issues, July 18, 1997

TAC NO. MA7958, Authorization of an Alternative to 10 CFR 50.55a(f)(4)(ii) Regarding Schedule for Submitting an Inservice Testing Program Plan Update – Davis-Besse Nuclear Power Station, February 10, 2000

TAC NO. MB0520, Request for Additional Information (RAI) Regarding Relief Request to Implement a Risk Informed Inservice Testing Program for Air-Operated Valves at Davis-Besse Nuclear Power Station, June 4, 2001

TAC NO. M76025, Second 10-Year IST Program at DBNPS, December 2, 1991

TAC NO. M89034, Relief from Certain ASME Code Requirements for Inservice Testing for Davis-Besse Unit 1 Nuclear Power Station, October 7, 1994

TAC NO. M84151, Davis-Besse Inservice Testing of Pumps and Valves, April, 23, 1993

TAC NO. M98909, Safety Evaluation of Relief Requests for Second 10-Year Interval for Pumps and Valves Inservice Testing (IST) Program – Beaver Valley Power Station, Unit No. 2, November 18, 1997

TAC NO. MA8532, Safety Evaluation of Relief Requests for Second 10-Year Interval Inservice Testing Program Plan, Seabrook Station, Unit No. 1, November 1, 2000

TAC NO. MB1502 and MB1503, Sequoyah Nuclear Plant, Units 1 and 2 – Approval of Inservice Testing Relief Request, May 22, 2001

(Continued)

5.0 REFERENCES (Continued)

TAC NO. MA3328, Safety Evaluation of the Inservice Testing (IST) Program Relief Requests for Second 10-Year Interval – Perry Nuclear Power Plant, Unit 1, March 31, 1999 and August 9, 1999.

ASME OM CODE-1995 Edition, 1996 Addenda

Davis-Besse Nuclear Power Station Technical Specifications

Davis-Besse Nuclear Power Station Updated Safety Analysis Report

Inservice Inspection Boundary Diagrams, ISID2-001 through ISID2-046 (35 Drawings)

6.0 GENERAL RELIEF REQUEST

General Relief Request

RG-1

Code Requirement: ASME OM Code-1995 Edition, 1996 Addenda, ISTA 1.4(f), Possession of an arrangement with an Authorized Inspection Agency, ISTA 1.5, Accessibility of the Inspector and ISTA 2.1, Inspection.

Basis for Relief: In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

In the ASME OMb Code-1997 Addenda to the ASME OM Code-1995 Edition for Operation and Maintenance of Nuclear Power Plants, ISTA 1.4, Owner's Responsibility was rewritten deleting the requirement for possession of an arrangement with an Authorized Inspection Agency. ISTA 1.5 was written to eliminate reference to access provisions for the Inspector, but the requirements for access provisions for examination personnel and equipment remain. ISTA 2.1, which detailed specific requirements for access for the Inspector, qualification of the Authorized Inspection Agencies, Inspectors and Supervisors and the duties of the Inspector, has been deleted in its entirety. The above is also true for ASME OM Code-1998 Edition, through the 2000 addenda.

On August 3, 2001 the NRC published in the Federal Register the proposed rule change for 10 CFR 50.55a, RIN 3150-AF61. The proposed revision to 10 CFR 50.55a endorses ASME OMb Code-1997 Addenda, ASME OM Code-1998 Edition, through the 2000 addenda without exception, as it pertains to the deletion of the activities to the ANII.

ANSI Part N626.1 describes the qualifications and duties for ANIIs, which are applicable to Section Xl. This part specifically addresses the duties to verify nondestructive tests, welding, heat treatment, and repairs and replacements; but is silent on the responsibilities concerning IST. Furthermore, ANII review of inservice testing programs is far less comprehensive than the reviews performed on inservice inspection activities.

The ANII inspection of inservice test programs consists of a review of the inservice test plan and a records review of tests performed. FENOC Quality Assurance Program also performs these inspections and oversight functions. These inspection activities are being duplicated by the two separate organizations. There is no added safety or quality-related benefit in this duplication.

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General Relief Request

RG-1

(Continued)

Alternative: Specific requirements for Access for the Inspector, Qualification of the Authorized Inspection Agencies, Inspectors and the Duties of the Inspector (ANII) will not be addressed in the Inservice Testing Program. FENOC's Quality Assurance Program processes provide an equivalent, or greater, level of quality and safety.

Note: This Relief Request was previously approved for the Safety Evaluation of Relief Requests For The Second 10-Year Interval Inservice Test Program Plan, Seabrook Station, Unit No. 1 (TAC NO. MA8532).

7.0 PUMP RELIEF REQUESTS

Pump Relief Request

RP-1

Applicability: Class 2 and 3 Pumps

Code Requirement: ISTB 4.7.1(b)(2) – Digital instruments shall be selected such that the reference value shall not exceed 70% of the calibrated range of the instrument.

Basis for Relief: In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

Plant process computer points are used for instrumentation in inservice testing of pumps. The computer points are used in lieu of the associated analog indicators in order to meet ASME Code instrument accuracy requirements. In addition to using computer points, temporary digital instruments (M&TE) are also used in pump testing. In many cases the reference values exceed 70% of the computer point or temporary digital instrument range. The basis for the 70% originated from ASME Section Xl (IWA 5264), which provided requirements for pressure testing instrumentation ranges and to ensure readings in the required action range would be on scale. Since the computer points use permanent plant instrumentation as input, the ranges, by design, are selected to account for all expected operating and testing conditions. Surveillance tests are written such that the temporary instrumentation (digital or analog) is not over-ranged. In addition, digital instrumentation is significantly less susceptible to damage from over ranging and the accuracy of a digital instrument is precise throughout its full-calibrated range.

Tables ISTB 5.2.1-2 and 5.2.2-1,which list the acceptance criteria for quarterly testing, state that the maximum acceptable value of the measured parameter is 110% of the reference value. Table ISTB 5.2.3-1, which list the acceptance criteria for comprehensive testing, states that the maximum acceptable value of the measured parameter is 103% of the reference value.

Alternative: Digital instruments used to verify the required action levels of Tables ISTB 5.2.1-2, and 5.2.2-1 will be selected such that the reference value shall not exceed 90% of the calibrated range.

Digital instruments used to verify the required action levels of Tables ISTB 5.2.3-1 will be selected such that the reference value shall not exceed 97% of the calibrated range.

These proposed alternatives will provide an acceptable level of quality and safety.

Note: A similar Relief Request was previously approved in the Safety Evaluation of the Inservice Testing (IST) Program Relief Requests for the Second Ten-Year Interval – Perry Nuclear Plant, Unit 1 (TAC No. MA3328, March 31, 1999, Section 3.2.)

Pump Relief Request

RP-2

System: Component Cooling Water

Pumps: P43-1, P43-2 & P43-3, Component Cooling Water Pumps, Class 3, Group A

Safety Function: Provides cooling water to transfer heat from safety-related equipment to the Service Water System.

Code Requirements: ISTB 5.2.1(b) – For centrifugal and vertical line shaft pump, the resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to the reference value.

ISTB 5.2.1(d) – Vibration (displacement or velocity) shall be determined and compared with the reference value.

ISTB 5.2.1(e) – All deviations from the reference values shall be compared with the ranges of tables ISTB 5.2.1-1 and 5.2.1-2.

Basis for Relief: In accordance with 10 CFR 50.55a(f)(6)(i), relief is requested on the basis that the compliance with the Code requirements is impractical and that the proposed alternatives will provide reasonable assurance the components are operationally ready.

The CCW system was not designed with installed pump test lines. To achieve the same operating point for each test manual butterfly valves, which are not designed to throttle flow, would be used. In addition repeatability using these valves to throttle is poor. Depending on plant operating and climatic conditions, the cooling requirements range from minimum cooling loads (≈3000 GPM) to 100 percent (≈8000 GPM). System operating conditions do not allow adjusting system resistance without significant impact on the plant's thermal stability.

A fixed flow rate through the pump aligned to the essential and non-essential loads cannot be accomplished because system resistances are continuously varying and flows to parallel loads are dependent on each other. Spent Fuel Cooling and Boric Acid Evaporators have temperature control valves, which vary demand on the CCW system according to heat load. Component cooling water flow to the Reactor Coolant Pump coolers varies dependent on the throttle valve positions on the supply lines for the four pumps. Component cooling water flow to the Control Rod Drives pass through filters whose flow will change dependent on filter loading.

(Continued)

Pump Relief Request

RP-2

Basis for Relief: (Continued)

ISTB 4.5, "Establishment of Additional Set of Reference Values", provides for multiple sets of reference values. A pump curve is merely a graphical representation of the fixed response of the pump to an infinite number of flow conditions, which are based on some finite number of reference values verified by measurement.

Based on the lack of designed throttling capability, damage to the plant's equipment or a plant transient/trip could occur if the resistance of the system is varied to achieve a single reference point for testing, it is impractical to perform testing in accordance with the Code requirements.

Alternate Testing: Pump reference curves (developed per the guidelines in NUREG-1482, Section 5.2, "Use of Variable Reference Values for Flow Rate and Differential Pressure During Pump Testing") will be used to compare flow rate with developed pump head at the flow conditions dictated by Component Cooling Water System loads each quarter. Baseline vibration data obtained at various flow points on the pump curve will be used to develop a vibration verses flow curve.

All deviations from the reference curves shall be compared with the ranges of tables ISTB 5.2.1-1 and 5.2.1-2.

This proposed alternative testing will provide reasonable assurance that the Component Cooling Water Pumps are operationally ready.

Note: This Relief Request was previously approved for the Second Ten Year Inservice Test Program (TAC NO. M89034 Section 3.2) and Safety Evaluation of Relief Requests For The Second 10-Year Interval Inservice Test Program Plan, Beaver Valley Power Station Unit 2 (TAC NO. M98909 Section 6.0)

Pump Relief Request

RP-3

System: Diesel Fuel Oil Transfer

Pumps: P195-1 & P195-2, EDG Fuel Oil Transfer Pumps, Class 3, Group A

Safety Function: Transfer diesel fuel oil from the Emergency Diesel Generator (EDG) Fuel Oil Storage Tanks to the EDG Day Tanks.

Code Requirement: ISTB 5.2.1(b) – For centrifugal and vertical line shaft pump, the resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to the reference value.

ISTB 5.2.1(d) – Vibration (displacement or velocity) shall be determined and compared to the reference value.

Table ISTB 5.2.1-2 – Group A Test Hydraulic Acceptance Criteria

Basis for Relief: In accordance with 10 CFR 50.55a(f)(6)(i), relief is requested on the basis that the compliance with the Code requirements is impractical and that the proposed alternatives will provide reasonable assurance the components are operationally ready.

10 CFR 50.55a(f)(2) requires that Class 1 and 2 components be designed and be provided with access to enable testing if the construction permit was issue between January 1, 1971 and July 1, 1974. The EDG Fuel Oil Transfer System is Class 3, therefore are not designed to permit performance of Code inservice testing. These are canned rotor pumps, submerged inside the underground EDG Fuel Oil Storage Tank. There are no installed flow instrumentation, pressure instrumentation, valve test connections, or recirculation line.

Typically at other plants, the diesel generator fuel oil system for each diesel generator is safety related (i.e. seismic, Q) and consists of a large storage tank with a capacity sufficient for seven days of diesel generator operation, a fuel oil transfer system, and a day tank local to the diesel generator with a capacity on the order of four hours of diesel generator operation. In contrast, the original DBNPS fuel oil system consisted of a single large non-safety related above ground storage tank serving both diesel generators with seven days capacity, and a large safety related day tank for each diesel generator each with capacity for approximately 20 hours of diesel generator operation. The day tanks were each provided with safety related fill connections to accommodate refilling the day tanks within 20 hours following an event if refill from the normal storage tank was unavailable.

(Continued)

Pump Relief Request

RP-3

Basis for Relief: (Continued)

This design was modified to its current configuration at the request of the NRC during plant licensing. The current configuration consists of a safety related seven-day capacity underground storage tank for each diesel generator. Each of the seven-day underground storage tanks has an internally mounted submerged EDG Fuel Oil Transfer Pump normally supplying the corresponding 20-hour capacity day tank. The large 20-hour capacity day tanks and the safety related fill connections and the non-safety related above ground storage tank has been retained from the original design. Because of the large capacity of the day tanks, and the three diverse methods of replenishing the day tanks during diesel generator operation, the DBNPS diesel fuel oil transfer pumps are of lower safety significance than in typical fuel oil transfer systems with relatively small day tanks.

The EDG Fuel Oil Transfer Pumps are low flow, rated at 10 gpm. They automatically start on low EDG Day Tank level of seven feet, approximately 5050 gallons, then automatically shut off at seven and one-half feet; this corresponds to approximately 250 gallons pumped. This safety feature maintains a minimum level as required per Technical Specification 3.8.1. An EDG Fuel Oil Storage Tank has a capacity of approximately 40,000 gallons. The EDG Day Tanks have a capacity of 6000 gallons.

EDG fuel design flow is ≈ 4.5 gpm; therefore each day tank can last approximately 22 hours. This time period is sufficient to allow offsite fuel oil delivery directly into the day tanks.

The only possible flow measurement is by measuring EDG Day Tank volume change over time. Error in measuring this volume is dependent on fuel oil temperature and a limited change in level indication because the EDG Day Tank has a large upper circular section. Flow rate is dependent upon EDG Fuel Oil Storage Tank level and fuel oil viscosity, which varies with environmental temperature conditions.

It is estimated that modification of the fuel oil transfer system to accommodate Code flow, differential pressure and vibration measurements would cost approximately $500,000. This modification would involve replacement of the existing pumps and their relocation external to the tanks, installation of flow test loops and installation of flow and pressure instrumentation. DBNPS considers an expenditure of this magnitude unwarranted considering the reduced safety significance of the DBNPS fuel oil transfer system as compared to typical designs.

(Continued)

Pump Relief Request

RP-3

Basis for Relief: (Continued)

It is impractical to take vibration measurements on these pumps. The pumps and motors are located inside the EDG fuel oil storage tank, are not accessible during operation, and are submersed in the fuel oil being pumped.

To date no maintenance has been required for these pumps. The pumps have successfully started and delivered fuel oil upon demand. The latest flow test indicates pump design flow rates are being met.

To perform the Code testing would require extensive plant modifications. Performance of Code testing requirements without major modification to plant structure is impractical.

Alternate Testing: No vibration monitoring will be performed.

Pump flow functional testing is performed each month as required per Technical Specification 4.8.1.1.2. The pumps are observed to automatically start with a corresponding increase level in the EDG Day Tank.

Pump flow rate tests are performed each cycle. A predetermined oil level above the transfer pump will be set prior to testing. The flow rate is obtained by measuring a change in EDG Day Tank level over time. A EDG Day Tank level change of approximately 150 gallons or more shall be timed to determine flow rate.

Flow rate will be calculated from the known increase in EDG Day Tank level. Pump suction pressure shall be preset by fuel oil level adjustment. Pump discharge is consistent since there are no throttle valves. Based upon these conditions pump flow rates should be repeatable and capable of predicting pump degradation.

A low required action range of less than 6 gpm will be used in lieu Table ISTB 5.2.1-2. This range will ensure EDG transfer pumps do not degrade below required design system flow requirements. Pump flow rates will be trended for degradation.

No alert levels will be specified hence required action will be performed if pump flow rate is determined to be outside the acceptable range.

(Continued)

Pump Relief Request

RP-3

Alternate Testing: (Continued)

Periodically, the EDG Fuel Oil Storage Tanks are drained, cleaned, and filled with fresh oil. The EDG Day Tanks are also drained, cleaned and inspected. At these times a long term pump duration test is possible. The transfer pump will be required to consecutively pump 1000 gallons of fuel from the Emergency Diesel Generator Fuel Oil Storage Tank to the EDG Day Tank. Flow rate will be measured and evaluated for degradation.

These proposed alternative tests will provide reasonable assurance that the EDG Fuel Oil Transfer Pumps are operationally ready.

Note: This Relief Request was previously approved for the Second Ten Year Inservice Test Program (TAC NO. M84151 Section 3.0)

Pump Relief Request

RP-4

System: Service Water

Pumps: P3-1, P3-2 & P3-3, Service Water Pumps, ASME Class 3, Group A

Safety Function: These pumps provide cooling water from the Ultimate Heat Sink to safety-related equipment.

Code Requirement: ISTB 5.2.1(b) – For centrifugal and vertical line shaft pumps, the resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to the reference value.

ISTB 5.2.1(d) – Vibration (displacement or velocity) shall be determined and compared with the reference value.

Basis for Relief: In accordance with 10 CFR 50.55a(f)(6)(i), relief is requested on the basis that the compliance with the Code requirements is impractical and that the proposed alternatives will provide reasonable assurance the components are operationally ready.

The Service Water System is in continuous operation during all modes of plant operation whose flow varies with the temperature requirement of the various safety and non-safety related loads. The system was not designed with installed pump test lines. System operating conditions do not allow adjusting system resistance without significant impact on the plants thermal stability. Depending on plant operating and climatic conditions, the cooling requirements range from minimum cooling loads (≈6000 GPM) to 100 percent (≈10000 GPM) with many of the loads automatically placed in operation in response to local temperature requirements. Operating experience has shown that plant conditions due to heat loads requiring cooling by the Service Water System preclude setting the Service Water Pumps to the exact flow rate for a specific reference value.

