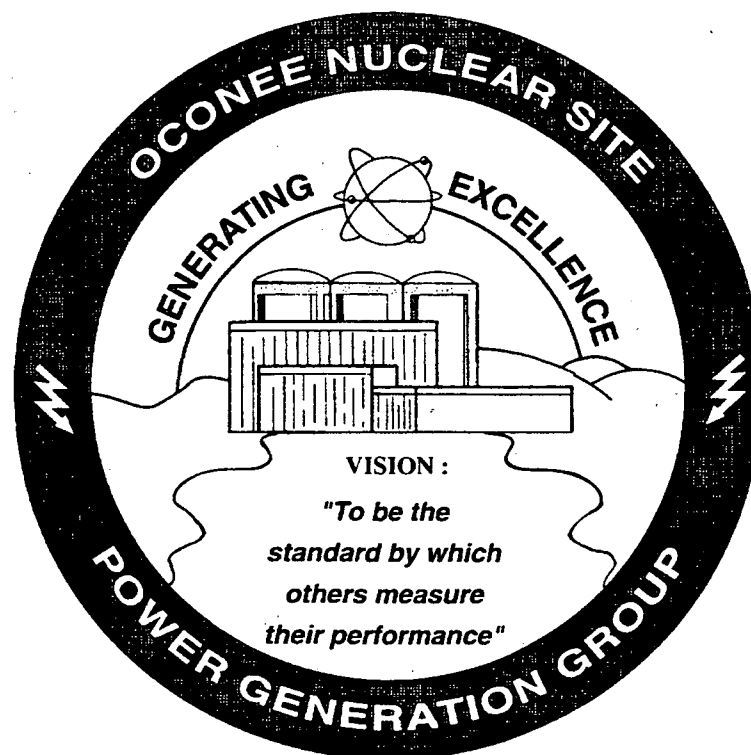


Duke Power Oconee Nuclear Station Units 1, 2 and 3

Docket # 50-269
Accession # 9906070167
Date 5/26/99 of Ltr
Regulatory Docket File

Pump and Valve Inservice Testing Program



9906070169 990526
PDR ADOCK 05000269
P PDR

DUKE POWER
A Duke Energy Company

Oconee Nuclear Station

ASME Inservice Testing Program

Revision 25

January 1999

Prepared by: *R.S. DOSNAK* Date: 3-18-99
Reviewed by: *Jan D. Roth* Date: 3-18-99
Approved by: *S.D. Camps* Date: 3/24/99

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGES</u>
1.0 Oconee Nuclear Station Program Document	1 - 27
2.0 Table Of Abbreviations	1 - 3
3.0 PUMP INSERVICE TESTING PROGRAM	
3.1 Pump Inservice Testing General Data	1 - 11
Unit 1 - Unit 2 - Unit 3	
4.0 VALVE INSERVICE TESTING PROGRAM	
4.1 Valve Inservice Testing General Data	
Unit 1 - Unit 2 - Unit 3	

		Page No.
Air Circuit Breaker	AB	1 - 4
Keowee Governor Air	AG	1 - 1
Auxiliary Steam	AS	1 - 1
Breathing Air	BA	1 - 1
Building Spray	BS	1 - 5
Condensate	C	1 - 4
Chemical Addition	CA	1 - 2
Component Cooling	CC	1 - 7
Condenser Cooling Water	CCW	1 - 5
Core Flood	CF	1 - 10
Coolant Storage	CS	1 - 4
Diesel Air	DA	1 - 4
Diesel Jacket Water	DJW	1 - 1
Diesel Lube Oil	DLO	1 - 2
Demineralized Water	DW	1 - 2
Essential Siphon Vacuum	ESV	1 - 3
Feedwater	FDW	1 - 20
Fuel Oil	FO	1 - 3
Filtered Water	FW	1 - 1
Keowee Turbine Guide Bearing Oil	GBO	1 - 1
Gaseous Waste Disposal	GWD	1 - 2
High Pressure Injection	HP	1 - 48
Instrument Air	IA	1 - 1
Low Pressure Injection	LP	1 - 21

TABLE OF CONTENTS

	Page No.
Low Pressure Service Water	LPSW 1 - 15
Leak Rate Test	LRT 1 - 3
Liquid Waste Disposal	LWD 1 - 3
Main Steam	MS 1 - 19
Nitrogen	N 1 - 3
Keowee Governor Oil	OG 1 - 2
Purge	PR 1 - 22
Reactor Coolant	RC 1 - 7
Spent Fuel	SF 1 - 5
Siphon Seal Water	SSW 1 - 4
Keowee Turbine Sump	TS 1 - 1
Keowee Turb. Gen. Cooling Wtr.	WL 1 - 1

	<u>PAGES</u>
5.0 RELIEF REQUEST	
5.1 Pumps - Generic Relief Request	1 - 1
5.2 Pumps - Specific Relief Request	1 - 1
5.3 Valves - Generic Relief Request	1 - 1
5.4 Valves - Specific Relief Request	1 - 1
 6.0 JUSTIFICATION FOR DEFERRAL	
6.1 Valves - Justification for Deferral	1 - 3
 7.0 CORRESPONDENCE	

Oconee Nuclear Station ASME Inservice Testing Program Document

January 1999

Prepared by:

R.S. Bosmak

Date:

3-10-99

Reviewed by:

James L. Pette

Date:

3-10-99

Approved by:

J.D. Carr

Date:

3/16/99

TABLE OF CONTENTS

1. PROFILE	3
2. REFERENCES	7
3. DEFINITIONS/TERMS	7
4. VALVE PROGRAM	8
5. PUMP PROGRAM	13
6. RELIEF REQUESTS	16
7. JUSTIFICATIONS FOR DEFERRALS	16
8. PROCESS FOR PROGRAM CHANGES	17

APPENDICES

Appendix A:	Appendix B Supplemental Testing Program
Appendix B:	Responsibilities

ENCLOSURES

Enclosure 9.1:	System Piping Classification Correlation for ONS
Enclosure 9.2:	Valve Data Sheet
Enclosure 9.3:	Pump Data Sheet
Enclosure 9.4:	Justification for Deferral Form
Enclosure 9.5:	Relief Request Form

1. PROFILE

The purpose of the In-Service Testing (IST) program, as related to this document, is to assess the operational readiness of safety related pumps and valves in accordance with NRC and ASME guidelines. This document discusses the intent of the licensee's testing positions and philosophies with regards to ASME Section XI (and OM Code for Nuclear Plant Operations and Maintenance Program where applicable) testing positions and philosophies. It is not the purpose of this document to reiterate the ASME or NRC guidelines in their entirety. Additionally, this document outlines the process for additions, changes, and deletions of pumps and valves from, or to, the IST program.

Technical Specifications require performance testing of pumps and valves in the ASME Section XI IST program. This program document defines how Oconee Nuclear Station (ONS) complies with the ASME Code and Technical Specifications as well as positions on alternative testing techniques and options. Failure to meet the requirements of this program is a violation of Technical Specifications and 10CFR 50.55a.