ISTB 4.5, "Establishment of Additional Set of Reference Values", provides for multiple sets of reference values. A pump curve is merely a graphical representation of the fixed response of the pump to an infinite number of flow conditions, which are based on some finite number of reference values verified by measurement.

(Continued)

Pump Relief Request

RP-4

(Continued)

Alternate Testing:

Pump reference curves (developed per the guidelines in NUREG-1482, Section 5.2, "Use of Variable Reference Values for Flow Rate and Differential Pressure During Pump Testing") will be used to compare flow rate with developed pump head at the flow conditions dictated by Service Water System loads each quarter. Baseline vibration data obtained at various flow points on the pump curve will be used to develop a vibration verse flow curve.

All deviations from the reference curves shall be compared with the ranges of tables ISTB 5.2.1-1 and 5.2.1-2.

These proposed alternative tests will provide reasonable assurance that the Service Water Pumps are operationally ready.

Note:

This Relief Request was previously approved for the Second Ten Year Inservice Test Program (TAC NO. M76025 Section 2.2.3) and Safety Evaluation of Relief Requests For The Second 10-Year Interval Inservice Test Program Plan, Beaver Valley Power Station Unit 2 (TAC NO. M98909 Section 6.0)

8.0 VALVE RELIEF REQUESTS

Valve Relief Request

RV-1

System: Containment Ventilation

Valve(s): CV5080, CV5081, CV5082, CV5083, CV5084, CV5085, CV5086, CV5087, CV5088, & CV5089, Containment Vacuum Relief Check Valves, Class 2, Category AC

Safety Function: These valves must open to prevent the Containment Vessel from exceeding its external design pressure (0.5 psid between the Containment Vessel and the Annulus). These valves must close for containment isolation.

Code Requirement: ASME OM Code-1995, 1996 Addenda, Appendix I, I 1.3.7(b) – Leak tests shall be performed on all Class 2 and 3 containment vacuum relief valves at each refueling or every 2 years, whichever is sooner, unless historical data requires more frequent testing.

Basis for Relief: In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative would provide an acceptable level of quality and safety.

These Vacuum Relief Check Valves are functionally tested every refueling outage in accordance with Appendix I, I 1.3.7(a) and I 7.3.8(a). This testing ensures that the Vacuum Relief Check Valves prevent the Containment Vessel from exceeding its external design pressure.

In addition to their primary function of protecting the Containment from an under-pressure condition these valves also serve as primary containment isolation valves and are required to be tested for leakage on a periodic basis. 10 CFR 50 Appendix J, which sets forth the rules and conditions for containment leakage rate testing, has a section designated Option B-Performance Based Requirements. This section permits leakage rate testing to be performed at intervals of up to 5 years, based on the valve's performance history. Option B eliminated the prescriptive requirements that were deemed marginal to safety, and allowed a components past performance to be the determining factor for the testing interval.

ASME OM Code-1998, 1999 Addenda, Appendix I, Section I-1380 [formerly I 1.3.7], Test Frequency, Class 2 and 3 Primary Containment Vacuum Relief Valves, was modified to accept 10 CFR 50 Appendix J for leak testing requirements.

(Continued)

Valve Relief Request

RV-1

Basis for Relief: (Continued)

On August 3, 2001 the NRC published in the Federal Register (Vol. 66 No. 150) the proposed rule change for 10 CFR 50.55a, RIN 3150-AF61. The proposed revision to 10 CFR 50.55a endorses these revisions to the ASME OM Code, without exception, as it pertains to relief valve leak testing.

Alternate Testing: The leakage rate testing of the Containment Vacuum Relief Check Valves will be performed in accordance with the requirements of 10 CFR 50 Appendix J, Option B (Performance-Based Requirements).

This proposed alternative testing will provide an acceptable level of quality and safety.

Note: This Relief Request was previously approved for Perry Nuclear Power Plant Second Ten Year Inservice Test Program (TAC NO. MA3328 Section 3.7) and Safety Evaluation of Relief Requests For The Inservice Test Program, Sequoyah Nuclear Plant Units 1 and 2 (TAC NO. MB1502 and MB1503, Section 2.1)

Valve Relief Request

RV-2

System: Service Water

Valve(s): SW232, SW233, SW234 & SW236, SW Header to CCW Isolation Valves, Class 3, Category B

Safety Function: These valves must be capable of being manually opened to provide a safety grade backup makeup water source to the CCW Surge Tank in the event that the normal non-safety grade makeup water source is unavailable.

Code Requirement: ISTC 4.2.1, Exercising Test frequency. Active Category A and B valve shall be tested nominally every 3 months.

Basis for Relief: In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative would provide an acceptable level of quality and safety.

The affected manual valves are 1" globe valves that are normally closed and not normally operated during plant operation. These valves are only required if the normal non-safety related makeup source becomes unavailable and the seismically qualified Component Cooling Water System has lost inventory needing makeup, during a Seismic Event.

The predominant degradation and failure mechanisms (motor failures, electrical failures, switch settings, etc.) associated with power operated valves do not exist for manual valves. These valves have been tested every two years since November 1994 and every quarter since December 2000 with no failures or observable degradation.

These valves are located in a non-harsh environment. Testing has demonstrated that a 2-year exercising frequency is adequate to ensure the safety-related function of these valves has not degraded.

The 1999 addenda to 1998 Edition of the ASME OM Code, added ISTC-3540, Manual Valves, to the Code allowing a 5 year frequency for exercising manual valves located in a non-harsh environment.

On August 3, 2001 the NRC published in the Federal Register (Vol. 66, No. 150, 40640) the proposed rule change for 10 CFR 50.55a, RIN 3150-AF61. In this proposed rule change the NRC took exception to ISTC-3540 and required a 2-year exercising frequency for manual valves in 10 CFR 50.55a(b)(3)(vi).

Alternate Testing: SW232, SW233, SW234 and SW236 will be exercised every 2 years.

This proposed alternative testing will provide an acceptable level of quality and safety.

9.0 COLD SHUTDOWN JUSTIFICATIONS

Cold Shutdown Justification

CS-1

System:	Auxiliary Feedwater
Valve(s):	AF1 & AF2, Auxiliary Feedwater Pumps1 & 2 Suction Line Check Valves
Safety Function:	Prevents reverse flow to the Condensate Storage Tank from the safety related Auxiliary Feedwater Pump suction supply source.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	The valve lineup to perform reverse flow testing, isolates one Auxiliary Feedwater Pump and the Condensate Storage Tanks suction source to both Auxiliary Feedwater Pumps. Service Water would be the only suction source to the remaining Auxiliary Feedwater Train. If the remaining Auxiliary Feedwater Pump were needed to feed the steam generators, Service Water (which is raw, untreated lake water) would be injected into the Steam Generators. This would cause chemical contamination of the steam generators, which could result in tube degradation, tube leakage, and reduced life expectancy of the Steam Generators. Service water provides an emergency safety related water supply to the Auxiliary Feedwater Pumps, to protect against a seismic event, which could result in the loss of the non-seismic normal water supply from the Condensate Storage Tanks.
Alternate Testing:	AF1 and AF2 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-2

System:	Auxiliary Feedwater
Valve(s):	AF15 & AF16, Auxiliary Feedwater Pump 1 & 2 Minimum Flow Check Valve
Safety Function:	These valves must open to pass forward flow to provide minimum flow protection for the Auxiliary Feedwater Pumps These valves must close to prevent over pressurization of the idle Auxiliary Feedwater Pump seals, suction piping, and bearing and governor cooling water piping.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	The valve lineup to perform reverse flow testing, isolates both Auxiliary Feedwater Pump's minimum recirculation lines rendering both Auxiliary Feedwater Trains inoperable. This would place the plant in Tech. Spec. 3.0.3 and require entry into a one-hour action statement.
Alternate Testing:	AF15 and AF16 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-3

System:	Auxiliary Feedwater
Valve(s):	AF39 & AF43, Auxiliary Feedwater to Steam Generators 1 & 2 Supply Check Valves
Safety Function:	Forward flow to the Steam Generators is required to ensure adequate decay heat removal capability exists. Reverse flow closure is required to prevent steam binding of the Auxiliary Feedwater Pumps, and over-pressurization of the pump seals, suction piping, and bearing/governor cooling piping.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	Forward flow through these check valves to the Auxiliary Feedwater nozzles, spray water directly onto the tubes at the upper end of the Steam Generators. Injecting this relatively cold water during plant operation causes severe thermal stresses, which could damage the Steam Generators and may also lead to moisture carry-over in the steam, which could damage the main turbine. In addition, the auxiliary feedwater flow to the steam generators will cause an unacceptable plant transient.
Alternate Testing:	AF39 and AF43 will be forward flow tested during cold shutdown and reverse flow closure tested at the same interval.

Cold Shutdown Justification

CS-4

System:	Auxiliary Feedwater
Valve(s):	AF49 & AF52, MDFP to Auxiliary Feedwater Line 1 & 2 Discharge Check Valves.
Safety Function:	AF49 and AF52, must prevent reverse flow to ensure auxiliary feedwater is directed to the Steam Generators, and does not back flow into the Motor Driven Feedwater System.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	The valve lineup to reverse flow test these check valves results in the inability to feed a Steam Generator from either Auxiliary Feedwater Pump and/or the Motor Driven Feedwater Pump. This lineup requires the closing of AF599 or AF608 which renders both trains of Auxiliary Feedwater and the Motor Driven Feedwater Pump System inoperable requiring plant shutdown within 6 hours in accordance with Technical Specification 3.7.1.2c.
Alternate Testing:	AF49 and AF52 will be reverse flow tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-5

System: Auxiliary Feedwater

Valve(s): AF72 & AF73, Auxiliary Feedwater Pump 1 to Steam Generator 1 & 2 Supply Check Valves

Safety Function: AF72 and AF73 must open to allow a forward flow to the Steam Generators to ensure adequate decay heat removal capability exists.

These valves also must close to prevent reverse flow to the opposite auxiliary feedwater train, if its associated Auxiliary Feedwater Pump is not operating or if insufficient discharge pressure exists.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: The valve lineup to reverse flow test any of these check valves results in the inability to feed a Steam Generator from either Auxiliary Feedwater Pump and/or the Motor Driven Feedwater Pump. This lineup requires the closing of AF599 or AF608 which renders both trains of Auxiliary Feedwater and the Motor Driven Feedwater Pump System inoperable requiring plant shutdown within 6 hours in accordance with Technical Specification 3.7.1.2c.

Forward flow through these check valves to the Auxiliary Feedwater nozzles, spray water directly onto the tubes at the upper end of the Steam Generators. Injecting this relatively cold water during plant operation causes severe thermal stresses, which could damage the Steam Generators and may also lead to moisture carry-over in the steam, which could damage the main turbine. In addition, the auxiliary feedwater flow to the steam generators will cause an unacceptable plant transient.

Alternate Testing: AF72 and AF73 will be forward flow and reverse flow closure tested during cold shutdown.

Cold Shutdown Justification

CS-6

System: Auxiliary Feedwater

Valve(s): AF74 & AF75, Auxiliary Feedwater Pump 2 to Steam Generator 1 & 2 Supply Check Valves

Safety Function: AF74 and AF75 must open to allow a forward flow to the Steam Generators to ensure adequate decay heat removal capability exists.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: The valve lineup to reverse flow test any of these check valves results in the inability to feed a Steam Generator from either Auxiliary Feedwater Pump and/or the Motor Driven Feedwater Pump. This lineup requires the closing of AF599 or AF608 which renders both trains of Auxiliary Feedwater and the Motor Driven Feedwater Pump System inoperable requiring plant shutdown within 6 hours in accordance with Technical Specification 3.7.1.2c.

Forward flow through these check valves to the Auxiliary Feedwater nozzles, spray water directly onto the tubes at the upper end of the Steam Generators. Injecting this relatively cold water during plant operation causes severe thermal stresses in the Steam Generator and may also lead to moisture carry-over in the steam, which could damage the main turbine. The consequences of these effects make it undesirable to forward flow test these check valves quarterly.

Alternate Testing: AF74 and AF75 will be forward flow and reverse flow closure tested during cold shutdown.

Cold Shutdown Justification

CS-7

System:	Auxiliary Feedwater
Valve(s):	AF599 & AF608, Auxiliary Feedwater to Steam Generator 1 & 2 Line Stop Valves
Safety Function:	These valves must close to isolate flow to their respective Steam Generator in the event of a steam line or feedwater line break.
Code Testing:	Exercise and time closed quarterly.
Justification:	Technical Specification 3.7.1.2c requires entry into a one-hour action statement if either AF599 or AF608 is closed. During a postulated feedwater or main steam line break affecting the opposite steam generator, a complete loss of auxiliary feedwater flow to both Steam Generators could occur. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	AF599 and AF608 will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-8

System:	Auxiliary Steam
Valve(s):	AS274, Auxiliary Steam Header to Auxiliary Feedwater Turbine Check Valve
Safety Function:	Reverse flow closure of this valve provides the pressure boundary between the Auxiliary Feedwater Pump Turbine safety related main steam supply, and the non-safety related auxiliary steam system. This valve prevents the diversion of steam from the Auxiliary Feedwater Pump Turbines in the event of a failure of the non-safety related auxiliary steam system. AS274 is the ISI Class 3 boundary between the Auxiliary Feedwater System and the non-class Auxiliary Steam System, which is rated at 300 PSIG.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	During normal operation, the upstream manual isolation valve AS273 is maintained closed and is only opened in MODES 4, 5, and 6 for Auxiliary Feed Pump testing when the main steam lines are depressurized. There is no upstream test connection between AS274 and AS273. Testing AS274 with main steam pressure during normal operation would require opening AS273 potentially exposing low pressure piping to high-pressure steam. This poses a personnel safety concern and could result in over-pressurizing the lower pressure Auxiliary Steam System if leakage were to occur.
Alternate Testing:	AS274 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-9

System: Component Cooling Water

Valve(s): CC17, CC18 & CC19, Component Cooling Water Pump 1, 2 & 3 Discharge Line Check Valves

Safety Function: These valves must open and be capable of passing sufficient forward flow to provide cooling of essential header loads.

These valves must close to prevent diverting CCW flow through an idle pump when two pumps are mechanically aligned to the same train.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: To test these valves, a forward flow rate of 7860 GPM must be achieved. This flow rate is higher than the normal operating flow rates through the heat exchangers, and would disturb the normal thermal equilibrium of the non-essential header loads.

Testing of these valve at this flow rate during normal operation requires each pump to be aligned to the non-essential loads and increasing total CCW flow by manually throttling flow through the associated Decay Heat Removal Heat Exchanger. This alignment will result in the diverting CCW flow from the containment header, hence reducing flow to the Reactor Coolant Pump Seals and Motor coolers, Control Rod Drive Coolers, and the Letdown Coolers. This would increase RCP bearing and seal, CRD Stator, and letdown temperatures affecting plant operation and possibly result in equipment damage and/or reactor trip.

Alternate Testing: CC17, CC18, and CC19 will be forward flow tested during cold shutdown and reverse flow closure tested in same interval.

Cold Shutdown Justification

CS-10

System:	Component Cooling Water
Valve(s):	CC1407A & CC1407B, CCW Return Containment Isolation Valves
Safety Function:	These valves must close for containment isolation.
Code Testing:	Exercise and time closed quarterly.
Justification:	These valves are normally open to provide a component cooling water return flow path from the Reactor Coolant Pump seals and motors, the Letdown Coolers, and the Control Rod Drive Mechanisms. Disrupting cooling water flow to these components during normal operation would result in component damage and/or a plant trip or transient. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	CC1407A and CC1407B will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-11

System:	Component Cooling Water
Valve(s):	CC1407C, CCW Containment Penetration 4 Thermal Expansion Check Valve
Safety Function:	CC1407C must close for containment isolation. CC1407C must open to relieve pressure that could occur between the penetration isolation valves due to thermal expansion following a design basis LOCA
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	The valve lineup required to perform forward flow or reverse flow testing of CC1407C isolates the Component Cooling Water return flow path from the Reactor Coolant Pump Seals and Motors, the Letdown Coolers, and the Control Rod Drive Mechanisms. Disrupting cooling water flow through these components during normal operation would result in component damage and/or a plant trip or transient. In addition, CC1407C and other valves to be manipulated to perform this test are located within Containment.
Alternate Testing:	CC1407C will be forward flow and reverse flow closure tested during cold shutdown.

Cold Shutdown Justification

CS-12

System:	Component Cooling Water
Valve(s):	CC1411A & CC1411B, Component Cooling Water Inlet Containment Isolation Valves
Safety Function:	These valves must close for containment isolation.
Code Testing:	Exercise and time closed quarterly.
Justification:	These valves are normally open to supply Component Cooling water to the Reactor Coolant Pump Seals and Motors, and the Letdown Coolers. Disrupting cooling water flow to these components during normal operation would result in component damage and/or a plant trip or transient. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	CC1411A and CC1411B will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-13

System:	Component Cooling Water
Valve(s):	CC1411C, CCW Containment Penetration 3 Thermal Expansion Check Valve
Safety Function:	CC1411C must close for containment isolation. CC1411C must open to relieve pressure that could occur between the penetration isolation valves due to thermal expansion following a design basis LOCA.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	The valve lineup required for forward flow or reverse flow closure testing of CC1411C isolates the Component Cooling Water supply to the Reactor Coolant Pump Seals and Motors, and the Letdown Coolers. Disrupting cooling water flow through these components during normal operation would result in component damage and/or a plant trip or transient. In addition, CC1411C and other valves to be manipulated to perform this test are located within Containment.
Alternate Testing:	These valves will be forward flow tested and reverse flow closure tested during cold shutdown.

Cold Shutdown Justification

CS-14

System:	Component Cooling Water
Valve(s):	CC1567A & CC1567B, CCW Containment Isolation Valves to the Control Rod Drive Mechanisms.
Safety Function:	These valves must close for containment isolation.
Code Testing:	Exercise and time closed quarterly.
Justification:	These valves are normally open to supply Component Cooling Water to the Control Rod Drive Mechanisms. Disrupting cooling water flow to these components during normal operation would result in CRD stator overheating and a reactor trip. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	CC1567A and CC1567B will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-15

System:	Component Cooling Water
Valve(s):	CC1568, CCW Containment Penetration 12 Thermal Expansion Check Valve
Safety Function:	CC1568 must close for Containment isolation. CC1568 must open to relieve pressure that could occur between the penetration isolation valves due to thermal expansion following a design basis LOCA.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	The valve lineup required for forward flow or reverse flow testing of CC1568 isolates the Component Cooling Water header supplying cooling water to the Control Rod Drive Mechanisms. Disrupting the cooling water supply to these components could result in stator damage and/or a plant trip or transient. In addition, CC1568 and other valves to be manipulated to perform this test are located within the Containment.
Alternate Testing:	CC1568 will be forward flow tested and reverse flow closure tested during cold shutdown.

Cold Shutdown Justification

CS-16

System:	Component Cooling Water
Valve(s):	CC4100, CC4200, CC4300 & CC4400, Reactor Coolant Pump Seal Return Line Isolation Valves
Safety Function:	These valves must close if a tube rupture occurs, or excessive leakage develops, in the Reactor Coolant Pump Seal Cooler. If this occurs, these valves automatically close when the Component Cooling Water system pressure, sensed just upstream of the valves, reaches 150 psig.
Code Testing:	Exercise and time closed quarterly.
Justification:	Exercising any of these valves closed during normal operation will isolate the cooling water return flow path through the associated Reactor Coolant Pump Seal. Disrupting cooling water flow would result in damage to the pump seal and/or a plant trip or transient. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	CC4100, CC4200, CC4300 and CC4400 will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-17

System: Core Flood

Valve(s): CF2C, Core Flood Penetration 47A Thermal Expansion Check Valve

Safety Function: CF2C must close for containment isolation.

CF2C must open to relieve pressure that could occur between the penetration isolation valves due to thermal expansion following a design basis LOCA.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: Verification of CF2C forward flow during normal operation, without a Containment entry, would require borated water to be added to Core Flood Tank 1 through a 3/8" sample line, with CF2B closed. Flow would be indicated by a Core Flood Tank level change, or by an external flow instrument, which would rely on the absence of boundary valve leakage for accuracy. The Core Flood System is not designed to add borated water via the sample line.

To establish flow from Core Flood Tank 2 would require an approximate CFT pressure differential of 75 PSID, the forward flow set-point of CF2C. This would exceed the 50 pound maximum pressure differential between Core Flood Tanks allowed by TS 3.5.1. Additionally a Containment entry and entry into a locked high radiation area would be required to perform this testing.

Alternate Testing: CF2C will be forward flow tested and reverse flow closure tested during cold shutdown.

Cold Shutdown Justification

CS-18

System:	Core Flood
Valve(s):	CF15 & CF16, CFT 1 & 2 Fill and Pressurizing Stop Check Valves
Safety Function:	These valves must close for containment isolation.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	CF15 and CF16 are inboard Containment Isolation Valves for Penetrations P44A and P71C respectively. Forward flow testing these valves during normal operation would require the venting and re-pressurizing the Core Flood Tanks. The Nitrogen vented during this process would enter the Radioactive Waste Gas system increasing the amount of gaseous radwaste. In addition, the venting challenges the ability to maintain the Core Flood Tanks between 575 and 625 PSIG in accordance with Tech Spec 3.5.1d which has a one hour action statement.
Alternate Testing:	CF15 and CF16 will be forward flow tested during cold shutdown and reverse flow closure tested at the same interval.

Cold Shutdown Justification

CS-19

System:	Ventilation and Atmospheric Monitoring
Valve(s):	CV124 & CV125, Containment Hydrogen Analyzer and Radiation Monitor Return Line Containment Isolation Check Valves
Safety Function:	These valves must close for containment isolation.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	Testing these valves during normal plant operation would require a Containment entry.
Alternate Testing:	CV124 and CV125 will be reverse flow closure tested during cold shutdown and will be forward flow tested at the same interval.

Cold Shutdown Justification

CS-20

System:	Ventilation and Atmospheric Monitoring
Valve(s):	CV209 & CV210, Containment Hydrogen Dilution Blower Discharge Containment Isolation Check Valves
Safety Function:	These valves must open to permit dilution of the post-LOCA containment atmosphere. These valves must close for containment isolation.
Code Testing:	Verify forward flow and reverse flow closure testing quarterly.
Justification:	Testing these valves during normal plant operation would require a Containment entry.
Alternate Testing:	CV209 and CV210 will be reverse flow closure tested during cold shutdown and will be forward flow tested at the same interval.

Cold Shutdown Justification

CS-21

System:	Containment Purge
Valve(s):	CV5005, CV5006, CV5007, & CV5008, Containment Purge Inlet and Exhaust Containment Isolation Valves
Safety Function:	These valves must close for containment isolation and to meet the requirements of TS 3.9.4 during core alterations or movement of irradiated fuel within Containment
Code Testing:	Exercise, time closed and fail closed quarterly.
Justification:	Technical Specification 3.6.1.7 requires these valves to be closed with control power removed in Modes 1-4. These penetrations are of special concern for maintaining containment integrity, due to their large size, the type of valve used, and direct path to atmosphere. They have had an industry history of poor leakage performance following valve movement, which is the reason the unique post-use testing requirements are imposed by Technical Specification Surveillance requirement 4.6.1.2.2. In this case, the preservation of containment integrity under TS 3.6.1.7 takes precedence over monitoring the valves for potential degradation per the code. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	CV5005, CV5006, CV5007, and CV5008 will be exercised, timed closed, and failed closed during cold shutdown.

Cold Shutdown Justification

CS-22

System:	Decay Heat
Valve(s):	DH7A & DH7B, BWST Suction Isolation Valves
Safety Function:	DH7A and DH7B receive an open command on an SFAS Level 2 actuation, provided DH9A and DH9B are fully closed and BWST level exceeds 8 feet. These valves must close upon an SFAS Level 5 (low BWST level) actuation when an operator initiates opening DH9A and DH9B.
Code Testing:	Exercise, time open and closed quarterly.
Justification:	DH7A and DH7B are open and de-powered during normal operation to prevent possible repositioning to address 10CFR 50 Appendix R fire protection concerns. Operator action is required to close the 480VAC supply breakers before any valve movement can occur. Closing these valves during normal operation isolates the normal suction supply for the Decay Heat/LPI Pumps, High Pressure Injection Pumps, Containment Spray Pumps and the alternate suction for the Makeup Pumps. This necessitates the opening of this equipment's power supplies to prevent damage due to pump start resulting in a complete loss of an Emergency Core Cooling Train, placing the plant in an unacceptable risk category. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	DH7A and DH7B will be exercised and timed open and closed during cold shutdown.

Cold Shutdown Justification

CS-23

System:	Decay Heat
Valve(s):	DH11 & DH12, RCS to Decay Heat System Isolation Valves
Safety Function:	These valves are required to open to achieve a post-LOCA flow path for boron dilution, and are required to be open for Low Temperature Overpressure (LTOP) concerns. These valves must close for post-LOCA system alignment.
Code Testing:	Exercise, time open and closed quarterly.
Justification:	DH11 and DH12 isolate the low pressure Decay Heat System from the high pressure Reactor Coolant System. They are interlocked to automatically close, and prevent opening, when RCS pressure reaches or exceeds 301/266 PSIG, respectively. Opening these valves during normal operation would require defeating protective interlocks and increase the risk of over pressurizing the Decay Heat system. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	DH11 and DH12 will be exercised and timed open and closed during cold shutdown.

Cold Shutdown Justification

CS-24

System:	Decay Heat
Valve(s):	DH76 & DH77, Decay Heat to Reactor Coolant System Stop Check Valves
Safety Function:	DH76 and DH77 must allow 3000 gpm forward flow to meet decay heat removal requirements during a LOCA. These valves are pressure isolation valves and must close to meet the seat leakage requirements of TS 3.4.6.2.
Code Testing:	Verify forward flow and reverse flow closure testing quarterly.
Justification:	During normal plant operation, reverse flow testing of these valves requires entry into Containment. The Decay Heat Pumps must inject water into the Reactor Coolant System in order to verify forward flow. The Decay Heat pumps develop insufficient head to pump water into the RCS during normal plant operation.
Alternate Testing:	DH76 and DH77 will be forward flow and reverse flow closure tested during cold shutdown.

Cold Shutdown Justification

CS-25

System: Decay Heat

Valve(s): DH81 & DH82, DH Pump Suction Line Check Valves from the BWST

Safety Function: DH81 and DH82 must pass forward flow to the suctions of the Decay Heat Pumps and the Containment Spray Pumps.

Reverse flow closure is required to prevent water in the Containment Emergency Sump from flowing back to the BWST during a large break LOCA.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: DH81 and DH82 are the BWST suction check valves for both the Decay Heat Pumps and the Containment Spray Pumps, so a flow rate of 4300 GPM must be established to verify full forward flow. In order to obtain a flow rate of 4300 GPM through these valves, it is necessary to run the Decay Heat Pump and the Containment Spray Pump simultaneously, which requires entry into multiple Technical Specification action statements.

Reverse flow testing of these valves requires isolation of the respective BWST header. This isolates the normal suction supply for the Decay Heat/LPI Pumps, High Pressure Injection Pumps, Containment Spray Pumps and the alternate suction for the Makeup Pumps. This necessitates the opening of this equipment's power supplies to prevent damage due to pump start resulting in a complete loss of an Emergency Core Cooling Train, placing the plant in an unacceptable risk category.

The benefits of quarterly testing are outweighed by the risk incurred due to the multiple systems being inoperable and the amount of time and operator actions required to restore the equipment to an operable status.

Alternate Testing: DH81 and DH82 will be forward flow and reverse flow closure tested during cold shutdown.

Cold Shutdown Justification

CS-26

System:	Decay Heat
Valve(s):	DH125, DH126, DH127 & DH128, Decay Heat System Train Cross-Connect Line Check Valves
Safety Function:	These valves must prevent reverse flow to provide Decay Heat System Train separation.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	Both Decay Heat System Trains are rendered inoperable during reverse flow testing. The test lineup requires one Decay Heat Pump suction line to be isolated and the other Decay Heat Pump lined up to recirculate to the BWST. Since the Decay Heat Pump is inoperable when lined up to the BWST, testing would require entry into a one hour action statement in accordance with TS 3.0.3.
Alternate Testing:	DH125, DH126, DH127, and DH128 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-27

System:	Feedwater
Valve(s):	FW601 & FW612, Steam Generator 1 & 2 Main Feedwater Stop Valves
Safety Function:	These valves must close to isolate the steam generators on a SFRCS initiation.
Code Testing:	Exercise and time closed quarterly.
Justification:	Closing these valves during normal operation would result in a loss of main feedwater to the associated Steam Generator and would require a power reduction, and could result in a plant transient or trip. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	FW601 and FW612 will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-28

System:	High Pressure Injection
Valve(s):	HP32, HPI Pump 1 Flow Test Isolation Stop Check Valve
Safety Function:	This valve must open to provide a minimum recirculation flow path for HPI Pump 1.
Code Testing:	Verify forward flow and verify reverse flow closure quarterly.
Justification:	There are no test connection valves between this check valve and the next downstream isolation valve. Testing the reverse flow closure for this valve requires the partial disassembly and insertion of specialized testing equipment into the downstream piping of the check valve.
Alternate Testing:	HP32 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-29

System:	High Pressure Injection
Valve(s):	HP33, HPI Pumps Recirculation Line to BWST Check Valve
Safety Function:	This valve must open to provide a minimum recirculation flow path for HPI Pump 2.
Code Testing:	Verify forward flow and verify reverse flow closure quarterly.
Justification:	Testing the reverse flow closure for this valve requires the partial disassembly and insertion of specialized testing equipment into the downstream piping of the check valve. There are no isolation valves between this location and the BWST necessitating the isolation of all inputs to the tank, resulting in inoperability of both trains of the ECCS.
Alternate Testing:	HP33 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-30

System:	Instrument Air
Valve(s):	IA501, Instrument Air Containment Isolation Check Valve
Safety Function:	This valve must close for containment isolation.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	IA501 is the inboard Containment Isolation Valve for Penetration P43A. Testing this valve during normal operation would require a Containment entry.
Alternate Testing:	IA501 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-31

System:	Station Air
Valve(s):	SA502, Station Air Header to Containment Isolation Check Valve
Safety Function:	This valve is required to close for containment isolation.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	SA502 is the inboard Containment Isolation Valve for Penetration 42A. Testing this valve during normal operation would require a Containment entry. Additionally, the outboard Containment Isolation Valve for Penetration 42A is maintained closed during normal operation so no flow exists through this line.
Alternate Testing:	SA502 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-32

System:	Main Steam
Valve(s):	ICS11A & ICS11B, Main Steam Atmospheric Vent Valves
Safety Function:	These valves must close in response to an SFRCS actuation signal. These valves are required to open under various USAR scenarios to provide a method of removing decay heat or depressurizing a steam generator.
Code Testing:	Exercise, time open and closed, and fail closed quarterly.
Justification:	During power operations, these valves must be isolated prior to opening to prevent a plant transient. Manual isolation of these valves for testing is impractical due to the 900 PSID, which would be developed across the isolation valve following testing. Partial stroking during normal operation would vent main steam to atmosphere causing an unacceptable plant transient.
Alternate Testing:	ICS11A and ICS11B will be exercised and timed open and closed, and failed closed during cold shutdown.

Cold Shutdown Justification

CS-33

System:	Main Steam
Valve(s):	MS100 & MS101, Main Steam Isolation Valves
Safety Function:	These valves must close upon an SFRCS actuation to isolate the Steam Generators to mitigate the consequences of high-energy line breaks and to provide containment isolation.
Code Testing:	Exercise, time closed, and fail closed quarterly.
Justification:	Exercising these valves during normal operation would isolate 50% of the steam flow to the main turbine and would cause a transient that would result in a turbine and reactor trip. It is undesirable to intentionally place the plant through the transient caused by abruptly interrupting steam flow through one of these valves. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	MS100 and MS101 will be exercised, timed closed, and fail closed tested during cold shutdown.

Cold Shutdown Justification

CS-34

System: Main Steam

Valve(s): MS145 & MS146, Auxiliary Feed Pump Turbines 1 and 2 Main Steam Minimum Flow Line Check Valves

Safety Function: These valves must close to provide Auxiliary Feedwater Train separation.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: MS145 and MS146 were installed to pass sufficient steam flow through check valves MS734 and MS735 to prevent the discs from banging. Disc banging had been a chronic failure mechanism for MS734 and MS735. The resultant disc/seat damage was determined to be the cause of numerous surveillance test failures.

Reverse flow closure testing of MS145 and MS146 requires isolation of the steam flow through MS734 and MS735 and running a high pressure and temperature drain hose for venting of high-pressure steam to atmosphere. These valves are located in the highly congested Auxiliary Feed Pump rooms where personnel egress is restrictive. When testing requires venting of high-pressure steam, significant safety precautions and contingency plans are required to ensure personnel safety.

If these check valves or their isolation valves leak during testing it would necessitate the need to defeat the automatic isolation features and depressurize the entire steam header to an AFPT to determine if the check valve was the source of failure. This would make a train of Auxiliary Feedwater inoperable for significant time and increase plant risk (CDF).

Because of the increased risk to personnel and plant safety, significant contingency plans are required making it burdensome to perform this testing with no compensating increase of plant reliability or safety.

Alternate Testing: MS145 and MS146 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-35

System:	Makeup
Valve(s):	MU1A, MU1B, MU2A, MU2B, & MU3, RCS Letdown Cooler Isolation Valves
Safety Function:	MU1A, MU1B and MU2B must provide automatic isolation of their respective Letdown Cooler if a tube leak occurs (high pressure detected on the CCW side of the cooler) to isolate the affected Letdown Cooler and maintain RCS pressure boundary integrity. MU2A and MU3 must close for containment isolation.
Code Testing:	Exercise and time closed quarterly (MU1A, MU1B, MU2A, and MU2B). Exercise, time closed and fail closed quarterly (MU3).
Justification:	These valves are in the normal flow path for the RCS letdown line. Exercising these valves during normal operation would disrupt the letdown flow, which would upset the RCS feed and bleed balance causing plant instability, and could result in Letdown Cooler damage due to thermal cycling. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	MU1A, MU1B, MU2A, MU2B, and MU3 will be exercised and timed closed, and MU3 will be failed closed tested, during cold shutdown.