1.1 Program Period:

Third Ten Year Interval; 120 month period beginning July 1, 1992

1.2 Applicable ASME Code(s) and Addenda:

ASME Boiler and Pressure Vessel Code Subsection IWP 1986 Edition
ANSI/ASME OM-1-1987
ASME/ANSI OM-1987 Standard OMa-1988 Part 10

1.3 Program Changes:

Section 2.1 of NUREG 1482 states: An IST Program, including implementing procedures, is subject to the requirements of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." Changes to the scope, test methods, or acceptance criteria are subject to the requirements of Section 50.59, "Changes, Tests, and Experiments."

NRC response to a comment on this section of NUREG-1482 further states: "The IST program consists of various documents, many of which are administrative, that may not be covered by a 10CFR50.59 review process. However, a determination pursuant to 10CFR50.59 may be part of the process if components are deleted from the program, if acceptance criteria are changed, or if a test method is modified."

It is concluded that changes to the IST program scope, test methods, or acceptance criteria are subject to the requirements of Section 50.59 and require evaluation. Editorial changes do not require a 50.59 evaluation. A 50.59 evaluation needs to be part of the change process and applicable to the resulting program change. It will generally be performed in conjunction with the document driving the change. This includes plant modification, Design Basis Document revision, and procedure revision. However, if a program change can not be tied to an existing 50.59 evaluation, one must be prepared.

Resultant changes to reference values due to equipment repair, or replacement, are not considered changes to acceptance criteria requiring a 50.59 evaluation. They are analyzed, evaluated and documented in the record of tests in accordance with Section 3.4 of OM-10.

The NRC shall be notified of IST program changes; however, component additions (or deletions) are submitted and testing implemented (or deleted) without prior NRC approval. In the instance that a component has been added to the IST program, testing and the appropriate program changes shall take place within 90 days of revising the program source documents unless determined to be impractical. If a hardship is identified, documentation in the form of a Relief Request or Justification for Deferral will be provided.

Program updates are completed as dictated by additions, deletions, and/or revisions to design basis documents (DBDs) and design calculations. The IST database represents the official IST program and is updated as required. The Pump and Valve Inservice Test Program Manual is to be updated and submitted to the NRC when a sufficient number of revisions to the IST database have been made. Every 120 months ONS is mandated to review current testing requirements and upgrade testing to the latest approved version of the code as specified by 10CFR50.55a, 12 months prior to the anniversary date.

The content of this program document is for non-mandatory compliance to a recommendation stated in NUREG-1482 and is intended for the purpose of maintaining program continuity and documenting additional discussions and positions relative to code interpretations. Therefore, changes to this document are not subject to the requirements of 10CFR50.59 and do not require prior NRC review and/or approval unless so deemed by the licensee.

1.4 Scope:

As required by 10CFR50.55a, pumps and valves that are classified in accordance with NRC Regulatory Guide 1.26 as ISI Class A, B, or C, which corresponds to ASME Class 1, 2, or 3, respectively, are reviewed for inclusion in the ONS IST Program. The scope of the OM Standards and Code has been expanded to include all safety-related pumps and valves. Until the scope of 10CFR50.55a is changed, the scope of the IST program only includes those components within the Code classes.

Oconee is licensed to operate with a "safe" shutdown condition of hot shutdown rather than cold shutdown as documented below (Reference 2.8 - Technical Evaluation Report pg 20):

"Early plants such as Oconee were licensed to operate with a 'safe' shutdown condition of hot standby or hot shutdown, and were not required to achieve cold shutdown following a design basis accident. For such plants, components and systems necessary to achieve cold shutdown may not be safety-related and/or subject to quality assurance requirements. These components are not credited to achieve 'safe' shutdown.

The licensing basis for Oconee is contained in the Final Safety Analysis Report (FSAR). Chapter 15 of the Oconee FSAR examines the effects and consequences of transients and accidents that constitute the design basis. The ability of the plant to operate within regulatory guidelines without undue risk to public health and safety was evaluated and accepted by the Staff. The fact that the transients and accidents analyzed in the FSAR do not continue beyond the hot shutdown condition, indicates that the capability to establish this condition would provide an acceptable level of quality and safety.

The licensee has proposed to exclude from IST those components that are not required to perform a specific function in shutting down the reactor to the safe shutdown condition. The licensee has proposed to 'test these valves in accordance with their Appendix B program.' 10CFR50, Appendix B addresses quality assurance for safety-related components. These components may not, however, be safety-related, as discussed above. In any case, the licensee has stated in the basis that the component's operability would be assured during normal plant shutdown. Based on the determination that the licensee's proposed alternative would provide an acceptable level of quality and safety, it is recommended that the alternative be authorized in accordance with §50.55a ¶(a)(3)(i)."

Subsequently, only components required to bring the unit(s) to this safe shutdown condition are included within the IST program. Although this is a deviation from the stated and/or implied scope of IWP and OM-10, the following NRC evaluation summarizes this position (Reference 2.11 page 2-5):

"The current scope defined by the Code includes pumps and valves required to achieve and maintain cold shutdown. If the plant was licensed for a safe shutdown condition of hot standby or hot shutdown rather than cold shutdown, the IST program document will stipulate that the plant was not designed and licensed for a safe shutdown condition of cold shutdown. In discussions with ASME Code committee members, the NRC informed the committee members that many early plants were licensed to operate with a safe shutdown condition of hot standby or hot shutdown, and were not required to achieve cold shutdown after a design basis accident.

Components and systems necessary to achieve cold shutdown at such a plant may not, therefore, be safety-related or subject to quality assurance requirements. These components are not credited to achieve 'safe' shutdown in plant safety analyses. Recognizing the discrepancy between the Code requirements and the licensing basis for such plants, the ASME Code committee recently revised the scope to 'safe' shutdown rather than 'cold' shutdown. Although a relief request is not required for plants licensed with hot shutdown or hot standby as the 'safe' shutdown condition, the IST program document submitted to the NRC must state the special condition for the plant in an introductory section."

Certain pumps and valves beyond the scope of 10CFR50.55a are active in certain non-Design Basis Events, are cold shutdown equipment not associated with a FSAR Chapter 15 event, are significant to plant safety, and/or are of economic importance that are beyond the scope of 10CFR50.55a. Such components are not included in the IST Program. However, "the intent of 10 CFR 50 Appendix A, GDC-1, and Appendix B, Criterion XI, is that all components, such as pumps and valves, necessary for safe operation are to be tested to demonstrate that they will perform satisfactorily in service" (Reference 2.11 - Appendix A). Such pumps and valves are tested in the supplemental, 10CFR50 Appendix B Program. Within the supplemental program, the licensee specifies how the component is tested or if a deviation from the Code guidelines is allowable. No relief requests for components within the scope of the Appendix B supplemental program are submitted. See Appendix A of this document for a discussion of this program.

1.5 Bases:

The design bases for inclusion of pumps and valves within the testing program is provided within the following source documents:

Mechanical System Design Basis Documents (DBD): OSS-0254.00-00-1000 Series
Plant Design Basis Document for Reactor Building Containment Isolation: OSS-0254.00-00-4001
Design Basis Calculations:
OSC-3608; "Active Valves - Steam Drain System"
OSC-3666; "Active Valves - Turbine Oil System"
OSC-5561; "Safety Related Relief Valves and Vacuum Breakers for the Inservice Testing Program"

A comparison of the bases documents and the IST program should be accomplished annually to ensure completeness and correctness of the IST program.