Cold Shutdown Justification

CS-36

System:	Makeup
Valve(s):	MU38, MU59A, MU59B, MU59C, MU59D, MU66A, MU66B, MU66C, & MU66D, RC Pump Seal Supply and Line Containment Isolation Valves.
Safety Function:	These valves must close for containment isolation.
Code Testing:	Exercise and timed closed quarterly (MU59A/B/C/D). Exercise, time closed, and fail closed quarterly (MU38, MU66A/B/C/D).
Justification:	Exercising these valves, during normal operation or at cold shutdown when the RCS is pressurized results in a loss of normal seal water flow to the RCP seals. This would disrupt the normal flow path within the seal and cause reactor coolant to flow into the seals causing seal damage. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	MU38, MU59A, MU59B, MU59C, MU59D, MU66A, MU66B, MU66C, & MU66D will be exercised and timed closed, and MU38, MU66A/B/C/D will be fail-close tested during cold shutdown.

Cold Shutdown Justification

CS-37

System:	Makeup
Valve(s):	MU169, Normal Makeup to RCS Line Check Valve
Safety Function:	This valve must open to provide a boration flow path. This valve must close to prevent reverse flow ensuring HPI flow path integrity.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	This valve is in the normal makeup line to the Reactor Coolant System. To verify reverse flow closure requires termination of the normal makeup flow. Termination of normal makeup flow requires using the alternate makeup line, resulting in manual pressurizer level control. In addition, isolation of all makeup flow would be required, causing thermal shock to high pressure injection nozzle thermal sleeve. Additionally, a Containment entry would be required to establish the test boundary.
Alternate Testing:	MU169 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-38

System:	Makeup
Valve(s):	MU242, MU243, MU244 & MU245, RCP Seal Injection Line Containment Isolation Stop Check Valves
Safety Function:	These valves must close for containment isolation.
Code Testing:	Verify forward flow and verify reverse flow closure quarterly.
Justification:	Reverse flow testing these valves during normal operation or at cold shutdown when the RCS is pressurized results in a loss of normal seal water flow to the RCP seals. This would disrupt the normal flow path within the seal and cause reactor coolant to flow into the seals causing seal damage. Additionally a Containment entry would be required to establish the test boundary.
Alternate Testing:	MU242, MU243, MU244 and MU245 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-39

System:	Makeup
Valve(s):	MU800, Alternate Makeup to RCS/Feed and Bleed Check Valve
Safety Function:	This valve must open to provide an alternate boration injection flow path. This valve must close to prevent reverse flow ensuring HPI flow path integrity.
Code Testing:	Verify forward flow and verify reverse flow closure quarterly.
Justification:	Forward flow testing MU800 during normal operation would require shifting RCS makeup to the alternate line. This would inject cold Makeup water into the HPI RCS nozzle causing a thermal cycle. Thermal cycles on the HPI/MU thermal sleeves are limited and shall be minimized to preclude thermal transient induced crack initiation.
Alternate Testing:	MU800 will be forward flow tested during cold shutdown and reverse flow closure tested at the same interval.

Cold Shutdown Justification

CS-40

System:	Makeup
Valve(s):	MU3971 & MU6405, MU Pump Suction Three Way Valves
Safety Function:	These valves must close to isolate non-safety-related piping from safety-related piping.
Code Testing:	Exercise and time closed quarterly.
Justification:	MU3971 and MU6405 are three-way suction valves. Their normal position is closed with Makeup pump suction lined up to the Makeup Tank. When these valves are open, pump suction swaps to the Borated Water Storage Tank (BWST). When cycling, these 3-way valves are open to both the Makeup Tank and the BWST. Exercising the valves during normal plant operation would cause highly borated water, from the BWST, to enter as normal makeup flow to the RCS, resulting in undesirable RCS boration and a uncontrolled reactivity event. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	MU3971 and MU6405 will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-41

System:	Makeup
Valve(s):	MU6422, Normal Makeup to RCS Isolation Valve
Safety Function:	MU6422 must close for containment isolation.
Code Testing:	Exercise and time close quarterly
Justification:	Exercising MU6422 would terminate normal makeup flow to the RCS which would result in undesirable pressurizer level transients. In addition, closing MU6422 would isolate all makeup flow causing thermal shock on the HPI nozzle and thermal sleeves when the makeup flow is restored. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	MU6422 will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-42

System:	Nitrogen
Valve(s):	NN58, Nitrogen Penetration 44B Containment Isolation Check Valve
Safety Function:	This valve must close for containment isolation.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	NN58 is the inboard Containment Isolation Valve for Penetration 44B. Testing this valve during normal operation would require a Containment entry.
Alternate Testing:	NN58 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-43

System:	Reactor Coolant
Valve(s):	RC10, Pressurizer Spray Line Isolation Valve
Safety Function:	RC10 must close to isolate the normal spray line, minimizing the RCS pressure drop that would occur if spray control valve RC2 stuck open. RC10 must also close to ensure that auxiliary spray flow is directed to the Pressurizer.
Code Testing:	Exercise and time closed quarterly.
Justification:	Closing this valve during normal operation isolates pressurizer spray flow. The pressurizer operating procedure Limits and Precautions state, "Minimum pressurizer spray flow shall be maintained to ensure Pressurizer delta T and RCS boron concentration equalization requirements". The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	RC10 will be exercised and timed closed during cold shutdown.

Cold Shutdown Justification

CS-44

System:	Reactor Coolant
Valve(s):	RC113, Quench Tank Penetration 41 Containment Isolation Check Valve
Safety Function:	This valve must close for containment isolation.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	RC113 is the inboard Containment Isolation Valve for Penetration 41. Testing this valve during normal operation would require a Containment entry.
Alternate Testing:	RC113 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-45

System:	Reactor Coolant
Valve(s):	RC229C, RC Penetration 48 Thermal Expansion Check Valve
Safety Function:	This valve must open to relieve pressure that could occur between the Penetration 48 isolation valves due to thermal expansion following a LOCA. This valve must close for Containment Isolation.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	RC229C is the inboard Containment Isolation Valve for Penetration 48. Testing this valve during normal operation would require a Containment entry.
Alternate Testing:	RC229C will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

Cold Shutdown Justification

CS-46

System:	Reactor Coolant
Valve(s):	RC4608A, RC4608B, RC4610A & RC4610B, RCS Loop High Point Vent Valves
Safety Function:	These valves must open to vent non-condensable gases and steam from the RCS high points, which could disrupt natural circulation of the RCS during an emergency event. These valves must close to maintain system integrity after opening.
Code Testing:	Exercise and time open and closed, and fail closed quarterly.
Justification:	Opening these valves during normal operation vents reactor coolant to the floor of Containment causing considerable contamination and possible boron induced corrosion on containment equipment. Failure of these valves to close would result in a small break loss of coolant accident. The control circuitry for these valves does not allow partial stroking.
Alternate Testing:	RC4608A, RC4608B, RC4610A and RC4610B will be exercised and timed open and closed, and failed closed during cold shutdown.

Cold Shutdown Justification

CS-47

System: Service Water

Valve(s): SW17, SW18 & SW19, Service Water Pump Discharge Check Valves

Safety Function: These valves must open to pass design forward flow when their respective pump is running to provide cooling water flow to safety related components. These valves must close to prevent short-circuiting of cooling water through an idle pump.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: Full forward flow testing could require the system flow to be increased beyond the normal temperature demand of the system, the resulting flow could cause excessive heat removal from equipment being serviced. System operating conditions will not allow adjusting system resistance without significant impact on the plant equipment thermal equilibrium.

This is a temperature variable system that is in continuous operation during all modes of plant operation. Depending on plant operating conditions and climatic conditions, the cooling requirements range from minimum cooling loads to 100 percent with many of the loads automatically placed in operation in response to local temperature requirements. Because of these operating requirements, it is not practical to adjust flow to achieve the required full forward flow testing conditions.

Alternate Testing: SW17, SW18 and SW19 will be forward flow tested during cold shutdown and reverse flow closure tested at the same interval.

Cold Shutdown Justification

CS-48

System:	Service Water
Valve(s):	SW57, SW Header from TPCW Heat Exchanger Check Valve
Safety Function:	SW57 must close to isolate the essential piping from non-essential piping to prevent flooding following a seismic event.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	Reverse flow testing this valve during normal operation would require securing cooling water flow through the Turbine Plant Cooling Water (TPCW) Heat Exchangers, which would interrupt cooling to turbine loads. This would result in component overheating, potential equipment damage, and a plant trip.
Alternate Testing:	SW57 will be reverse flow closure tested during cold shutdown and forward flow tested at the same interval.

10.0 REFUELING JUSTIFICATIONS

Refueling Justification

RJ-1

System:	Component Cooling Water
Valve(s):	CC183, CC283, CC383 & CC483, Component Cooling Water Inlet Check Valves to the Reactor Coolant Pump Seals
Safety Function:	CC183, CC283, CC383, and CC483 check valves must close to prevent reverse flow upon failure of the RCP seal cooling heat exchanger tubes to prevent high pressure reactor coolant from flowing into the low pressure Component Cooling Water System.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	The CC183, CC283, CC383, and CC483 reverse flow closure tests cannot be performed quarterly during normal operation since the system is in operation supplying cooling water to the RCP Seals and cannot be isolated. The valves are located in a high radiation area inside Containment approximately 25 feet above the floor. The setup and preparation for performance and restoration from these tests involve a significant amount of scaffolding and personnel radiation exposure and are impractical to be performed during a cold shutdown.
Alternate Testing:	CC183, CC283, CC383, and CC483 will be reverse flow closure tested each refueling outage and forward flow tested at the same interval.

Refueling Justification

RJ-2

System:	Core Flood
Valve(s):	CF28, CF29, CF30 & CF31, Core Flood Tank Discharge Check Valves to the RCS
Safety Function:	These valves must open to provide a flow path from the Core Flood Tanks to the Reactor Coolant System to prevent core damage during events that depressurize the Reactor Coolant System.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	The Core Flood Tanks are isolated from the RCS by these normally closed check valves. Each Core Flood Tank is charged with a nitrogen blanket of approximately 600 PSIG. This pressure is insufficient during operation to inject into the RCS. Exercising these valves requires the reactor head to be off and the refueling canal partially filled. This is required because sufficient space is necessary to except the large volume of water dumped from the CFTs. This plant condition only exists during refueling outages.
Alternate Testing:	CF28, CF29, CF30 & CF31 will be forward flow tested during each refueling outage and reverse flow closure tested at the same interval.

Refueling Justification

RJ-3

System: Decay Heat

Valve(s): DH9A & DH9B, Decay Heat/LPI Containment Emergency Sump Isolation Valves

Safety Function: DH9A and DH9B receive a close command on an SFAS Level 2 actuation for containment isolation.

These valves must open upon an SFAS Level 5 (low BWST level) actuation.

Code Testing: Exercise, time open and closed quarterly.

Justification: DH9A and DH9B are closed and de-powered during normal operation to prevent possible repositioning to address 10 CFR 50 Appendix R fire protection concerns. Operator action is required to close the 480VAC supply breakers before any valve movement can occur. DH9A and DH9B are interlocked to prevent opening unless DH7A and DH7B are fully closed, or an SFAS Level 5 signal is present. The control circuitry for these valves does not allow partial stroking.

Opening DH9A and DH9B during normal operation would require closing DH7A and DH7B to prevent draining the BWST to the Containment Emergency Sump. Closing DH7A and DH7B during normal operation isolates the normal suction supply for the Decay Heat/LPI Pumps, High Pressure Injection Pumps, Containment Spray Pumps and the alternate suction for the Makeup Pumps. This necessitates the opening of the power supplies to this equipment, prohibiting damage due to pump start. This results in a complete loss of an Emergency Core Cooling Train, placing the plant in an unacceptable risk category.

To preclude draining water from the ECCS Pump suctions into the Containment Emergency Sump, blank flanges are installed in the Containment Emergency Sump suction lines. Installation of the blank flanges during power operation requires Containment entry.

To install the flanges, the emergency sump debris screens, and the anti-vortex flange attachments must be removed. After stroking, the water trapped between the blank flanges and the valves must be drained, the blank flanges must be removed, and the anti-vortex flange attachments, debris screens must be reinstalled and the ECCS systems filled and vented. The burden of performing these activities makes it impractical to performed this testing during a cold shutdown.

Alternate Testing: DH9A and DH9B will be exercised and timed open and closed each refueling outage.

Refueling Justification

RJ-4

System: Decay Heat

Valve(s): DH49, RCS Thermal Expansion Check Valve

Safety Function: This valve must open to relieve thermally induced pressure that could accumulate between normally closed valves DH11 and DH12, RCS to DH System Isolation Valves. Once opened, this valve must close to form a pressure boundary between the Reactor Coolant System and the Decay Heat System.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: This valve is located inside Containment within the Decay Heat Valve Pit. The Decay Heat Valve Pit is a sealed enclosure that must be watertight during normal plant operation.

Surveillance requirements for the Decay Heat Valve Pit are addressed in Technical Specification 3.5.2f. Testing DH49 would require Containment entry, opening the Decay Heat Valve Pit, test equipment setup and test performance, removal of test equipment, sealing of the Decay Heat Pit access plates, and performance of a leak test on the Decay Heat Pit once it has been sealed. The burden of opening, resealing, and testing the Decay Heat Pit integrity makes it impractical to perform this testing during cold shutdown.

Alternate Testing: DH49 will be forward flow tested and reverse flow closure tested each refueling outage.

Refueling Justification

RJ-5

System: High Pressure Injection

Valve(s): HP10, HP22, HP11 & HP23 High Pressure Injection Pump 1 and 2 Suction and Discharge Check Valves

Safety Function: These valves must open to allow a forward flow rate of 826 GPM into the RCS (with zero RCS pressure) providing makeup during a LOCA

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: During normal operation, forward flow through these valves is limited to approximately 380-430 GPM by a pump test recirculation line to the BWST equipped with an orifice. The design accident flow rate for these valves is 826 GPM. HPI Pump flow must be injected directly into the RCS to obtain this flow rate. The HPI pumps have insufficient discharge pressure to overcome normal RCS operating pressure.

Due to the potential for low temperature over-pressurization of the RCS, the HPI system is Safety tagged out when the RCS is below 150 pounds. Therefore this testing is performed with the Reactor head off during the fill or draining of the refueling canal. Verification of full forward flow can only be performed with the RCS depressurized and vented and is impractical to be performed during cold shutdown.

Alternate Testing: HP10, HP22, HP11 and HP23 will be forward flow tested during each refueling outage and reverse flow closure tested at the same interval.

Refueling Justification

RJ-6

System:	High Pressure Injection
Valve(s):	HP48, HP49, HP50, HP51, HP56, HP57, HP58 & HP59, HPI Lines to RCS Loop 1 and 2 Check Valves
Safety Function:	These valves must open to provide the required HPI flow to the RCS.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	Forward flow testing must be performed while injecting water at a flow rate of 413 GPM into the Reactor Coolant System using the HPI Pump. The HPI pumps have insufficient discharge pressure to overcome normal RCS operating pressure. Due to the potential for low temperature over-pressurization of the RCS, the HPI system is Safety tagged out when the RCS is below 150 pounds. Therefore this testing is performed with the reactor head off during the fill or draining of the refueling canal. Verification of full forward flow can only be performed with the RCS depressurized and vented and is impractical to be performed during cold shutdown.
Alternate Testing:	HP48, HP49, HP50, HP51, HP56, HP57, HP58 and HP59 will be forward flow tested during each refueling outage and reverse flow closure tested at the same interval.

Refueling Justification

RJ-7

System: Nitrogen

Valve(s): NN1000, NN1002, NN1004, NN1006, NN1008, NN1010, NN1012, NN1014, NN1016, NN1018, NN1020, NN1022, NN1024, NN1026, NN1028, NN1030, NN1032, NN1034, NN1036, NN1038, NN1040, NN1042, NN1044, NN1046, NN1050, NN1052, NN1054, NN1056, NN1058, NN1060, NN1062, NN1064, NN1066, NN1068, NN1070, NN1072, NN1074, NN1076, NN1078, NN1080, NN1082, NN1084, NN1086, NN1088, NN1090, NN1092, NN1094 & NN1096, Nitrogen Supply to Containment Electrical Penetrations Check Valves

Safety Function: These valves must allow forward flow to supply nitrogen to the electrical penetrations and prevent reverse flow to ensure nitrogen pressure will remain in each penetration assembly if the non-safety-grade nitrogen supply system is lost.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: Testing these check valves during normal operation requires personnel to enter the Shield Building Annulus. During normal operation the Shield Building Annulus has significant gamma and neutron fields, and is designated as a Locked High Radiation Area.

Testing these check valves during cold shutdown requires the building of a significant amount of scaffolding for access to the Electrical Penetration Assemblies. The amount of work required to access these penetrations is very extensive and presents a significant burden to the station and is impractical to be performed during cold shutdown.

Alternate Testing: NN1000, NN1002, NN1004, NN1006, NN1008, NN1010, NN1012, NN1014, NN1016, NN1018, NN1020, NN1022, NN1024, NN1026, NN1028, NN1030, NN1032, NN1034, NN1036, NN1038, NN1040, NN1042, NN1044, NN1046, NN1050, NN1052, NN1054, NN1056, NN1058, NN1060, NN1062, NN1064, NN1066, NN1068, NN1070, NN1072, NN1074, NN1076, NN1078, NN1080, NN1082, NN1084, NN1086, NN1088, NN1090, NN1092, NN1094 and NN1096, will be forward flow and reverse flow closure tested during each refueling outage.

Refueling Justification

RJ-8

System:	Reactor Coolant
Valve(s):	RC51, Pressurizer Auxiliary Spray Line Check Valve
Safety Function:	This valve must open to provide a flow path through the auxiliary spray line to the RCS to provide dilution water to preclude boron precipitation following a LOCA.
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	Forward flow operability is verified by injecting flow into the Pressurizer at a rate of 250 GPM. The RCS must be partially drained to provide adequate space to accommodate the inventory of water during testing and the Decay Heat Pump 2 must be lined up to the suction of the HPI Pump 2 suction. This is and abnormal line up placing the plant in an unacceptable risk category. The control circuitry for these valves does not allow partial stroking. The RCS is not normally drained during cold shutdown.
Alternate Testing:	RC51 will be forward flow tested during each refueling outage and reverse flow closure test at the same interval.

11.0 SAMPLE DISASSEMBLY JUSTIFICATIONS

Sample Disassembly Justification

SDJ-1

System: Decay Heat

Valve(s): DH42 & DH43, Decay Heat Pump 1 & 2 Discharge Check Valves

Safety Function: These valves must open allow a forward flow rate of 3000 gpm to meet low-pressure injection and decay heat removal requirements.

Code Testing: Verify forward flow and reverse flow closure quarterly.

Justification: These valves are welded directly to the downstream gate valve bodies with no intervening piping or test connections. To perform reverse flow testing during normal operation requires taking out of service a Train of Decay Heat/LPI. This results in increased system Maintenance Rule unavailability and places the plant in an elevated risk condition. There is no safety function in the reverse direction, making quarterly reverse flow closure testing impractical with no compensating increase is plant reliability or safety.

DH42 & DH43 have the same manufacturer, design, service, size, and material of construction and orientation. Additionally Kalsi Engineering, Inc. using the SOER 86-3 Check Valve Application and Prioritization (CVAP) program modeled these valves. This program takes into account valve orientation and piping geometry when calculating the Wear/Fatigue Index. The results of the model indicated a Wear/Fatigue Index of 1 (Very Low). This index equates to a Wear/Fatigue limit of 14 plant cycles or 21 years.

Alternate Testing: One valve will be disassembled, inspected and manually full-stroke exercised each refueling outage, alternating between valves. Verification the valve will pass forward flow will occur after it has been reassembled following inspection.

Sample Disassembly Justification

SDJ-2

System:	Main Steam
Valve(s):	MS726 & MS727, Main Steam to Auxiliary Feedwater Pump Turbine Line Check Valves
Safety Function:	These valves must pass forward flow to allow the Auxiliary Feed Pumps to achieve their design flow rate and differential pressure. Additionally, these valves must prevent reverse flow to ensure steam is not diverted from an AFPT when it is being supplied from the opposite side Steam Generator
Code Testing:	Verify forward flow and reverse flow closure quarterly.
Justification:	These valves are welded directly to the upstream gate valve bodies with no intervening piping or test connections. The gate valves can not be isolated from the Main Steam line. Reverse flow closure testing it is impractical because there are no system design provisions to allow testing. MS726 & MS727 have the same manufacturer, design, service, size, material of construction and orientation. Additionally Kalsi Engineering, Inc. using the SOER 86-3 Check Valve Application and Prioritization (CVAP) program modeled these valves. This resulted in a Wear/Fatigue index of 1 (Very Low). This index equates to a Wear/Fatigue limit of 14 plant cycles or 21 years.
Alternate Testing:	One valve will be disassembled, inspected and manually full-stroke exercised each refueling outage, alternating between valves. Forward flow testing will occur after the valve has been reassembled following inspection.

12.0 IST PUMP TEST TABLE

PUMP INFORMATION								PARAMETER			
Pump Description	Pump Number	Code Classification	Pump Group	Pump Type	ISID2 Number	ISID2 Coordinate	Relief Requests	Differential Pressure	Flow Rate	Vibration	Speed
Auxiliary Feedwater Pumps	P14-1	3	B	CHP	006D	D-7	RP-1	Q/2Y	Q/2Y	2Y	Q/2Y
	P14-2	3	B	CHP	006D	G-5	RP-1	Q/2Y	Q/2Y	2Y	Q/2Y
Boric Acid Pumps	P38-1	NC	A	CVL	NA	NA	RP-1	Q/2Y	Q/2Y	Q/2Y	NV
	P38-2	NC	A	CVL	NA	NA	RP-1	Q/2Y	Q/2Y	Q/2Y	NV
Component Cooling Water Pumps	P43-1	3	A	CHP	036A	D-4	RP-1,2	Q/2Y	Q/2Y	Q/2Y	NV
	P43-2	3	A	CHP	036A	J-4	RP-1,2	Q/2Y	Q/2Y	Q/2Y	NV
	P43-3	3	A	CHP	036A	G-4	RP-1,2	Q/2Y	Q/2Y	Q/2Y	NV
Containment Spray Pumps	P56-1	2	B	CHP	034	D-10	RP-1	Q/2Y	Q/2Y	2Y	NV
	P56-2	2	B	CHP	034	B-10	RP-1	Q/2Y	Q/2Y	2Y	NV
Decay Heat Removal Pumps	P42-1	2	A	CHP	033B	G-10	RP-1	Q/2Y	Q/2Y	Q/2Y	NV
	P42-2	2	A	CHP	033C	F-8	RP-1	Q/2Y	Q/2Y	Q/2Y	NV
EDG Fuel Oil Transfer Pumps	P195-1	3	A	CHP	017A	C-4	RP-3	NM	2Y	NM	NV
	P195-2	3	A	CHP	017A	C-7	RP-3	NM	2Y	NM	NV
High Pressure Injection Pumps	P58-1	2	B	CHP	033A	H-7	RP-1	Q/2Y	Q/2Y	2Y	NV
	P58-2	2	B	CHP	033A	E-7	RP-1	Q/2Y	Q/2Y	2Y	NV
Makeup Pumps	P37-1	NC	A	CHP	031C	D-9	RP-1	Q/2Y	Q/2Y	Q/2Y	NV
	P37-2	NC	A	CHP	031C	G-9	RP-1	Q/2Y	Q/2Y	Q/2Y	NV
Service Water Pumps	P3-1	3	A	CVL	041A	G-2	RP-1,4	Q/2Y	Q/2Y	Q/2Y	NV
	P3-2	3	A	CVL	041A	G-5	RP-1,4	Q/2Y	Q/2Y	Q/2Y	NV
	P3-3	3	A	CVL	041A	G-9	RP-1,4	Q/2Y	Q/2Y	Q/2Y	NV

13.0 VALVE TEST TABLE

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
AF1	CST to AFP 1 Suction Line Check Valve	50	3	C	At	006D	D4	8	CK	SA	C	N	C	FF-Q	RF-Q			CS-1	FF-SI	RF-C	
AF2	CST to AFP 2 Suction Line Check Valve	50	3	C	At	006D	G2	8	CK	SA	C	N	C	FF-Q	RF-Q			CS-1	FF-SI	RF-C	
AF15	AFP 1 Minimum Flow Line Check Valve	50	3	C	At	006D	B9	2	CK	SA	C	N	O	FF-Q	RF-Q			CS-2	FF-SI	RF-C	
AF16	AFP 2 Minimum Flow Line Check Valve	50	3	C	At	006D	F8	2	CK	SA	C	N	O	FF-Q	RF-Q			CS-2	FF-SI	RF-C	
AF19	AFP 1 Discharge Line Check Valve	50	3	C	At	006D	D10	6	CK	SA	C	N	O	FF-Q	RF-Q						
AF20	AFP 2 Discharge Line Check Valve	50	3	C	At	006D	G10	6	CK	SA	C	N	O	FF-Q	RF-Q						
AF39	AFW to OTSG 1 Injection Line Check Valve	50	2	C	At	007B	B11	6	CK	SA	C	N	O/C	FF-Q	RF-Q			CS-3	FF-C	RF-SI	
AF43	AFW to OTSG 2 Injection Line Check Valve	50	2	C	At	007B	D5	6	CK	SA	C	N	O/C	FF-Q	RF-Q			CS-3	FF-C	RF-SI	
AF49	MDFP to AFW Line 2 Discharge Check Valve	50	3	C	At	006D	B6	6	CK	SA	C	N	C	FF-Q	RF-Q			CS-4	FF-SI	RF-C	
AF52	MDFP to AFW Line 1 Discharge Check Valve	50	3	C	At	006D	B6	6	CK	SA	C	N	C	FF-Q	RF-Q			CS-4	FF-SI	RF-C	
AF63	AFP 1 Cooling Water Return to AFP 1 Suction.	50	3	C	At	006D	E7	1	CK	SA	C	N	O/C	FF-Q	RF-Q						
AF68	AFP 2 Cooling Water Return to AFP 2 Suction.	50	3	C	At	006D	H4	1	CK	SA	C	N	O/C	FF-Q	RF-Q						
AF72	AFW to OTSG 1 Supply Check Valve	50	3	C	At	007B	C9	6	CK	SA	C	N	O/C	FF-Q	RF-Q			CS-5	FF-C	RF-C	
AF73	AFW to OTSG 2 Supply Check Valve	50	3	C	At	007B	B8	6	CK	SA	C	N	O	FF-Q	RF-Q			CS-5	FF-C	RF-C	
AF74	AFW to OTSG 1 Supply Check Valve	50	3	C	At	007B	B7	6	CK	SA	C	N	O	FF-Q	RF-Q			CS-6	FF-C	RF-C	
AF75	AFW to OTSG 2 Supply Check Valve	50	3	C	At	007B	C6	6	CK	SA	C	N	O/C	FF-Q	RF-Q			CS-6	FF-C	RF-C	
AF599	AFW to OTSG 2 Line Stop Valve	50	2	B	At	007B	D3	6	GT	MO	LO	AI	C		TC-Q	PV-2Y		CS-7		TC-C	
AF608	AFW to OTSG 1 Line Stop Valve	50	2	B	At	007B	B12	6	GT	MO	LO	AI	C		TC-Q	PV-2Y		CS-7		TC-C	
AF3869	AFP 1 to OTSG 2 Stop Valve	50	3	B	At	007B	B8	6	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
AF3870	AFP 1 to OTSG 1 Stop Valve	50	3	B	At	007B	B9	6	GT	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y					
AF3871	AFP 2 to OTSG 1 Stop Valve	50	3	B	At	007B	B7	6	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
AF3872	AFP 2 to OTSG 2 Stop Valve	50	3	B	At	007B	B6	6	GT	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y					
AF4979	AFP 1 Cooler Line Relief Valve	50	3	C	At	006D	E7	1x1	RL	SA	C	N	O	SR-10Y							
AF4980	AFP 2 Cooler Line Relief Valve	50	3	C	At	006D	H5	1x1	RL	SA	C	N	O	SR-10Y							
AF6451	AFP 2 Discharge Flow Control SOV.	50	3	B	At	006D	G11	4	GL	SO	O	O	O	TO-Q			FO-Q				
AF6452	AFP 1 Discharge Flow Control SOV.	50	3	B	At	006D	D11	4	GL	SO	O	O	O	TO-Q			FO-Q				

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
AS274	Auxiliary Steam to AFP turbines Line Check Valve	50	3	C	At	003C	D3	6	CK	SA	C	N	C	FF-Q	RF-Q			CS-8	FF-SI	RF-C	
BW26	HPI to BWST Return Line Check Valve	49	2	C	At	033A	A13	3	CK	SA	E	N	C	FF-Q	RF-Q						
CC17	CCW Pump 1 Discharge Line Check Valve	16	3	C	At	036A	D5	16	CK	SA	E	N	O/C	FF-Q	RF-Q			CS-9	FF-C	RF-SI	
CC18	CCW Pump 3 Discharge Line Check Valve	16	3	C	At	036A	G5	16	CK	SA	E	N	O/C	FF-Q	RF-Q			CS-9	FF-C	RF-SI	
CC19	CCW Pump 2 Discharge Line Check Valve	16	3	C	At	036A	J5	16	CK	SA	E	N	O/C	FF-Q	RF-Q			CS-9	FF-C	RF-SI	
CC127	MU Pump 1 CCW Inlet Check Valve to Lube Oil Cooler.	16	3	C	At	036B	G3	1.5	SC	SA	O	N	O/C	FF-Q	RF-Q						
CC128	MU Pump 2 CCW Inlet Check Valve to Lube Oil Cooler.	16	3	C	At	036B	G4	1.5	SC	SA	O	N	O/C	FF-Q	RF-Q						
CC129	MU Pump 1 CCW Outlet Valve from Lube Oil Cooler.	16	3	C	At	036B	F2	1.5	SC	SA	T	N	O	FF-Q	RF-Q						
CC130	MU Pump 2 CCW Outlet Valve from Lube Oil Cooler.	16	3	C	At	036B	F4	1.5	SC	SA	T	N	O	FF-Q	RF-Q						
CC183	CCW to RCP 1-1 Thermal barrier Line Check Valve	16	3	C	At	040D	J3	1.5	CK	SA	O	N	C	FF-Q	RF-Q			RJ-1	FF-SI	RF-R	
CC256	CCW Cooling from Loop 1 for MU Pump 1.	16	3	C	At	036B	G3	1.5	SC	SA	C	N	O	FF-Q	RF-Q						
CC263	CCW Cooling from Loop 2 for MU Pump 2.	16	3	C	At	036B	G4	1.5	SC	SA	C	N	O	FF-Q	RF-Q						
CC283	CCW to RCS Pump 1-2 Thermal Barrier Line Check Valve	16	3	C	At	040D	J3	1.5	CK	SA	O	N	C	FF-Q	RF-Q			RJ-1	FF-SI	RF-R	
CC383	CCW to RCS Pump 2-1 Thermal Barrier Line Check Valve	16	3	C	At	040D	J3	1.5	CK	SA	O	N	C	FF-Q	RF-Q			RJ-1	FF-SI	RF-R	
CC483	CCW to RCS Pump 2-2 Thermal Barrier Line Check Valve	16	3	C	At	040D	J3	1.5	CK	SA	O	N	C	FF-Q	RF-Q			RJ-1	FF-SI	RF-R	
CC532	CCW Line 2 to Non-essential Header Isolation Check Valve	16	3	C	At	036A	F9	20	CK	SA	E	N	C	FF-Q	RF-Q						
CC533	CCW Line 1 to Non-essential Header Isolation Check Valve	16	3	C	At	036A	H9	20	CK	SA	E	N	C	FF-Q	RF-Q						
CC1328	CCW Inlet to CRDC Booster Pump 1 Block Valve	16	3	B	At	036C	H9	3	GT	MO	O	AI	C		TC-Q	PV-2Y					
CC1338	CCW Inlet to CRDC Booster Pump 2 Block Valve	16	3	B	At	036C	H7	3	GT	MO	O	AI	C		TC-Q	PV-2Y					
CC1407A	CCW Return from CTMT CIV	16	2	A	At	036C	C8	12	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-10		TC-C	
CC1407B	CCW Return from CTMT CIV	16	2	A	At	036C	C9	12	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-10		TC-C	

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
CC1407C	CCW Penetration #4 Check Valve	16	2	AC	At	036C	C8	3/8	CK	SA	C	N	O/C	FF-Q	RF-Q		LJ-B	CS-11	FF-C	RF-C	
CC1411A	CCW to CTMT CIV	16	2	A	At	036C	G3	12	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-12		TC-C	
CC1411B	CCW to CTMT CIV	16	2	A	At	036C	H3	12	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-12		TC-C	
CC1411C	CCW Penetration #3 Check Valve	16	2	AC	At	036C	G3	3/8	CK	SA	C	N	O/C	FF-Q	RF-Q		LJ-B	CS-13	FF-C	RF-C	
CC1460	CCW to MU Pump Header Inlet Valve	16	3	B	At	036A	F11	1.5	GL	AO	O	C	C		TC-Q	PV-2Y	FC-Q				
CC1467	DH Cooler 1 CCW Outlet Isolation Valve	16	3	B	At	036B	B8	18	BF	AO	C	O	O	TO-Q		PV-2Y	FO-Q				
CC1469	DH Cooler 2 CCW Outlet Isolation Valve	16	3	B	At	036B	A8	18	BF	AO	C	O	O	TO-Q		PV-2Y	FO-Q				
CC1495	CCW to Aux Bldg Non-essentials Isolation Valve	16	3	B	At	036A	H11	16	BF	AO	O	C	C		TC-Q	PV-2Y	FC-Q				
CC1567A	CCW Inlet to CRD Cooling CIV	16	2	A	At	036C	E9	3	GT	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-14		TC-C	
CC1567B	CCW Inlet to CRD Cooling CIV	16	2	A	At	036C	E10	3	GT	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-14		TC-C	
CC1568	CCW Penetration #12 Check Valve	16	2	AC	At	036C	F9	3/8	CK	SA	C	N	O/C	FF-Q	RF-Q		LJ-B	CS-15	FF-C	RF-C	
CC1643	CCW Surge Tank Relief Valve	16	3	C	At	036A	A8	3x4	RL	SA	C	N	O	SR-10Y							
CC2645	CCW Return Line from Aux Bldg non-essential. Isolation Valve	16	3	B	At	036B	C3	16	GT	MO	O	AI	C		TC-Q	PV-2Y					
CC2649	CCW Return Line from Aux Bldg Non-essential Isolation Valve	16	3	B	At	036B	C3	16	GT	MO	C	AI	C		TC-Q	PV-2Y					
CC3602	CCW Surge Tank Relief Valve	16	3	C	At	036A	A9	3x4	RL	SA	C	N	O	SR-10Y							
CC4100	RCP 1-1 Seal Cooler CCW Return Valve	16	3	B	At	040D	K3	1.5	GL	MO	O	AI	C		TC-Q	PV-2Y		CS-16		TC-C	
CC4200	RCP 1-2 Seal Cooler CCW Return Valve	16	3	B	At	040D	K3	1.5	GL	MO	O	AI	C		TC-Q	PV-2Y		CS-16		TC-C	
CC4300	RCP 2-1 Seal Cooler CCW Return Valve	16	3	B	At	040D	K3	1.5	GL	MO	O	AI	C		TC-Q	PV-2Y		CS-16		TC-C	
CC4400	RCP 2-2 Seal Cooler CCW Return Valve	16	3	B	At	040D	K3	1.5	GL	MO	O	AI	C		TC-Q	PV-2Y		CS-16		TC-C	
CC5095	CCW Line 1 Discharge Header Cross-tie Line Block Valve	16	3	B	At	036A	G9	20	GT	MO	O	AI	C		TC-Q	PV-2Y					
CC5096	CCW Line 2 Discharge Header Cross-tie Line Block Valve	16	3	B	At	036A	H9	20	GT	MO	C	AI	C		TC-Q	PV-2Y					
CC5097	CCW Line 1 Return Block Valve	16	3	B	At	036B	C5	12	GT	MO	O	AI	C		TC-Q	PV-2Y					
CC5098	CCW Line 2 Return Block Valve	16	3	B	At	036B	C5	12	GT	MO	C	AI	C		TC-Q	PV-2Y					
CC11203	Letdown Cooler CCW Inlet Relief Valve	16	3	C	At	036C	E3	6X10	RL	SA	C	N	O	SR-10Y							
CF1A	CFT 2 to RCS Isolation Valve	51	2	B	P	034	J3	14	GT	MO	O	AI	O			PV-2Y					