The Responsible System Engineer shall initiate program changes as changes are made to the respective system DBDs or active/passive valve calculations. When changing the program by revising a DBD, appropriate groups are notified via the modification process. The IST database should be listed as an affected document. When changing the program by revising a calculation (for systems that do not have DBDs), there is no programmatic method of informing station personnel of changes in the calculation like there is for a DBD. The person who revises the calculation is responsible for informing the appropriate station and engineering personnel of changes to the calculation and the need for subsequent changes to the test procedures and the program. Enclosures 9.2 and 9.3 are included to assist station personnel in documenting program changes for the IST Coordinator.

To ensure Code compliance for the ONS Pump and Valve Testing Program, the IST Coordinator should be notified of any of the following changes:

- changing the active/passive status of a component
- changing the leakage requirements of the component
- changing the piping classification of the component (Duke Class and ISI Class)
- changes regarding how the component may be tested
- a commitment is made or changed for testing or operation of a component
- taking credit for a new function, flow path, etc.

1.6 History:

The ONS IST program has gone through three major phases from 1976 to 1994.

The initial phase began in April 1976 when the NRC informed ONS that 10CFR50.55(a) had been revised. This revision to the regulations required "testing in accordance with ASME Code Section XI... which may conflict with existing Technical Specifications and advise them where Section XI requirements could not be met". It was recognized that this was a requirement that was not in force at the time of plant design, so the NRC required ONS to meet Section XI to the extent that was consistent with the original design (i.e., ONS was not required to put in instruments to measure certain parameters where instruments did not previously exist).

On October 1, 1976 a response to the above request was submitted to the NRC for Unit 1. This submittal generically defined the IST program scope as, "...Duke Power Class A, B, and C piping and components (corresponding to ASME Code Section 1, 2, and 3, respectively)...except for stated exceptions, primarily based on design limitations".

ONS expanded the IST valve list beyond the defined scope to include containment isolation valves which are Duke Class F. This valve scope was supported by temporary approval of the ONS IST program in March of 1978. In this letter the NRC acknowledged that ONS was expanding the scope of its previous test program, and they agreed that "design limitations" prevented ONS from meeting Section XI in its entirety. In November 1980, ONS received the IST program Safety Evaluation Report for Units 1, 2, and 3.

The second phase of the ONS IST program began in the early 1980s and lasted until 1990. During this time the basic scope of the IST program was unchanged, but additional Duke Class F valves were added to the program due to expanding safety concerns that went beyond design basis accidents described in FSAR Chapter 15. In the second phase, the method of determining whether the IST program was applicable to a structure, system or component did not provide for a clear methodology in determining what additional valves should be added to the IST program.

The third phase of the ONS IST program started in 1990. During the first part of this phase the IST program scope was clearly defined to resolve and clarify the concerns experienced during the 1980s. The scope is now clearly defined for valves and pumps within Sections 4 and 5, respectively. ONS also recognized that the accidents postulated in the late sixties and early seventies for PWRs are considerably different from accidents postulated for newer plants. For this reason, ONS expanded its testing by developing a supplemental program called the "Appendix B Test program". The Appendix B program was created out of a need to proceduralize the testing of additional pumps and valves that are important to safety.

The new IST scope and the Appendix B program were discussed with the NRC at an information meeting on November 14, 1990. In July 1993, ONS received its second 10 year submittal approval. There were no objections to the scope. The NRC granted relief from testing cold shutdown valves as part of the formal IST program. The NRC recognized ONS tested these valves within the Appendix B program, and commented... "The licensee has proposed to test these valves in accordance with their Appendix B program...the licensee has stated in the basis that the component's operability would be assured during normal plant shutdown. Based on the determination that the licensee's proposed alternative would provide an acceptable level of quality and safety, it is recommended that the alternative be authorized in accordance with 50.55a."

Oconee Nuclear Site updated the valve In-Service Testing program to follow the requirements of the ASME/ANSI Operational and Maintenance Standard OM-1987 Standard OMa-1988 Part 10 (OM-10) in the February 1995 response to the November 1994 NRC Safety Evaluation Report.

Prior to 1998, it was the ONS position that constant speed, gear driven motors of MOVs would operate in essentially the same time when stroked in either direction. It was also the ONS position that degradation of a constant speed, gear driven motor would not appear in only one direction. Therefore, ONS took the position that IST MOVs that have a requirement to change position in both directions during an accident would be stroke timed in one direction and simply exercised in the other direction. This position was clearly documented within the IST program document, which was submitted to the NRC with Revision 23 of the IST program. In 1998, NRC auditors inspected the IST program and differed in this interpretation (NRC Inspection Report 98-11). Their interpretation was based on OM-10, which speaks of "limiting value(s)" of stroke times for power operated valves. The NRC stated that the word "value(s)" implied that MOVs that are required to stroke in both positions during an accident should be stroke timed in both

directions. Therefore, the ONS position was changed to incorporate stroke timing MOVs in either or both direction(s) which the valve operators are credited during an accident. Reference PIP 98-5894 for the corrective actions in place to revise affected procedures.

2. REFERENCES

- 2.1 Generic Letter 89-04
- 2.2 10CFR 50, Appendix B
- 2.3 10CFR 50.55a
- 2.4 ASME Section XI, IWV (1989) and IWP (1986)
- 2.5 ASME OM-6, OM-10 (OMa-1988), and OM-1 (1987)
- 2.6 ONS Technical Specifications
- 2.7 Updated Final Safety Analysis Report (UFSAR)
- 2.8 NRC Safety Evaluation of the Inservice Testing Program Relief Requests for Pumps and Valves (7-23-93)
- 2.9 NRC Safety Evaluation of the ONS, Units 1, 2, and 3 Pump and Valve IST Program, Revision 21 (11-23-94)
- 2.10 NUREG/CP-0123, Proceedings of the Second NRC/ASME Symposium on Pump and Valve Testing
- 2.11 NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants, April 1995
- 2.12 OM-1, (1981) is the standard for assessing the operational readiness for pressure relief devices.
- 2.13 OM-13, the standard for assessing the operational readiness for Power Operated Relief Valves.
- 2.14 OM-22, the new standard for assessing the operational readiness for check valves.
- 2.15 ASME OMc CODE-1994
- 2.16 Generic Letter 89-10
- 2.17 Correspondence: M. S. Tuckman to NRC, "Generic Letter 89-04 Response", 11/01/1990

3. DEFINITIONS/TERMS

Generic Letter 89-10 -	the NRC letter providing additional requirements in testing MOVs to design basis conditions.
Generic Letter 89-04 -	the NRC letter providing supplemental guidance on developing and enhancing plant IST programs.
ASME Section XI -	the section of ASME Boiler and Pressure Vessel Code that provides rules for Inservice Inspection and Testing of light water reactor nuclear power plant components.
ASME IWV Codes -	the part of Section XI codes dealing with the Inservice Testing of valves.
ASME IWP Codes -	the part of Section XI codes dealing with the Inservice Testing of pumps.
Frequencies -	the interval of time between in service testing of the components. These intervals are defined as follows: <ul style="list-style-type: none">• Double frequency - 56 days maximum• Quarterly (3 months) - 115 days maximum• Cold Shutdown (CSD) - Unit RCS temperature below 200 °F and reactor subcritical. No testing is required if it has been less than 90 days since the last test was performed.• Refueling (RF) - Unit at CSD for the purpose of replacing or rearranging all or a portion of the fuel assemblies or control rods. Consistent with the guidelines within NUREG-1482 and OM-10, tests required to be performed each refueling are tied to a plant condition rather than a specific time interval.
IST Component -	components (valves and pumps) that are required to be tested per ASME Section XI. Sections 4.1 and 5.1 of this document define the criteria to be included in the IST program.
"Appendix B Component" -	components (valves and pumps) tested under jurisdiction of 10CFR50, Appendix B. They are not required be tested per the Code and no Relief Request or Justification for Deferral is submitted.