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
CF1B	CFT 1 to RCS Isolation Valve	51	2	B	P	034	J8	14	GT	MO	O	AI	O			PV-2Y					
CF2A	CFT 2 Bleed Line CIV	51	2	A	P	034	H5	1	GL	MO	LC	AI	C			PV-2Y	LJ-B				
CF2B	CFT 1 Bleed Line CIV	51	2	A	P	034	H6	1	GL	MO	LC	AI	C			PV-2Y	LJ-B				
CF2C	CF Penetration #47A Check Valve	51	2	AC	At	034	J6	3/8	CK	SA	C	N	O/C	FF-Q	RF-Q		LJ-B	CS-17	FF-C	RF-C	
CF5A	CFT 2 Vent Line CIV	51	2	A	P	034	G4	1	GL	MO	LC	AI	C			PV-2Y	LJ-B				
CF5B	CFT 1 Vent Line CIV	51	2	A	P	034	G6	1	GL	MO	LC	AI	C			PV-2Y	LJ-B				
CF7A	CFT 2 Safety Relief Valve	51	2	C	At	034	G3	1x2	RL	SA	C	N	O	SR-10Y							
CF7B	CFT 1 Safety Relief Valve	51	2	C	At	034	G8	1x2	RL	SA	C	N	O	SR-10Y							
CF15	CFT 2 Fill and Pressurizing Stop Check CIV	51	2	AC	At	034	G3	1	SC	SA	C	N	C	FF-Q	RF-Q		LJ-B	CS-18	FF-C	RF-SI	
CF16	CFT 1 Fill and Pressurizing Stop Check CIV	51	2	AC	At	034	G9	1	SC	SA	C	N	C	FF-Q	RF-Q		LJ-B	CS-18	FF-C	RF-SI	
CF28	CFT 2 to RX Check Valve	51	1	C	At	033B	B4	14	CK	SA	C	N	O	FF-Q	RF-Q			RJ-2	FF-R	RF-SI	
CF29	CFT 1 to RX Check Valve	51	1	C	At	033B	B2	14	CK	SA	C	N	O	FF-Q	RF-Q			RJ-2	FF-R	RF-SI	
CF30	CFT 2/LPI Injection to Reactor Check Valve	51	1	AC	At	033B	B3	14	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-2	FF-R	RF-SI	
CF31	CFT 1/LPI Injection to Reactor Check Valve	51	1	AC	At	033B	B2	14	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-2	FF-R	RF-SI	
CF1541	CFT 2 Fill and Pressurization CIV	51	2	A	At	034	F10	1	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
CF1542	CFT Vent to Waste Gas CIV	51	2	A	At	034	E10	1	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
CF1544	CFT 1 Fill and Pressurization CIV	51	2	A	At	034	G10	1	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
CF1545	CFT Bleed Line CIV	51	2	A	At	034	F10	1	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
CS9	CS Pump 2 Discharge Line Check Valve	61	2	AC	At	034	B9	8	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y					
CS10	CS Pump 1 Discharge Line Check Valve	61	2	AC	At	034	D9	8	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y					
CS17	CS Pump 2 Test Line CIV	61	2	A	P	034	A6	8	GL	MA	C	N	C				LJ-B				
CS18	CS Pump 1 Test Line CIV	61	2	A	P	034	C6	8	GL	MA	C	N	C				LJ-B				
CS33	CS Pump 2 Test Line CIV	61	2	A	P	034	A6	8	GT	MA	LC	N	C				LJ-B				
CS36	CS Pump 1 Test Line CIV	61	2	A	P	034	C6	8	GT	MA	LC	N	C				LJ-B				
CS1530	CS Pump 1 Discharge Line CIV	61	2	A	At	034	D7	8	GL	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CS1531	CS Pump 2 Discharge Line CIV	61	2	A	At	034	B7	8	GL	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV124	CTMT Gas Analyzer Return CIV	60	2	AC	At	029B	G9	1	CK	SA	O	N	O/C	FF-Q	RF-Q		LJ-B	CS-19	FF-SI	RF-C	

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
CV125	CTMT Gas Analyzer Return CIV	60	2	AC	At	029B	H9	1	CK	SA	O	N	O/C	FF-Q	RF-Q		LJ-B	CS-19	FF-SI	RF-C	
CV186	H2 Dilution Blower 1 Discharge Line Check Valve	60	3	C	At	029D	E12	2	CK	SA	C	N	O	FF-Q	RF-Q						
CV187	H2 Dilution Blower 2 Discharge Line Check Valve	60	3	C	At	029D	G11	2	CK	SA	C	N	O	FF-Q	RF-Q						
CV209	H2 Dilution Blower 1 Discharge Line CIV	60	2	AC	At	029D	G9	4	CK	SA	C	N	O/C	FF-Q	RF-Q		LJ-B	CS-20	FF-SI	RF-C	
CV210	H2 Dilution Blower 2 Discharge Line CIV	60	2	AC	At	029D	G9	4	CK	SA	C	N	O/C	FF-Q	RF-Q		LJ-B	CS-20	FF-SI	RF-C	
CV343	CTMT leak Test Line CIV	60	2	A	P	029B	G4	8	GT	MA	LC	N	C				LJ-B				
CV624B	CTMT/Annulus D/P Sensing Line CIV	60	2	B	P	029B	E10	0.75	GT	MO	O	AI	O			PV-2Y					
CV645B	CTMT/Annulus D/P Sensing Line CIV	60	2	B	P	029B	D4	0.75	GT	MO	O	AI	O			PV-2Y					
CV2000B	CTMT Pressure Sensing Line CIV for SFAS & RPS	60	2	B	P	029B	D10	1	GT	MO	O	AI	O			PV-2Y					
CV2001B	CTMT Pressure Sensing Line CIV for SFAS & RPS	60	2	B	P	029B	D10	1	GT	MO	O	AI	O			PV-2Y					
CV2002B	CTMT Pressure Sensing Line CIV for SFAS & RPS	60	2	B	P	029B	F4	1	GT	MO	O	AI	O			PV-2Y					
CV2003B	CTMT Pressure Sensing Line CIV for SFAS & RPS	60	2	B	P	029B	F4	1	GT	MO	O	AI	O			PV-2Y					
CV3876	H2 Dilution Blower 2 Pressure Relief Valve	60	3	C	At	029D	G11	1x1.5	RL	SA	C	N	O	SR-10Y							
CV3877	H2 Dilution Blower 1 Pressure Relief Valve	60	3	C	At	029D	E11	1x1.5	RL	SA	C	N	O	SR-10Y							
CV5005	CTMT Purge Supply CIV	60	2	A	At	029E	E11	48	BF	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-21	FC-C	TC-C	
CV5006	CTMT Purge Supply CIV	60	2	A	At	029E	E10	48	BF	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-21	FC-C	TC-C	
CV5007	CTMT Purge Exhaust CIV	60	2	A	At	029E	G5	48	BF	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-21	FC-C	TC-C	
CV5008	CTMT Purge Exhaust CIV	60	2	A	At	029E	G4	48	BF	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-21	FC-C	TC-C	
CV5010A	CTMT H2 Analyzer Sample Line CIV	60	2	A	At	029B	H5	1	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5010B	CTMT H2 Analyzer Sample Line CIV	60	2	A	At	029B	J4	1	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5010C	CTMT H2 Analyzer Sample Line CIV	60	2	A	At	029B	F9	1	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5010D	CTMT H2 Analyzer Sample Line CIV	60	2	A	At	029B	G11	1	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5010E	CTMT H2 Analyzer CIV	60	2	A	At	029B	G11	1.5	DA	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5011A	CTMT H2 Analyzer Sample Line CIV	60	2	A	At	029B	H3	1	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5011B	CTMT H2 Analyzer Sample Line CIV	60	2	A	At	029B	J5	1	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
CV5011C	CTMT H2 Analyzer Sample Line CIV	60	2	A	At	029B	F11	1	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5011D	CTMT H2 Analyzer Sample Line CIV	60	2	A	At	029B	G9	1	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5011E	CTMT H2 Analyzer CIV	60	2	A	At	029B	H11	1.5	DA	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5037	H2 Purge CIV	60	2	A	At	029D	G4	4	BF	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5038	H2 Purge CIV	60	2	A	At	029D	G4	4	BF	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5065	H2 Dilution System 2 CIV	60	2	A	At	029D	G10	4	BF	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				
CV5070	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5071	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5072	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5073	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5074	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5075	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5076	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5077	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5078	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5079	CTMT Vacuum Breaker CIV	60	2	A	At	029B	C5	8	BF	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
CV5080	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5081	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5082	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5083	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5084	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5085	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5086	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5087	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5088	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5089	CTMT Vacuum Relief Valve	60	2	AC	At	029B	C5	8	VR	SA	C	N	O/C	SO-R	SC-R	WT-R	LK-2Y	RV-1			LJ-B
CV5090	H2 Dilution System 1 CIV	60	2	A	At	029D	F10	4	BF	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
DA24	EDG Air Start compressor to Air Receiver Tk 1-1 Line Check Valve	24	3	C	At	017B	C3	0.75	CK	SA	E	N	C	FF-Q	RF-Q						
DA25	EDG Air Start Compressor to Air Receiver Tk 2-1 Line Check Valve	24	3	C	At	017B	G3	0.75	CK	SA	E	N	C	FF-Q	RF-Q						
DA38	EDG Air Start Compressor to Air Receiver Tk 1-2 Line Check Valve	24	3	C	At	017B	D3	0.75	CK	SA	E	N	C	FF-Q	RF-Q						
DA39	EDG Air Start Compressor to Air Receiver Tk 2-2 Line Check Valve	24	3	C	At	017B	J3	0.75	CK	SA	E	N	C	FF-Q	RF-Q						
DA1135	Air Start Receiver Tank 1-1 Relief Valve	24	3	C	At	017B	B4	1.0 x 1.5	RL	SA	C	N	O	SR-10Y							
DA1138	Air Start Receiver Tank 1-2 Relief Valve	24	3	C	At	017B	D4	1.0 x 1.5	RL	SA	C	N	O	SR-10Y							
DA1141	Air Start Receiver Tank 2-1 Relief Valve	24	3	C	At	017B	F4	1.0 x 1.5	RL	SA	C	N	O	SR-10Y							
DA1144	Air Start Receiver Tank 2-2 Relief Valve	24	3	C	At	017B	H4	1.0 x 1.5	RL	SA	C	N	O	SR-10Y							
DH7A	BWST to ECCS Train 2 Isolation Valve	49	2	B	At	033A	D11	14	GT	MO	LO	AI	O/C	TO-Q	TC-Q	PV-2Y		CS-22	TO-C	TC-C	
DH7B	BWST to ECCS Train 1 Isolation Valve	49	2	B	At	033A	D10	14	GT	MO	LO	AI	O/C	TO-Q	TC-Q	PV-2Y		CS-22	TO-C	TC-C	
DH9A	DH Pump 2 Suction from CTMT Emergency Sump.	49	2	B	At	033C	H3	14	GT	MO	LC	AI	O/C	TO-Q	TC-Q	PV-2Y		RJ-3	TO-R	TC-R	
DH9B	DH Pump 1 Suction from CTMT Emergency Sump.	49	2	B	At	033B	K6	14	GT	MO	LC	AI	O/C	TO-Q	TC-Q	PV-2Y		RJ-3	TO-R	TC-R	
DH11	RCS to DH System Isolation Valve	49	1	B	At	033B	H3	12	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y		CS-23	TO-C	TC-C	
DH12	RCS to DH System Isolation Valve	49	1	B	At	033B	H2	12	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y		CS-23	TO-C	TC-C	
DH13A	DH Cooler 2 Bypass Flow Control Valve	49	2	B	At	033C	F10	6	BF	AO	C	C	C	TC-Q	FC-Q	PV-2Y					
DH13B	DH Cooler 1 Bypass Flow Control Valve	49	2	B	At	033B	G12	6	BF	AO	C	C	C	TC-Q	FC-Q	PV-2Y					
DH14A	DH Cooler 2 Outlet Flow Control Valve	49	2	B	At	033C	C9	10	BF	AO	LO	O	O	TO-Q	FO-Q	PV-2Y					
DH14B	DH Cooler 1 Outlet Flow Control Valve	49	2	B	At	033B	E11	10	BF	AO	LO	O	O	TO-Q	FO-Q	PV-2Y					
DH42	DH Pump 2 Discharge Check Valve	49	2	C	At	033C	F9	10	CK	SA	C	N	O	FF-Q	RF-Q			SDJ-1	PF-RE	SD-RE	
DH43	DH Pump 1 Discharge Check Valve	49	2	C	At	033B	G10	10	CK	SA	C	N	O	FF-Q	RF-Q			SDJ-1	PF-RO	SD-RO	
DH49	RCS Thermal Expansion Check Valve	49	1	C	At	033B	J3	1.5	CK	SA	C	N	O/C	FF-Q	RF-Q			RJ-4	FF-R	RF-R	
DH63	DH Pump 2 Discharge to HPI Pump 2 Suction Isolation Valve	49	2	B	At	033B	B11	4	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
DH64	DH Pump 1 Discharge to HPI Pump 1 Suction Isolation Valve	49	2	B	At	033B	C9	4	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
DH76	DH Pump 2 Discharge to RCS Stop Check Valve	49	1	AC	At	033B	B4	10	SC	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		CS-24	FF-C	RF-C	
DH77	DH Pump 1 Discharge to RCS Stop Check Valve	49	1	AC	At	033B	D3	10	SC	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		CS-24	FF-C	RF-C	
DH81	DH Pump 1 Suction from BWST Check Valve	49	2	C	At	033A	H10	14	CK	SA	C	N	O/C	FF-Q	RF-Q			CS-25	FF-C	RF-C	
DH82	DH Pump 2 Suction from BWST Check Valve	49	2	C	At	033A	F11	14	CK	SA	C	N	O/C	FF-Q	RF-Q			CS-25	FF-C	RF-C	
DH87	Penetration P49 CIV	49	2	A	P	033B	E6	8	GT	MA	LC	N	C				LJ-B				
DH88	Penetration P49 CIV	49	2	A	P	033B	E5	8	GT	MA	LC	N	C				LJ-B				
DH125	DH Cooler Cross-connect Bypass Stop Check Valve	49	2	C	At	033C	D10	8	SC	SA	C	N	C	FF-Q	RF-Q			CS-26	FF-SI	RF-C	
DH126	DH Cooler Cross-connect Bypass Check Valve	49	2	C	At	033C	D10	8	CK	SA	C	N	C	FF-Q	RF-Q			CS-26	FF-SI	RF-C	
DH127	DH Cooler Cross-connect Bypass Stop Check Valve	49	2	C	At	033B	F12	8	SC	SA	C	N	C	FF-Q	RF-Q			CS-26	FF-SI	RF-C	
DH128	DH Cooler Cross-connect Bypass Check Valve	49	2	C	At	033B	F11	8	CK	SA	C	N	C	FF-Q	RF-Q			CS-26	FF-SI	RF-C	
DH830	DH Cooler Cross-connect Valve	49	2	B	At	033C	D10	8	GT	MO	LC	AI	C		TC-Q	PV-2Y					
DH831	DH Cooler Cross-connect Valve	49	2	B	At	033B	F11	8	GT	MO	LC	AI	C		TC-Q	PV-2Y					
DH1508	DH Pump 1 Emergency Sump Line Relief Valve	49	2	C	At	033B	J7	.75x1	RL	SA	C	N	O	SR-10Y							
DH1509	DH Pump 2 Emergency Sump Line Relief Valve	49	2	C	At	033C	H4	.75x1	RL	SA	C	N	O	SR-10Y							
DH1517	DH Pump 1 Suction from RCS.	49	2	B	At	033B	G6	12	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
DH1518	DH Pump 2 Suction from RCS.	49	2	B	At	033C	F3	12	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
DH1529	DH Pump 1 Injection Line Relief Valve	49	2	C	At	033B	D8	1.5x2	RL	SA	C	N	O	SR-10Y							
DH1550	DH Pump 2 Injection Line Relief Valve	49	2	C	At	033B	A10	1.5x2	RL	SA	C	N	O	SR-10Y							
DH2733	DH Pump 1 Suction Valve from BWST or Emergency Sump.	49	2	B	At	033B	J8	18	GT	MO	LO	AI	O/C	TC-Q	TO-Q	PV-2Y					
DH2734	DH Pump 2 Suction Valve from BWST or Emergency Sump.	49	2	B	At	033C	H6	18	GT	MO	LO	AI	O/C	TC-Q	TO-Q	PV-2Y					
DH2735	DH Auxiliary Spray Line Stop CIV	49	1	A	At	033B	A6	1.5	GT	MO	LC	AI	O/C	TO-Q	TC-Q	LJ-B	PV-2Y				
DH2736	DH Auxiliary Spray throttle CIV	49	2	A	At	033B	B6	1.5	GL	MO	LC	AI	O/C	TO-Q	TC-Q	PV-2Y	LJ-B				

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
DH2761	DH to Spent Fuel Pool Relief Valve	49	3	C	At	033A	G8	1.5x2	RL	SA	C	N	O	SR-10Y							
DH4633	DH Train 1 Sample Isolation Valve	49	2	B	P	033B	H11	1	SV	SO	C	C	C			PV-2Y					
DH4636	DH Train 2 Sample Isolation Valve	49	2	B	P	033C	F10	1	SV	SO	C	C	C			PV-2Y					
DH4849	DH Cool down Line Relief Valve	49	2	C	At	033B	H5	4x6	RL	SA	C	N	O	SR-10Y							
DR2012	Penetration #13 Relief Valve	20	2	C	At	046	C7	.75 x 1	RL	SA	C	N	O/C	SR-10Y			LJ-B				
DR2012A	CTMT Normal Sump Inside CIV	20	2	A	At	046	C6	4	GT	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
DR2012B	CTMT Normal Sump Outside CIV	20	2	A	At	046	C7	4	GT	MO	O	AI	C		TC-Q	PV-2Y	LJ-B				
DW2643	DW Makeup to CCW Surge Tank Line Isolation Valve	37	3	B	At	036A	C9	1	GL	AO	C	C	C	FC-Q	TO-Q	TC-Q	PV-2Y				
DW6831A	DW Supply Line CIV	37	2	A	At	010C	F8	4	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
DW6831B	DW Supply Line CIV	37	2	A	At	010C	F7	4	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
FW601	OTSG 2 Main FW Stop Valve	45	2	B	At	007B	E3	18	GT	MO	O	AI	C		TC-Q	PV-2Y		CS-27		TC-C	
FW612	OTSG 1 Main FW Stop Valve	45	2	B	At	007B	E10	18	GT	MO	O	AI	C		TC-Q	PV-2Y		CS-27		TC-C	
HP2A	HPI to RCS Injection Line 2-1 CIV	52	2	B	At	033A	E3	2.5	GL	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
HP2B	HPI to RCS Injection Line 2-2 CIV	52	2	B	At	033A	F3	2.5	GL	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
HP2C	HPI to RCS Injection Line 1-1 CIV	52	2	B	At	033A	H3	2.5	GL	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
HP2D	HPI to RCS Injection Line 1-2 CIV	52	2	B	At	033A	J3	2.5	GL	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
HP10	HPI Pump 1 Suction Line Check Valve	52	2	C	At	033A	H9	6	CK	SA	C	N	O/C	FF-Q	RF-Q			RJ-5	FF-R	RF-SI	
HP11	HPI Pump 2 Suction Line Check Valve	52	2	C	At	033A	E11	6	CK	SA	C	N	O/C	FF-Q	RF-Q			RJ-5	FF-R	RF-SI	
HP22	HPI Pump 1 Discharge Line Check Valve	52	2	C	At	033A	H6	4	CK	SA	C	N	O	FF-Q	RF-Q			RJ-5	FF-R	RF-SI	
HP23	HPI Pump 2 Discharge Line Check Valve	52	2	C	At	033A	E6	4	CK	SA	C	N	O	FF-Q	RF-Q			RJ-5	FF-R	RF-SI	
HP31	HPI Pump 2 Reculation Stop Check Valve	52	2	BC	At	033A	D6	1.5	SC	MO	C	N	O/C	FF-Q	RF-Q	PV-2Y	TC-Q				
HP32	HPI Pump 1 Reculation Stop Check Valve	52	2	BC	At	033A	K6	1.5	SC	MO	C	N	O/C	FF-Q	RF-Q	PV-2Y	TC-Q	CS-28	FF-SI	RF-C	
HP33	HPI Pumps Reculation Line to BWST Check Valve	52	2	C	At	033A	B8	3	CK	SA	C	N	O	FF-Q	RF-Q			CS-29	FF-SI	RF-C	
HP48	HPI Alternate MU to RCS Injection Line 1-1 Stop Check Valve	52	1	C	At	033A	H2	2.5	SC	SA	C	N	O	FF-Q	RF-Q			RJ-6	FF-R	RF-SI	
HP49	HPI to RCS Injection Line 1-2 Stop Check Valve	52	1	C	At	033A	J2	2.5	SC	SA	C	N	O	FF-Q	RF-Q			RJ-6	FF-R	RF-SI	

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
HP50	HPI Alternate MU to RCS Injection Line 1-1 Check Valve	52	1	C	At	033A	H2	2.5	CK	SA	C	N	O	FF-Q	RF-Q			RJ-6	FF-R	RF-SI	
HP51	HPI to RCS Injection Line 1-2 Check Valve	52	1	C	At	033A	J2	2.5	CK	SA	C	N	O	FF-Q	RF-Q			RJ-6	FF-R	RF-SI	
HP56	HPI/MU to RCS Injection Line 2-2 Stop Check Valve	52	1	C	At	033A	F2	2.5	SC	SA	O	N	O	FF-Q	RF-Q			RJ-6	FF-R	RF-SI	
HP57	HPI to RCS Injection Line 2-1 Stop Check Valve	52	1	C	At	033A	E2	2.5	SC	SA	C	N	O	FF-Q	RF-Q			RJ-6	FF-R	RF-SI	
HP58	HPI/MU to RCS Injection Line 2-2 Check Valve	52	1	C	At	033A	F2	2.5	CK	SA	O	N	O	FF-Q	RF-Q			RJ-6	FF-R	RF-SI	
HP59	HPI pump to RCS Injection Line 2-1Check Valve	52	1	C	At	033A	E2	2.5	CK	SA	C	N	O	FF-Q	RF-Q			RJ-6	FF-R	RF-SI	
HP1510	HPI Pump 1 Suction Line Relief Valve	52	2	C	At	033A	H8	1.5 x 1.5	RL	SA	C	N	O	SR-10Y							
HP1511	HPI Pump 2 Suction Line Relief Valve	52	2	C	At	033A	E8	1.5 x 1.5	RL	SA	C	N	O	SR-10Y							
IA501	IA to CTMT Check Valve	18	2	AC	At	015A	E7	1	CK	SA	O	N	C	FF-Q	RF-Q		LJ-B	CS-30	FF-SI	RF-C	
IA2011	IA to CTMT CIV	18	2	A	At	015A	E6	1	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
SA502	SA to CTMT Check Valve CIV	18	2	AC	At	015D	F7	1.5	CK	SA	C	N	C	FF-Q	RF-Q		LJ-B	CS-31	FF-SI	RF-C	
SA532	Upper CS Header Air Test CIV	18	2	A	P	034	B4	2	GL	MA	C	N	C				LJ-B				
SA533	Lower CS Header Air Test CIV	18	2	A	P	034	C5	2	GL	MA	C	N	C				LJ-B				
SA535	Lower CS Header Air Test CIV	18	NC	A	P	034	C5	2	GT	MA	LC	N	C				LJ-B				
SA536	Upper CS Header Air Test CIV	18	NC	A	P	034	A5	2	GT	MA	LC	N	C				LJ-B				
SA2010	SA to CTMT CIV	18	2	A	At	015D	F6	1.5	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
ICS11A	MS Line 2 atmospheric Vent Valve	83	2	B	At	007A	D7	8x36	AN	AO	C	C	O/C	TO-Q	TC-Q	PV-2Y	FC-Q	CS-32	TO-C	TC-C	FC-C
ICS11B	MS Line 1 atmospheric Vent Valve	83	2	B	At	007A	D8	8x36	AN	AO	C	C	O/C	TO-Q	TC-Q	PV-2Y	FC-Q	CS-32	TO-C	TC-C	FC-C
MS100	MS Line 2 Isolation Valve	83	2	B	At	003A	F4	36	BS	AO	O	C	C	FC-Q	TC-Q	PV-2Y		CS-33		TC-C	FC-C
MS100-1	MS Line 2 MSIV Bypass Valve	83	2	B	At	003A	F4	2	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y					
MS101	MS Line 1 Isolation Valve	83	2	B	At	003A	C4	36	BS	AO	O	C	C	FC-Q	TC-Q	PV-2Y		CS-33		TC-C	FC-C
MS101-1	MS Line 1 MSIV Bypass Valve	83	2	B	At	003A	C4	2	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y					
MS106	MS Line 1 to AFPT 1 Isolation Valve	83	2	B	At	003C	B3	6	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
MS106A	MS Line 2 to AFPT 1 cross-tie Isolation Valve	83	2	B	At	003C	C5	6	GT	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y					
MS107	MS Line 2 to AFPT 2 Isolation Valve	83	2	B	At	003C	B7	6	GT	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
MS107A	MS Line 1 to AFPT 2 cross-tie Isolation Valve	83	2	B	At	003C	C6	6	GT	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y					
MS145	AFPT MS Minimum Flow Line Check Valve	83	3	C	At	003C	E3	1.5	CK	SA	O	N	C	FF-Q	RF-Q			CS-34	FF-SI	RF-C	
MS146	AFPT MS Minimum Flow Line Check Valve	83	3	C	At	003C	E7	1.5	CK	SA	O	N	C	FF-Q	RF-Q			CS-34	FF-SI	RF-C	
MS375	MS Line 2 Warm-up Drain CIV	83	2	B	At	003A	G7	1.5	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y					
MS394	MS Line 1 Warm-up Drain CIV	83	2	B	At	003A	D7	1.5	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y					
MS603	SG 2 Blowdown Line Isolation Valve	83	2	B	At	007B	G1	4	GT	MO	C	AI	C		TC-Q	PV-2Y					
MS611	SG 1 Blowdown Line Isolation Valve	83	2	B	At	007B	H12	4	GT	MO	C	AI	C		TC-Q	PV-2Y					
MS726	MS Line 1 to AFW Pump Turbine 1 Supply Line Check Valve	83	3	C	At	003C	B3	6	CK	SA	C	N	O/C	FF-Q	RF-Q			SDJ-2	PF-RO	SD-RO	
MS727	MS Line 2 to AFW Pump Turbine 2 Supply Line Check Valve	83	3	C	At	003C	B7	6	CK	SA	C	N	O/C	FF-Q	RF-Q			SDJ-2	PF-RE	SD-RE	
MS734	MS Line 2 to AFW Pump Turbine 1 Cross-tie Check Valve	83	3	C	At	003C	C3	6	CK	SA	O	N	O/C	FF-Q	RF-Q						
MS735	MS Line 1 to AFW Pump Turbine 2 Cross-tie Check Valve	83	3	C	At	003C	C7	6	CK	SA	O	N	O/C	FF-Q	RF-Q						
MS5889A	AFW Pump Turbine 1 steam Admission Valve	83	3	B	At	003C	E2	4	GL	AO	C	O	O	TO-Q		PV-2Y	FO-Q				
MS5889B	AFW Pump Turbine 2 steam Admission Valve	83	3	B	At	003C	E8	4	GL	AO	C	O	O	TO-Q		PV-2Y	FO-Q				
SP17A1	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	A7	6x10	RL	SA	C	N	O	SR-5Y							
SP17A2	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	B7	6x10	RL	SA	C	N	O	SR-5Y							
SP17A3	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	B5	6x10	RL	SA	C	N	O	SR-5Y							
SP17A4	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	A6	6x10	RL	SA	C	N	O	SR-5Y							
SP17A5	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	B6	6x10	RL	SA	C	N	O	SR-5Y							
SP17A6	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	A6	6x8	RL	SA	C	N	O	SR-5Y							
SP17A7	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	B6	6x8	RL	SA	C	N	O	SR-5Y							
SP17A8	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	B5	6x10	RL	SA	C	N	O	SR-5Y							
SP17A9	MS Line 2 Code Safety Relief Valve	83	2	C	At	007A	A5	6x10	RL	SA	C	N	O	SR-5Y							
SP17B1	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	A9	6x10	RL	SA	C	N	O	SR-5Y							
SP17B2	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	B8	6x10	RL	SA	C	N	O	SR-5Y							
SP17B3	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	B10	6x10	RL	SA	C	N	O	SR-5Y							

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
SP17B4	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	A10	6x10	RL	SA	C	N	O	SR-5Y							
SP17B5	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	B9	6x10	RL	SA	C	N	O	SR-5Y							
SP17B6	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	A9	6x8	RL	SA	C	N	O	SR-5Y							
SP17B7	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	B9	6x8	RL	SA	C	N	O	SR-5Y							
SP17B8	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	B11	6x10	RL	SA	C	N	O	SR-5Y							
SP17B9	MS Line 1 Code Safety Relief Valve	83	2	C	At	007A	A10	6x10	RL	SA	C	N	O	SR-5Y							
MU1A	RC Letdown Cooler 1 Inlet Isolation Valve	65	1	B	At	031A	E5	2.5	GT	MO	O	AI	C		TC-Q	PV-2Y		CS-35		TC-C	
MU1B	RC Letdown Cooler 2 Inlet Isolation Valve	65	1	B	At	031A	F5	2.5	GT	MO	O	AI	C		TC-Q	PV-2Y		CS-35		TC-C	
MU2A	Letdown Cooler Outlet CIV	65	2	A	At	031A	E8	2.5	GT	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-35		TC-C	
MU2B	RC letdown Isolation Valve	65	1	B	At	031A	E3	2.5	GT	MO	O	AI	C		TC-Q	PV-2Y		CS-35		TC-C	
MU3	Letdown CIV	65	2	A	At	031A	E9	2.5	GT	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-35	FC-C	TC-C	
MU38	RCP Seal Return CIV	65	2	A	At	031B	B7	1	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-36	FC-C	TC-C	
MU59A	RCP 2-1 Seal Return CIV	65	2	A	At	031B	B2	1	GL	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-36		TC-C	
MU59B	RCP 2-2 Seal Return CIV	65	2	A	At	031B	C2	1	GL	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-36		TC-C	
MU59C	RCP 1-1 Seal Return CIV	65	2	A	At	031B	D3	1	GL	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-36		TC-C	
MU59D	RCP 1-2 Seal Return CIV	65	2	A	At	031B	E3	1	GL	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-36		TC-C	
MU66A	RCP 2-1 Seal Injection CIV	65	2	A	At	031B	K6	1.5	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-36	FC-C	TC-C	
MU66B	RCP 2-2 Seal Injection CIV	65	2	A	At	031B	J5	1.5	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-36	FC-C	TC-C	
MU66C	RCP 1-1 Seal Injection CIV	65	2	A	At	031B	H5	1.5	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-36	FC-C	TC-C	
MU66D	RCP 1-2 Seal Injection CIV	65	2	A	At	031B	F6	1.5	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B	CS-36	FC-C	TC-C	
MU169	Normal MU to RCS Injection Line Check Valve	65	2	C	At	031C	G2	2	CK	SA	O	N	O/C	FF-Q	RF-Q			CS-37	FF-SI	RF-C	
MU242	RCP 2-1 Seal Injection Stop Check CIV	65	2	AC	At	031B	K5	1.5	SC	SA	O	N	C	FF-Q	RF-Q		LJ-B	CS-38	FF-SI	RF-C	
MU243	RCP 2-2 Seal Injection Stop Check CIV	65	2	AC	At	031B	J5	1.5	SC	SA	O	N	C	FF-Q	RF-Q		LJ-B	CS-38	FF-SI	RF-C	
MU244	RCP 1-1 Seal Injection Stop Check CIV	65	2	AC	At	031B	H5	1.5	SC	SA	O	N	C	FF-Q	RF-Q		LJ-B	CS-38	FF-SI	RF-C	
MU245	RCP 1-2 Seal Injection Stop Check CIV	65	2	AC	At	031B	F5	1.5	SC	SA	O	N	C	FF-Q	RF-Q		LJ-B	CS-38	FF-SI	RF-C	
MU800	Alternate MU to RCS Injection Line Check Valve	65	2	C	At	031C	D2	2.5	CK	SA	C	N	O/C	FF-Q	RF-Q			CS-39	FF-C	RF-SI	
MU3971	3-way Valve to Align MU Pump Suction to BWST or MU Tank.	65	2	B	At	031C	F11	4	TW	MO	O	AI	C		TC-Q	PV-2Y		CS-40		TC-C	