"Appendix J Component" -	components leak tested for containment integrity under jurisdiction of 10CFR50, Appendix J.
Active Component -	a component that must perform a mechanical motion during the course of accomplishing a system safety function.
Passive Component -	a component that does not perform a mechanical motion during the course of accomplishing a system safety function.
System Resistance-	the hydraulic resistance to flow in a system
Trending-	a comparison of current data to previous data obtained under similar conditions for the same equipment.
Set Point -	the value for which relief valves are set to relieve its pressure.
Leak Test -	testing of valves to verify seat leakage as limited to a specified maximum.
Stroke Time -	the time interval from valve actuation to the limit switch indication light at the end of the actuating cycle.
Limiting Stroke Time -	the maximum time allowed for an IST required valve to stroke before becoming immediately inoperable.
Relief Request -	A request submitted to the NRC requesting relief from the requirements of the Code for testing a particular component or a generic group of components.
Justification for Deferral -	A documented explanation of why a valve can only be tested at a cold shutdown or refueling outage frequency as opposed to quarterly.
IST Database -	IST program manual. This document is stored on a limited access server in a controlled database.

4. VALVE PROGRAM

4.1 In-Service Testing (IST) Program

As required by 10CFR50.55a, only valves that are classified in accordance with NRC Regulatory Guide 1.26 as ISI Class A, B, or C, which corresponds to ASME Class 1, 2, or 3, respectively, are subject to IST requirements. For clarification of system piping classification correlation refer to Enclosure 9.1. The following defines the criteria for inclusion of equipment in the IST Program:

- A. All Category A valves that fall within the Duke ISI Class A, B, or C boundaries.
- B. All Category B and C valves that fall within the Duke ISI Class A, B, or C boundaries and are active in the mitigation of the Design Basis Accidents (Design Basis Accident is defined as those described in SAR Chapter 15).
- C. Valves in systems specifically required by Technical Specifications to be tested per ASME Section XI. (For conservatism, this criteria is applied regardless of Duke ISI Class)

Refer to Sections 1.4 and 1.5 for further clarification of the scope of the IST program.

4.2 Valve Testing Generic Position Statements

Valves tested under the jurisdiction of this program are tested per code requirements of OM-10 at the specified frequencies unless it has been determined to be impractical. This section of the program document provides the site's positions on interpretations, guidance, and other options regarding testing alternatives.

- 4.2.1 OM-10, section 6.3 (h) requires the signature of the person or persons responsible for conducting and analyzing the test. The dated initials of the person or persons responsible for conducting and analyzing the test may be used in place of a signature in the record of the tests. Initials can be used as signatures to meet the intent of the OM-10 as long as somewhere in the test procedure the initials are identified by a full signature or the initials are construed as signatures.
- 4.2.2 It is the licensee's position that valve testing be deferred if the normal code required test frequency or plant conditions would result in increased personnel risk or damage to plant equipment. The practicality of such deferral shall be determined by the licensee and

documented in the "Justification for Deferral" section of the IST Program manual. In such cases, the licensee will not perform any type of destructive testing to determine the period of time at which damage to the equipment or risk to personnel would occur. Exercising valves on a cold shutdown or refueling outage frequency is not a deviation from the code (Reference 2.11 - Section 2.4.5).

- 4.2.3 Manual valves that meet the scope requirements of OM-10 or are credited in the safety analysis for being repositioned to shut down the plant, to maintain the plant in a safe shutdown condition, or to mitigate the consequences of an accident are included in the IST program. The testing of such valves is established in order to meet the intent of the exercising requirements of OM-10.

4.3 Check Valve Testing

Check valves tested under the jurisdiction of this program shall be tested per Code requirements at the specified frequencies unless it has been determined to be impractical. This section of the program document provides the ONS positions with regards to interpretations, guidance and other options and testing alternatives for check valves.

- 4.3.1 Check valves shall be exercised per OM-10 (OMa-1988), section 4.3.2 every 3 months, except as provided by OM-10 sections 4.3.2.2, 4.3.2.3, 4.3.2.4, and 4.3.2.5. Where testing is deferred, it is noted in the valve data sheets with a specific Justification for Deferral or included in the Sample Disassembly program as stated in OM-10 section 4.3.2.4 (d). Check valves in series, where one valve could be removed without creating an unreviewed safety question or creating a conflict with regulatory or licensing requirements, may be tested concurrently to meet IST requirements. (Reference 2.12 - Section 4.1.1). In such case, if corrective action is required, the licensee shall disassemble, inspect, and repair (or replace) both valves.
- 4.3.2 Full stroke testing of check valves does not necessarily constitute the obturator contacting the back-stop. Where possible, sufficient flow shall be passed through the valve to verify design basis accident flow. If full flow is not possible, then the licensee shall perform correlation testing, partial stroking, or other alternatives as provided by OM-10 section 4.3.3.3. Additionally, the code allows use of indirect evidence (such as system pressure, flow, temperature or level) or other positive means to verify flow or pressure requirements. These indirect methods are not subject to the range and accuracy requirements of the code. (Reference 2.12 - Section 4.1.2).
- 4.3.3 Check valve exercising to verify the closed position does not require demonstration that the valve was open prior to closure provided the valve performs a safety function only in the closed position. If a check valve performs a safety function in both the open and closed positions, the code requires that the valve be exercised to the open position and then be verified closed (Reference 2.11, page A-18, Question Group 24). These tests need not be performed concurrently.
- 4.3.4 Back flow testing of check valves shall be performed per ASME requirements. Examples of positive means that may be used to verify valve closure are as follows:
- Pump discharge check valves - verified closed by meeting a parallel pump's acceptance criteria while cross-connected.
 - Appendix J testing
 - Measure back flow through the valve using an open vent on the backside of the valve or ultrasonic flow measurement techniques.
 - Pressure drop across a pump
 - Observation of external indication on valve stem
 - Pump windmilling
- 4.3.5 Per NUREG-1482 and recommendations stated in ONS SER, the licensee recognizes the NRC's acceptance of nonintrusive techniques (N.I.T.) for testing check valves. The licensee, in fact, has purchased N.I.T. equipment and is investigating incorporation into the testing program. However, this N.I.T. equipment has only recently been introduced to the industry and was not supplied from the vendor under the elements of the Q.A. program as with other equipment utilized for testing safety related components. This presents the burden on the licensee to validate the technology (i.e. software qualifications, calculation validity, engineering correlation, etc.). Therefore, it is the licensee's position that (N.I.T.) is a voluntary option and

is evaluated on a specific application basis if full stroke exercising or sample disassembly cannot be performed.