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
MU6405	3-way Valve to align MU Pump Suction to BWST or MU Tank.	65	2	B	At	031C	D10	4	TW	MO	O	AI	C		TC-Q	PV-2Y		CS-40		TC-C	
MU6421	Alternate MU to RCS CIV	65	2	A	At	031C	D3	2.5	GT	MO	C	AI	C		TC-Q	PV-2Y	LJ-B				
MU6422	Normal MU to RCS CIV	65	2	A	At	031C	G3	2.5	GT	MO	O	AI	C		TC-Q	PV-2Y	LJ-B	CS-41		TC-C	
NN58	N2 Supply to Pressurizer Quench Tank CIV	74	2	AC	At	019	E9	1	CK	SA	E	N	C	FF-Q	RF-Q		LJ-B	CS-42	FF-SI	RF-C	
NN236	N2 Supply to Pressurizer Quench Tank CIV	74	2	A	At	019	E10	1	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
NN1000	N2 Supply Line Check Valve to Electrical Penetration PAP1B.	74	2	AC	At	019	B4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1002	N2 Supply Line Check Valve to Electrical Penetration PBP1C.	74	2	AC	At	019	C4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1004	N2 Supply Line Check Valve to Electrical Penetration PBP1D.	74	2	AC	At	019	C4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1006	N2 Supply Line Check Valve to Electrical Penetration PBL1E.	74	2	AC	At	019	C4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1008	N2 Supply Line Check Valve to Electrical Penetration P4L1G.	74	2	AC	At	019	D4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1010	N2 Supply Line Check Valve to Electrical Penetration PBC2D.	74	2	AC	At	019	D4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1012	N2 Supply Line Check Valve to Electrical Penetration PCL2E.	74	2	AC	At	019	D4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1014	N2 Supply Line Check Valve to Electrical Penetration PCL2F.	74	2	AC	At	019	D4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1016	N2 Supply Line Check Valve to Electrical Penetration PCL2G.	74	2	AC	At	019	E4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1018	N2 Supply Line Check Valve to Electrical Penetration P1P3B.	74	2	AC	At	019	E4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1020	N2 Supply Line Check Valve to Electrical Penetration PAL3D.	74	2	AC	At	019	S4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1022	N2 Supply Line Check Valve to Electrical Penetration PAC3E.	74	2	AC	At	019	E4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1024	N2 Supply Line Check Valve to Electrical Penetration PAP3F.	74	2	AC	At	019	F4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1026	N2 Supply Line Check Valve to Electrical Penetration PBP4A.	74	2	AC	At	019	F4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1028	N2 Supply Line Check Valve to Electrical Penetration PAP4B.	74	2	AC	At	019	F4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
NN1030	N2 Supply Line Check Valve to Electrical Penetration P3P4C.	74	2	AC	At	019	F4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1032	N2 Supply Line Check Valve to Electrical Penetration PBC4D.	74	2	AC	At	019	G4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1034	N2 Supply Line Check Valve to Electrical Penetration PBL4E.	74	2	AC	At	019	G4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1036	N2 Supply Line Check Valve to Electrical Penetration P2L4G.	74	2	AC	At	019	G4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1038	N2 Supply Line Check Valve to Electrical Penetration PBP5A.	74	2	AC	At	019	G4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1040	N2 Supply Line Check Valve to Electrical Penetration PAP5B.	74	2	AC	At	019	G4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1042	N2 Supply Line Check Valve to Electrical Penetration PBP5D.	74	2	AC	At	019	H4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1044	N2 Supply Line Check Valve to Electrical Penetration P2P5F.	74	2	AC	At	019	H4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1046	N2 Supply Line Check Valve to Electrical Penetration P2C5G.	74	2	AC	At	019	H4	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1050	N2 Supply Line Check Valve to Electrical Penetration P1L1L.	74	2	AC	At	019	C7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1052	N2 Supply Line Check Valve to Electrical Penetration PAC1N.	74	2	AC	At	019	C7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1054	N2 Supply Line Check Valve to Electrical Penetration PAP1P.	74	2	AC	At	019	C7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1056	N2 Supply Line Check Valve to Electrical Penetration PBP1R.	74	2	AC	At	019	C7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1058	N2 Supply Line Check Valve to Electrical Penetration P1C2L.	74	2	AC	At	019	C7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1060	N2 Supply Line Check Valve to Electrical Penetration P1P2M.	74	2	AC	At	019	D7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1062	N2 Supply Line Check Valve to Electrical Penetration PAL2N.	74	2	AC	At	019	D7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1064	N2 Supply Line Check Valve to Electrical Penetration PAP2P.	74	2	AC	At	019	D7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1066	N2 Supply Line Check Valve to Electrical Penetration PBC3P.	74	2	AC	At	019	D7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1068	N2 Supply Line Check Valve to Electrical Penetration PBL3Q.	74	2	AC	At	019	E7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
NN1070	N2 Supply Line Check Valve to Electrical Penetration PCP4N.	74	2	AC	At	019	E7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1072	N2 Supply Line Check Valve to Electrical Penetration PCP4P.	74	2	AC	At	019	E7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1074	N2 Supply Line Check Valve to Electrical Penetration PCP4Q.	74	2	AC	At	019	E7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1076	N2 Supply Line Check Valve to Electrical Penetration P3L4S.	74	2	AC	At	019	E7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1078	N2 Supply Line Check Valve to Electrical Penetration PCC4TX	74	2	AC	At	019	F7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1080	N2 Supply Line Check Valve to Electrical Penetration PCC4UX	74	2	AC	At	019	F7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1082	N2 Supply Line Check Valve to Electrical Penetration PCC4V.	74	2	AC	At	019	F7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1084	N2 Supply Line Check Valve to Electrical Penetration PCL4W.	74	2	AC	At	019	F7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1086	N2 Supply Line Check Valve to Electrical Penetration PCP5N.	74	2	AC	At	019	G7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1088	N2 Supply Line Check Valve to Electrical Penetration PCP5P.	74	2	AC	At	019	G7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1090	N2 Supply Line Check Valve to Electrical Penetration PCP5Q.	74	2	AC	At	019	G7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1092	N2 Supply Line Check Valve to Electrical Penetration PCC5T.	74	2	AC	At	019	H7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1094	N2 Supply Line Check Valve to Electrical Penetration PCC5U.	74	2	AC	At	019	H7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
NN1096	N2 Supply Line Check Valve to Electrical Penetration PCC5V.	74	2	AC	At	019	H7	.375	CK	SA	C	N	O/C	FF-Q	RF-Q	LK-2Y		RJ-7	FF-R	RF-R	
RC10	Pressurizer Spray Line Isolation Valve	64	1	B	At	030A	B8	2.5	GT	MO	O	AI	C		TC-Q	PV-2Y		CS-43		TC-C	
RC11	PORV Line Block Valve	64	1	B	At	030A	B4	2.5	GT	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y					
RC13A	Pressurizer Code Safety Relief Valve	64	1	C	At	030A	B6	4x6	RL	SA	C	N	O	SR-5Y							
RC13B	Pressurizer Code Safety Relief Valve	64	1	C	At	030A	A5	4x6	RL	SA	C	N	O	SR-5Y							
RC51	Pressurizer Auxiliary Spray Check Valve	64	1	C	At	030A	B8	1.5	CK	SA	C	N	O	FF-Q	RF-Q			RJ-8	FF-R	RF-SI	
RC113	Quench Tank Inlet Line CIV	64	2	AC	At	040A	E3	2	CK	SA	E	N	C	FF-Q	RF-Q		LJ-B	CS-44	FF-SI	RF-C	
RC200	Pressurizer Vent Line Stop Valve	64	1	B	P	030A	B3	1	GT	MO	C	AI	C			PV-2Y					

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
RC229A	Quench Tank Outlet CIV	64	2	A	At	040A	G4	3	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
RC229B	Quench Tank Outlet CIV	64	2	A	At	040A	G2	3	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
RC229C	RC Penetration #48 Check Valve	64	2	AC	At	040A	G2	3/8	CK	SA	C	N	O/C	FF-Q	RF-Q		LJ-B	CS-45	FF-SI	RF-C	
RC232	Quench Tank Inlet CIV	64	2	A	At	040A	E4	2	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
RC239A	Pressurizer Vapor Space Sample Isolation Valve	64	1	B	P	030A	B3	1	GT	MO	C	AI	C			PV-2Y					
RC240A	Pressurizer Sample Line CIV	64	1	A	At	030A	B2	1	GT	MO	C	AI	C		TC-Q	PV-2Y	LJ-B				
RC240B	Pressurizer Sample Line CIV	64	2	A	At	030A	B1	1	GT	MO	C	AI	C		TC-Q	PV-2Y	LJ-B				
RC262	Pressurizer Spray Bypass	64	1	B	P	030A	B10	2.5	GL	MA	C	N	C			PV-2Y					
RC1719A	CTMT Vent Header CIV	64	2	A	At	040A	H7	3	DA	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
RC1719B	CTMT Vent Header CIV	64	2	A	At	040A	H8	3	DA	AO	O	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
RC1773A	CTMT Drain Header CIV	64	2	A	At	040A	B9	3	DA	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
RC1773B	CTMT Drain Header CIV	64	2	A	At	040A	C9	3	DA	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
RC4608A	RCS Loop 1 High Point Vent Valve	64	1	B	At	030A	D11	1	GL	SO	C	C	O/C	TO-Q	TC-Q	PV-2Y	FC-Q	CS-46	TO-C	TC-C	FC-C
RC4608B	RCS Loop 1 High Point Vent Valve	64	1	B	At	030A	D10	1	GL	SO	C	C	O/C	TO-Q	TC-Q	PV-2Y	FC-Q	CS-46	TO-C	TC-C	FC-C
RC4610A	RCS Loop 2 High Point Vent Valve	64	1	B	At	030A	F2	1	GL	SO	C	C	O/C	TO-Q	TC-Q	PV-2Y	FC-Q	CS-46	TO-C	TC-C	FC-C
RC4610B	RCS Loop 2 High Point Vent Valve	64	1	B	At	030A	G2	1	GL	SO	C	C	O/C	TO-Q	TC-Q	PV-2Y	FC-Q	CS-46	TO-C	TC-C	FC-C
SS235A	Quench Tank Vapor Sample CIV	38	2	A	At	040A	D4	1	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
SS235B	Quench Tank Vapor Sample CIV	38	2	A	At	040A	D3	1	GL	AO	C	C	C	FC-Q	TC-Q	PV-2Y	LJ-B				
SS598	OTSG 2 Sample Line CIV	38	2	B	At	007A	H4	.75	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y					
SS607	OTSG 1 Sample Line CIV	38	2	B	At	007A	F8	.75	GL	AO	O	C	C	FC-Q	TC-Q	PV-2Y					
SW17	SW Pump 1 Discharge Check Valve	11	3	C	At	041A	G3	20	CK	SA	E	N	O/C	FF-Q	RF-Q			CS-47	FF-C	RF-SI	
SW18	SW Pump 2 Discharge Check Valve	11	3	C	At	041A	G10	20	CK	SA	E	N	O/C	FF-Q	RF-Q			CS-47	FF-C	RF-SI	
SW19	SW Pump 3 Discharge Check Valve	11	3	C	At	041A	G7	20	CK	SA	E	N	O/C	FF-Q	RF-Q			CS-47	FF-C	RF-SI	
SW57	Return from TPCW HX to SW Line Check Valve	11	3	C	At	041A	B6	20	CK	SA	O	N	C	FF-Q	RF-Q			CS-48	FF-SI	RF-C	
SW232	SW Train 2 Emergency MU Sply to CCW TRN 2 Isolation Valve	11	3	B	At	036A	K2	1	GL	MA	C	N	O/C	EX-Q				RV-2	EX-2Y		
SW233	SW Train 1 Emergency MU Sply to CCW TRN 2 Isolation Valve	11	3	B	At	036B	B2	1	GL	MA	C	N	O/C	EX-Q				RV-2	EX-2Y		

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
SW234	SW Train 1 Emergency MU Sply to CCW TRN 2 Isolation Valve	11	3	B	At	041B	J6	1	GL	MA	C	N	O/C	EX-Q				RV-2	EX-2Y		
SW236	SW Train 2 Emergency MU Sply to CCW TRN 2 Isolation Valve	11	3	B	At	041B	A8	1	GL	MA	C	N	O/C	EX-Q				RV-2	EX-2Y		
SW1356	CAC 1 SW Return Line Isolation Valve	11	2	B	At	041C	C1	8	BL	AO	O	O	O/C	TO-Q	TC-Q	PV-2Y	FO-Q				
SW1357	CAC 2 SW Return Line Isolation Valve	11	2	B	At	041C	C9	8	BL	AO	O	O	O/C	TO-Q	TC-Q	PV-2Y	FO-Q				
SW1358	CAC 3 SW Return Line Isolation Valve	11	2	B	At	041C	C5	8	BL	AO	C	O	O/C	TO-Q	TC-Q	PV-2Y	FO-Q				
SW1366	SW Supply to CAC 1 Isolation Valve	11	2	B	At	041C	H5	8	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y					
SW1367	SW Supply to CAC 2 Isolation Valve	11	2	B	At	041C	H12	8	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y					
SW1368	SW Supply to CAC 3 Isolation Valve	11	2	B	At	041C	H8	8	BL	MO	O	AI	O/C	TO-Q	TC-Q	PV-2Y					
SW1379	SW Pump 1 Strainer Blowdown Line Block Valve	11	3	B	At	041A	H4	4	GT	MO	C	AI	O/C	TO-Q	TC-Q						
SW1380	SW Pump 2 Strainer Blowdown Line Block Valve	11	3	B	At	041A	H11	4	GT	MO	C	AI	O/C	TO-Q	TC-Q						
SW1381	SW Pump 3 Strainer Blowdown Line Block Valve	11	3	B	At	041A	H7	4	GT	MO	C	AI	O/C	TO-Q	TC-Q						
SW1382	SW to AFW Pump 1 Suction Line Block Valve	11	3	B	At	041C	J4	6	BF	MO	C	AI	O	TO-Q		PV-2Y					
SW1383	SW to AFW Pump 2 Suction Line Block Valve	11	3	B	At	041C	K9	6	BF	MO	C	AI	O	TO-Q		PV-2Y					
SW1395	SW Supply to TPCW HX Line Isolation Valve	11	3	B	At	041A	C10	20	BF	MO	O	AI	C		TC-Q	PV-2Y					
SW1399	SW Supply to TPCW HX Line Isolation Valve	11	3	B	At	041A	D8	20	BF	MO	C	AI	C		TC-Q	PV-2Y					
SW1424	CCW HX 1 SW Outlet Line Temperature Control Valve	11	3	B	At	041B	C7	12	BL	AO	C	O	O	TO-Q		PV-2Y	FO-Q				
SW1429	CCW HX 3 SW Outlet Line Temperature Control Valve	11	3	B	At	041B	C9	12	BL	AO	C	O	O	TO-Q		PV-2Y	FO-Q				
SW1434	CCW HX 2 SW Outlet Line Temperature Control Valve	11	3	B	At	041B	C11	12	BL	AO	C	O	O	TO-Q		PV-2Y	FO-Q				
SW2927	C.R. Emergency Condenser 1 SW Sply Line Isolation Valve	11	3	B	At	041B	F7	1.5	GT	MO	C	AI	O	TO-Q		PV-2Y					
SW2928	C.R. Emergency Condenser 2 SW Sply Line Isolation Valve	11	3	B	At	041B	F11	1.5	GT	MO	C	AI	O	TO-Q		PV-2Y					
SW2929	SW Discharge to Intake Structure Isolation Valve	11	3	B	At	041C	A4	20	BF	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					
SW2930	SW Discharge to Intake Forebay Isolation Valve	11	3	B	At	041C	A5	30	BF	MO	C	AI	O/C	TO-Q	TC-Q	PV-2Y					

(Continued)

13.0 VALVE TEST TABLE (Continued)

Valve Number	Valve Description	System Number	Code Class	Valve Category	Valve Function	ISID2 Number	ISID2 Coordinates	Valve Size (inches)	Valve Type	Actuator Type	Normal Position	Fail Position	Safety Position	Code Required Testing				Justifications and Relief Requests	Alternate Tests Performed		
SW2931	SW Discharge to Cooling Tower MU Isolation Valve	11	3	B	At	041C	A6	30	BF	MO	O	AI	C		TC-Q	PV-2Y					
SW2932	SW Discharge to Collection Box Isolation Valve	11	3	B	At	041C	A8	30	BF	MO	C	AI	C		TC-Q	PV-2Y					
SW3962	SW Discharge Header Relief Valve	11	3	C	At	041A	E5	6x8	RL	SA	C	N	O	SR-10Y							
SW3963	SW Discharge Header Relief Valve	11	3	C	At	041A	E10	6x8	RL	SA	C	N	O	SR-10Y							
SW5067	SW to H2 Dilution Blower 1 Line Isolation Valve	11	3	B	At	041C	J8	1	GT	MO	C	AI	O	TO-Q		PV-2Y					
SW5068	SW to H2 Dilution Blower 2 Line Isolation Valve	11	3	B	At	041B	J4	2	GT	MO	C	AI	O	TO-Q		PV-2Y					

COMMITMENT LIST

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station (DBNPS) in this document. Any other actions discussed in the submittal represent intended or planned actions by the DBNPS. They are described only for information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs (419-321-8450) at the DBNPS of any questions regarding this document or associated regulatory commitments.

COMMITMENTS	DUE DATE
None	

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