4.4 Relief Valve Testing

Relief valves tested under the jurisdiction of this program shall be tested per code requirements of OM-1, 1987 and applicable portions of the 1994 addenda allowed by NUREG-1482 Section 4.3.9. This section of the program document is to provide the site's positions with regards to interpretations, guidance, and testing alternatives for relief valves. Relief valves shall be considered for inclusion in the program if they provide overpressure or thermal relief protection for portions of systems that perform a specific function in shutting down a reactor or in mitigating the consequences of an accident.

Valves that fail to comply with the set pressure acceptance criteria or the owner established acceptance criteria will be evaluated.

Refer also to the ONS Engineering Support Program for Relief Valves.

4.5 Leak Rate Testing

All category A valves shall be tested per OM-10, section 4.2.2.2 or section 4.2.2.3. Those valves which function in the course of plant operation in a manner that demonstrates adequate seat leak-tightness need not be additionally leakage tested. In such cases (i.e., Containment Purge Isolation Valves) proper administrative controls are implemented and the valves leak tested during refueling outages.

Per section 4.2.2.2, Category A containment isolation valves shall be tested per 10CFR50, Appendix J and shall be included in the IST program (Reference 2.11 - Appendix A). Where a valve is identified as a containment isolation valve in the Technical Specification or SAR and if it is determined to be an "active" valve with respect to this function, it shall be exercised to the closed position when there is an associated requirement for leak testing.

4.6 Valve Position Verification

From section 4.1 of OM-10, valves with remote position indication shall be tested at least once every 2 years to verify that the valve operation is accurately indicated. Valves that have remote operating switches and/or power supplies (e.g. SSF valves) should also be tested and verified for proper indication from the remote location. Other valve operating parameters, such as timing are not performed from the remote location during this testing.

The remote position indication is verified for passive valves as well (reference 2.11 - Section 4.2.6). This is further captured in PIP 98-3826.

Many valves such as sealed solenoid valves and valves with enclosed stems have no provision for verifying the position by direct observation. Other methods, such as nonintrusive techniques, causing the flow to begin or cease, leak testing, and pressure testing can yield a positive indication of obturator position (reference 2.11 - Section 4.2.5). This is further captured in PIP 98-3858.

4.7 Post Maintenance/Modification Testing (Retest)

See NSD-408, "Testing".

4.8 Fail-Safe Testing of Valves

All Fail-Safe valves shall be tested in accordance with OM-10, section 4.2.1.6. Control valves are typically excluded from testing in the IST program. However, if a control valve must change position to support a safety-related function and it has a fail-safe position, then it must be included within the program and tested to verify the ability to perform that function with power removed (or simulated power removal).

4.9 Skid-Mounted Valves

The testing of the 'major' components supported by skid mounted equipment is an acceptable means for verifying the operational readiness of the skid-mounted equipment sub-components and assemblies. The licensee, however, may opt to include certain components contained on these skids in the IST program for testing purposes. In such cases, the licensee is neither obligated to submit relief request on testing alternatives nor is it obligated to trend the performance of such components as required with components which meet the scope of OM-10 (Reference 2.11 - Section 3.4).

4.10 Valve Test Acceptance Criteria

All valve test acceptance criteria (IST-TAC) shall be developed in accordance with the provisions specified in OM-10. The applicable acceptance criteria is developed when the valve is known to be performing in a satisfactory manner. Where IST-TAC other than that required by code is established for a given valve (i.e. additional N.I.T diagnostics), the documentation of that criteria is at the discretion of the licensee and not required to be part of the test record. Trending of valve test data is performed by the licensee on a periodic basis. Leakage criteria for valves, other than those tested in accordance to 10CFR50, Appendix J, is determined based on leakage rates specified by the licensee or using the guidance specified in 4.2.2.3. Relief valve IST-TAC shall be established per OM-1, 1987.

Such 'IST-TAC' should not be confused with the acceptance criteria specified in DBDs, DBD associated TAC Sheets, Technical Specifications, or any SAR. Such acceptance criteria are the most limiting values and can not be exceeded. IST-TAC are set to verify operational readiness of the valves and to identify valve degradation before the 'most limiting' acceptance criteria are exceeded. IST-TAC are based upon stroke times measured when the valve is known to be in good working order and are controlled within the test procedures. Alternatively, DBD-TAC are specific criteria associated with a valve's design basis.

4.10.1 *Reference Values*

Reference values shall only be established when the valve is known to be operating acceptably. After valve maintenance or replacement, baseline stroke times shall be reset or the previous value reconfirmed per OM-10 section 3.4.

4.10.2 *Valve Stroke-Time Acceptance Criteria:*

The following cases present the options available for determining valve operability based on stroke time:

CASE 1: The valve strokes within its acceptable stroke time. The valve is considered operable.

CASE 2: The valve doesn't move at all on the first try or exceeds its LIMITING VALUE. OM-10 immediately refers to this valve as being inoperable. An engineering evaluation needs to be done to determine the cause of the valve failure and system operability.

CASE 3: The valve fails to meet the acceptance stroke time, but strokes in less than the LIMITING VALUE. Per OM-10, the valve shall immediately be restroked to achieve an acceptable stroke time. Per the Oconee valve testing program:

- a. If the valve successfully strokes on the restroke, the valve is considered operable. The cause of the initial deviation shall be analyzed and the results documented in the test procedure. A third valve stroke may be performed to demonstrate consistent valve operation.
- b. If the valve does not fall within the acceptable range on the restroke, then the valve is declared inoperable. An evaluation must be performed to determine the root cause of the failed test. The evaluation may determine that either corrective maintenance must be performed on the valve or the new stroke data is acceptable and new baselines must be established. Such results must be documented in the test procedure.
- c. In the event the initial stroke and the retest results are inconsistent, but the engineering evaluation shows the new stroke time is acceptable, a third test may be performed to verify consistent behavior. Documentation of the third test is optional if it shows no deviation from the "restroke".

4.10.3 *Valve Stroke-Time Measurements and Methods:*

Power operated valves, which are active and therefore must change position in order to perform a safety function, shall be stroked timed to that position. Power operated valves which are active in both the open and closed directions shall be stroke timed in both directions. These valves may have a different reference value in each direction.

In most instances, valve stroke times are measured with a stopwatch. The stopwatch is started when the valve is actuated and it is stopped when an indication light is received indicating that the valve has completed its full stroke. Stopwatches used to measure stroke times are calibrated annually. Valve stroke times are recorded to the precision of the timing device to prevent any rounding errors in the field.

4.10.4 *Limiting Value Stroke-Time Acceptance Criteria:*

Limiting Values for stroke-times are established in accordance with the guidance given in NUREG-1482 (Reference 2.11 - Appendix A). It is the position of the licensee that these values be determined as follows (with the limitations of Tech. Specs. and Safety Analysis being the most limiting):

<u>Valve Type</u>	<u>Limiting Value Calculation</u>
EMO (> 10secs.)	1.3R (to the nearest second or 5 sec.)
EMO (≤ 10secs.)	1.5R (to the nearest second or 5 sec.)
POV (> 10secs.)	2.0R (to the nearest second or 5 sec.)
POV (≤ 10secs.)	2.25R (to the nearest second or 5 sec.)

Note: Where 'R' represents the valve reference value at acceptable operation.

Valves that stroke in less than 2 seconds may be exempted from reference ranges and the maximum limiting stroke time shall be 2 seconds as specified by OM-10 section 4.2.1.8 (e).

4.10.5 *Engineering Evaluations:*

Section 4.2.1.9 of OM-10 allows the use of analysis for declaring a valve operable, after testing indicates the stroke time is above the limiting value. This approach may be used to the extent that it applies. In cases where a valve stroke time exceeds the limits of the safety analysis, it could not be declared operable until a reanalysis indicates the new (increased) stroke time is acceptable. A relief request would not be necessary to perform the analysis (or reanalysis). The analysis shall be documented or referenced within the record of test.

5. PUMP PROGRAM

5.1 In-Service Testing (IST) Program

As required by 10CFR50.55a, only pumps that are classified in accordance of NRC Regulatory Guide 1.26 as ISI Class A, B, or C, which corresponds to ASME Class 1, 2, or 3, respectively, are subject to IST requirements. For clarification of system piping classification correlation refer to Enclosure 9.1. The following defines the criteria for inclusion of equipment in the IST Program:

- A. All pumps which fall within the Duke ISI Class A, B, or C boundaries that are provided with an emergency power source and are also active in mitigating the consequences of the Design Basis Accidents (Design Basis Accident is defined as those described in UFSAR Chapter 15).
- B. Pumps in systems specifically required by Technical Specifications to be tested per ASME Section XI.

Currently the Oconee Nuclear Site is under the requirements of ASME Section XI, IWP 1986 Edition. This was the version of code in effect 12 months prior to the anniversary date of the ONS IST Program 120-month update. Currently, OM-6 requirements require additional test equipment and program changes that are not available at the site. Long-term plans include updating to the new OM-6 Codes for corporate consistency.

Refer to Sections 1.4 and 1.5 for further clarification of the scope of the IST program.

5.2 Pump Testing Program Exemptions and Position Statements

Pumps tested under the jurisdiction of this program shall be tested per code requirements of IWP at the specified frequencies unless it has been determined to be impractical. The purpose of this section of the program document is to provide the site's positions on interpretations, guidance, and other options regarding testing alternatives.

- 5.2.1 IWP-6240(f) requires the signature of the person or persons responsible for conducting and analyzing the test. The dated initials of the person or persons responsible for conducting and analyzing the test may be used in place of a signature in the record of the tests. Initials shall be used as signatures to meet the intent of the IWP as long as somewhere in the test procedure a full signature identifies the initials.
- 5.2.2 Developed head acceptance should be rounded up for conservatism in calculations to the nearest 0.5 psi, if possible. In most cases, the suction gauges used allow this type of accuracy.
- 5.2.3 Vibration acceptance should be truncated to 2 decimal places for operability determinations. The full four digit display number should still be recorded.
- 5.2.4 Pumps whose only safety function is predicated on plant shutdown and recovery from a fire per commitments made as a result of 10CFR50, Appendix R are not included in the IST Program. The licensee tests these in accordance with Appendix R requirements.
- 5.2.5 Pumps that are not provided with an emergency source of power are not required to meet IST requirements. The licensee, however, may elect to include these pumps in the IST program for testing purpose only.
- 5.2.6 Pumps that can only be tested during plant operation shall be tested within 1 week following plant startup. To comply with GL 87-09 guidance, if the testing schedule is not maintained during plant shutdowns, the affected pump(s) must be tested before entering an operational mode which requires the pump(s) to be operable. The licensee, however, may elect to delay repairs and/or retest of pumps not required to be operable for plant startup or other operational modes.
- 5.2.7 After pump maintenance, pump performance parameters shall be reset or reverified per IWP-3111.
- 5.2.8 The ONS Pump Testing Program is governed by IWP 1986. Per NUREG-1482 Section 5.1.2, the following IWP parameters are no longer monitored during In-Service Testing:
Inlet Pressure: this value is only measured for tests where it is required for calculating the pump's developed head.

Differential Pressure for Positive Displacement Pumps: discharge pressure is the sole indicator of pump degradation for positive displacement pumps since the discharge pressure for such pumps is independent of suction pressure.

Proper Lubricant Level of Pressure: this is a parameter that is analyzed through preventive maintenance techniques.

Bearing Temperature: advanced vibration monitoring is a better indication of bearing degradation than bearing temperature.

- 5.2.9 Per NUREG 1482 Section 5.8, hold time has been reduced to 2 minutes if this duration represents stable pump operation.

5.3 Mini-flow/Recirculation Flow Pump Testing

Pump testing is not performed using pump minimum flow lines.

5.4 Testing Required from Remote Locations:

Pumps with remote indications shall be observed at least once every 2 years to verify that pump operation is accurately indicated. Pumps that have remote operating switches and/or power supplies should be remotely tested (i.e. HPI pumps). They should be tested and verified for proper pump operation and indication from the remote location as a good engineering practice. Other pump operation parameters, such as vibration, bearing temperatures, pressure and flow do not have to be performed from the remote location during testing.

5.5 Post Maintenance/Modification Testing (Retest)

See NSD-408, "Testing".

5.6 Skid-Mounted Pumps

The testing of the 'major' component supported by skid mounted equipment is an acceptable means for verifying the operational readiness of the skid-mounted equipment sub-components and assemblies. The licensee, however, may opt to include certain components contained on these skids in the IST program for testing purposes. In such cases, the licensee is not obligated to submit relief request on testing alternatives nor is it obligated to trend the performance of such components as is required for components which meet the scope of IWP.

5.7 Pump Performance Testing

All pump reference values shall be developed in accordance with the provisions specified in IWP. The reference values shall be developed when the pump is known to be performing in a satisfactory manner. Additionally, the reference values shall be established at points of operation readily duplicated during subsequent inservice testing. Where test acceptance criteria (IST-TAC) other than that required by code is established for a given pump (i.e., pump curves), the documentation of that criteria is at the discretion of the licensee and is not required to be part of the test record. Trending of pump test data is performed by the licensee on a periodic basis.

Such 'IST-TAC' should not be confused with the acceptance criteria specified in DBDs, DBD associated TAC Sheets, Technical Specifications, or any SAR. Such acceptance criteria are the most limiting values and can not be exceeded. IST-TAC are set to verify operational readiness of the pumps and to identify pump degradation before the 'most limiting' acceptance criteria are exceeded. IST-TAC are based upon performance data measured when the pump is known to be in good working order and are controlled within the test procedures. Alternatively, DBD-TAC are specific criteria associated with a pump's design basis.

5.7.1 Establishment of Initial Conditions

The pump performance testing shall be completed as follows:

Pump Speed

The pump shall be operated at the nominal motor nameplate speed for constant speed drives, and at a speed adjusted to the reference speed for variable speed drives.

System Resistance

The resistance of the system shall be varied until the flow rate equals the reference value. The pressure shall then be determined and compared to its reference value. Alternatively, the flow rate can be varied until the pressure equals the reference value and the flow rate shall be determined and compared to the reference flow rate value. The initial establishment of the flow rate or pressure is performed in order to create equivalent system resistance during each performance test. Section XI does not address the possibility that the initial establishment of flow rate or differential pressure may not be controllable to an exact value. When the Code specifies that the system resistance be varied until either the flow or differential pressure equals the corresponding reference value, it does not intend that the "set value" have an acceptable range as stated in Table IWP-3100-2 (OM-6 Table 3b). The acceptance criteria are only applied to the parameter being determined after the resistance is varied. From NUREG 1482, however, the allowed tolerance for setting the fixed parameter may be established for each case individually including the accuracy of the instrument and the precision of its display. A total tolerance of ± 2 percent of the reference value is allowed without approval from the NRC.

For conservatism, the tolerance of the fixed parameter should be set from the reference value to +2 percent of the reference value. The responsible system engineer should document deviation from this practice as guidance for the procedure writers. For a tolerance greater than ± 2 percent a corresponding adjustment to acceptance criteria may be made to compensate for the uncertainty, or an evaluation would be performed and documented justifying a greater tolerance. In using this guidance, the variance must be documented in the IST program documents or implementing procedures (Reference 2.11 Section 5.3).

5.7.2 Pump Hydraulic Parameters Acceptance Criteria:

The ONS IST Program does not follow IWP-3300 (Table-3100-1) for acceptance criteria for pump Developed Head (ΔP) and Flow Rate (Q). Per the November 23, 1994, NRC SER (Action Items 4.5 and 5.5), Section XI IWP-3210, and NUREG-1482 Section 5.6, the use of alternate acceptance criteria is acceptable as long as the expanded ranges and basis for finding that the pump performance does not demonstrate degrading conditions is documented in the record of tests. The acceptance criteria is documented in the test procedures. The test procedures reference this document which discusses (below) the basis for assuring the pump performance is not degraded.

The following discusses the basis for not following testing requirements in Section XI Table-3100-1 for pump developed head and flow rate acceptance criteria:

Data scatter from process fluctuations and instrument readability combined with code allowable instrument error can result in pumps being placed on double frequency or declared inoperable in situations where true pump degradation has not occurred due to the upper acceptance limits defined by Table IWP-3100-1. The upper end acceptance criteria allowed by code when applied to ΔP_{ref} could be more restrictive than the instrument calibration limits. Based on this situation, Oconee Nuclear Station specifies the following acceptance in lieu of those specified in Table IWP-3100-2.

If establishing the system resistance based on flow rate, the acceptance range for ΔP shall be as follows:

Acceptance range: 0.93 to $1.07 \Delta P_{ref}$,
Low alert range: 0.90 to $0.93 \Delta P_{ref}$,
High alert range: 1.07 to $1.10 \Delta P_{ref}$,
Low required action range: $< 0.90 \Delta P_{ref}$, and
High required action range: $> 1.10 \Delta P_{ref}$.

If establishing the system resistance based on differential pressure, the acceptance range for Q shall be as follows:

Acceptance range: 0.94 to $1.06 Q_{ref}$,
Low alert range: 0.90 to $0.94 Q_{ref}$,

High alert range: 1.06 to $1.10 Q_{ref}$,
Low required action range: $< 0.90 Q_{ref}$, and
High required action range: $> 1.10 Q_{ref}$.

Safety significance for this deviation from Code is insignificant. The deviation from Code is for the upper acceptance ranges only. Pumps do not improve over time. Thus, the increase in acceptable upper limits is justified. Enhanced vibration analysis including spectral analysis to identify pump problems is being used at multiple points. Enhanced vibration analysis techniques further justify relaxed hydraulic limits.

5.7.3 *Vibration Monitoring*

Pumps tested under the jurisdiction of this program shall be tested per code requirements at the specified frequencies unless it has been determined to be impractical.

6. RELIEF REQUESTS

The purpose of a Relief Request is to exclude components from testing requirements of the Code which cannot be followed (see NSD-408, "Testing" for additional discussion). Therefore, if the testing on the component can not be done due to plant configuration, plant safety, equipment limitations, type, or hazards to personnel, relief from the code shall be requested. Submitted relief requests address if: (1) the proposed alternative gives an acceptable level of quality and safety, (2) compliance would result in a hardship without a compensating increase in safety, or (3) complying with code requirements is impractical. Relief Request for components that are in the ASME IST Program shall be sent to the NRC for approval. Each Ten Year Interval, when the site testing program is being upgraded to the new testing requirements, all relief requests shall be reviewed to insure that their reasons for issuance are still valid.

6.1 Implementing Relief Requests:

When a relief request is submitted for those requirements which have been determined to be clearly impractical, the licensee reserves the right to implement the proposed alternative testing while the NRC is reviewing the relief request (Reference 2.11 - Section 2.5).

6.2 Interim Relief Requests:

When a relief request is required on an interim basis, the licensee shall submit the relief for review, but may implement the relief while the NRC is reviewing the request (see Section 6.1). Updates to schedules or impacts to design/modification implementation of the component with interim relief shall be communicated to the NRC as the program is updated. Interim reliefs shall be withdrawn as soon as the licensee no longer requires them.

7. JUSTIFICATIONS FOR DEFERRAL:

Justification for deferral (JFD) is written when a valve can not be tested at a quarterly frequency. This could be due to an impracticality of testing the component at power or due to plant safety concerns introduced by the testing configuration. The basis for determining the impracticality of testing at power and expanding the valve's testing frequency to a Cold Shutdown or Refueling Outage frequency is documented for the IST Program in a Justification for Deferral.

In-Service Testing to be performed at Cold Shutdown shall:

- a) be performed during each cold shutdown when the planned length is of sufficient duration to establish the necessary test conditions and to perform the test,
- b) be performed as to not impact the timely completion of the shutdown related activities and subsequent return to operation. For outages when the planned length is not of sufficient duration to complete all tests, testing shall start within 48 hours of reaching cold shutdown conditions. If all tests are not completed, those tests will be scheduled to be performed at the next available cold shutdown consistent with the above criteria. Completion of the IST is not a prerequisite to return to operation. This is supported by the position stated in OM-10, section 4.3.2.2.

All testing required to be performed during a refueling outage shall be completed prior to plant operation. Components tested during start-up shall not delay start-up if the site Technical Specifications allow start-up with the component out of service or inoperable. Retest and corrective actions shall be performed at the first available opportunity.

7.1 Testing Deferral Justifications:

The purpose of the testing Justification for Deferral form is to document the reason that a pump or valve can only be tested during cold shutdown or a refueling outage. The Justification for Deferral Form is found within Enclosure 9.4.

Valid reasons could be plant configuration for testing which would jeopardize the safety of plant operation, access to the component which would be against ALARA, access to the component due to the environmental conditions endangering personnel safety, or that plant configuration for testing would require the plant to be in a mode not suitable for power production. Removing one train for testing or entering a limiting condition of operation is not sufficient basis for not performing the required tests, unless the testing renders systems inoperable for extended periods of time. It is not the intent of IST to cause unwarranted plant shutdowns or to unnecessarily challenge other safety systems. Other factors such as the effect on plant safety and the difficulty of the test should be considered. As stated earlier, testing should not interfere with power production.

8. PROCESS FOR PROGRAM CHANGES:

The IST and Appendix B Test Programs are based on design basis documents (DBDs) and calculations. When changing the program by revising a design basis document, the IST Program is listed as an affected document. The normal modification process of reconciling affected documents ensures that the IST Program Administrator is notified of a required change. The system engineer reviews all modification packages and is responsible for identifying changes to an IST component, insuring that the IST Data Base is listed as an affected document and providing updated information to the IST Administrator. When changing the program by revising a calculation, there is no programmatic method of informing station personnel of changes to the calculation, as is the case for changes to a design basis document. The person who revises the calculation is responsible for informing the appropriate station and engineering personnel of changes to the calculation and the need for subsequent changes to test procedures and changes to the test programs. Enclosures 9.2 and 9.3 are to be completed and submitted by the system engineer responsible for the affected component(s). The following represents the method for performing changes to the IST or Appendix B program:

PROGRAM DELETION

- Step 1: Determine a need to DELETE from the IST Program (System Engineering)
- Step 2: Revise DBD or Calculation (System Engineering)
- Step 3: Complete and Submit Enclosures 9.2 and 9.3 as required (System Engineering)
- Step 4: 50.59 prepared or included with package and deemed applicable.
- Step 5: Delete from Program (IST Administrator)
- Step 6: Perform Necessary Procedure Changes (System Engineering & Procedure Owner)
- Step 7: Perform Necessary WMS Changes (System Engineering or Procedure Owner submit PM Action Form to WC) **

PROGRAM ADDITION OR REVISION

Step 1: Determine a need to CHANGE or ADD to the IST Program (System Engineering)

Step 2: Revise DBD or Calculation (System Engineering)

Step 3: Perform Necessary Procedure Changes (System Engineering & Procedure Owner)

Step 4: Perform Necessary WMS Changes (System Engineering or Procedure Owner submit PM Action Form to WC) **

Step 5: Complete and Submit Enclosures 9.2 and 9.3 as required (System Engineering)

Step 6: 50.59 prepared or included with package and deemed applicable.

Step 7: Complete Necessary Program Changes (IST Administrator)

**PM Action Form and instructions for changing surveillances are found in Site Directive 4.1.1. Note the requirement to update the Work Management System (WMS) to ensure that all IST and Appendix B Surveillances are scheduled was committed within PIP's 98-0276 and 98-0233.

Appendix A

10CFR50, Appendix B Program (Supplemental Testing Program)

The scope of the Oconee pump and valve testing program includes all components which are active in mitigating the consequences of Design and non-Design Basis Events, are required for cold shutdown, provide a containment isolation function, or are designated by station Technical Specifications to be included in testing programs. This scope is further divided into IST testing and Appendix B testing (Reference 2.17). The scope of the IST program is discussed in detail in Sections 4.1 and 5.1 of this document.

The selected components tested under the jurisdiction of the Appendix B portion of the Oconee Pump and Valve Testing Program provide a function of safety to the operation of the plant, but do not fall explicitly under the jurisdiction of the ASME Code. Specifically, the Appendix B program encompasses pumps and valves not included in the ASME program which are active in certain non-Design Basis Events, are cold shutdown valves not associated with a FSAR Chapter 15 event, are significant to plant safety, or are of economic importance and that are considered beyond the scope of 10CFR50.55a. Pumps and valves used in the mitigation of a tornado, station blackout, fire, flood, sabotage, or loss of the Keowee Dam are included within this scope (Reference 2.17).

The Appendix B components are tested in accordance with internal Duke Power procedures and requirements (per 10 CFR 50, Appendix B). The methods and acceptance criteria used to adequately test the components should use the criteria as specified by the IST program administrator. Relief Requests do not have to be generated for valves in the Appendix B Testing Program (Reference 2.17).

Unless appropriately documented, the ONS Appendix B Program is administered identically to the IST Program. Where possible, Appendix B components are tested per the requirements of the IST Program using safety related procedures. If the requirements of the IST Program (IWP or OM Code) cannot be followed, relief requests need not be submitted to the NRC. Such deviations from Code 'recommendations' are documented below:

Supplemental Program Test Method Deviations:

- M-01 Appendix B manual valves are only stroked each refueling outage (Reference 2.17) or during plant operation at a frequency not to exceed 2 years.
- M-02 The Hydrogen Analyzer Sample Select Valves (1,2,3PR-71, 72, 73, 74, 75, 76, 77, 78, 79, 80) are stroked quarterly to assure functionality, but the valves are not timed. These solenoid valves do not have an external indicator which signals a change of disk position. An air pressure change is used to verify a change of disk position.
- M-03 The Auxiliary Steam Pressure Control Valves (1,2,3MS-126, and 1,2,3MS-129) are tested during normal operation by verifying their ability to supply and control steam to the auxiliary steam header.
- M-04 Pressure regulating valves OCCW-277 and OCCW-280 function to support the SSF HVAC. The valves are tested on an annual frequency, which is consistent with the testing of the SSF HVAC system.
- M-05 PRVS Fans Suction Tie (1,2,3PR-20) is no longer required for system operability. It is stated in the PRVS DBD that failure of this valve will not affect PRVS operability. It is therefore not required to be in the IST Program. The only requirement to test this valve is Improved Technical Specification Surveillance Requirement stating that the "valve can be opened" on an 18 month frequency. It is in the Appendix B Program for tracking purposes only. Since this valve is not required for operability and is only in the Appendix B Program for tracking purposes, it is not stroked timed.
- M-06 The Reactor Building Purge Containment Isolation Valves (1,2,3PR-1, 1,2,3PR-2, 1,2,3PR-5, and 1,2,3PR-6) are passive in the closed direction as they are never opened during power operation. They are classified as IST Program valves due to their function as containment isolation valves and receive a Type C leak rate test. These valves are exercised closed during cold shutdown as they are required to close on high radiation signal during fuel movement. This is deemed an Appendix B function.

Supplemental Program Test Deferrals:

- D-01 The Core Flood Tank A and B Discharge Isolation Valves (1,2,3CF-1, and 1,2,3CF-2) are exercised at cold shutdown. Per ONS Technical Specifications, the electrical breakers for these valves are tagged open when the RCS pressure is above 800 psig.
- D-02 The Condenser Discharge Valves (1,2,3CCW-20, 21, 22, 23, 24, and 25) are exercised at cold shutdown. These valves cannot be stroked at power. Stroking these valves at power would place undue stress on the condenser expansion joints and necessitate a decrease in power output of the unit affected.
- D-03 The steam generator supply check valves associated with the Auxiliary Service Water Pump cannot be tested to the open position without injecting raw lake water into the steam generators. Therefore, the following valves are disassembled per the guidelines of NUREG-1482 to ensure their functional capability: 1CCW-105, 2CCW-113, 3CCW-121, 2CCW-152, 3CCW-254, and 1CCW-321.
- D-04 The Auxiliary Service Water Pump discharge check valve (0CCW-100) cannot be full stroked to the open position without injecting raw lake water into the steam generators. Therefore, the valve is disassembled per the guidelines of NUREG-1482 to ensure its functional capability.
- D-05 The following auxiliary steam valves function during a steam generator tube rupture when auxiliary steam supply to CSAEs is realigned to an unaffected unit: 1,2,3AS-1. Due to insufficient means of verifying the full stroke of the valves to the open position, the function of the valves is verified by means of disassembly per the guidelines of NUREG-1482.
- D-06 The following feedwater valves function to establish an alternate feedwater supply path: 1,2,3FDW-31, 36, 38, 40, 45, and 47. The exercising of the valves at power would affect the main feedwater supply to the steam generators. Therefore, the valves are exercised during cold shutdown to prevent causing a feedwater transient during power operation.
- D-07 The following feedwater check valves function to establish an alternate feedwater supply path from the emergency feedwater system to the main feedwater header: 1,2,3FDW-48, 93, 95, 99, 101, 375, and 385. The valves cannot be exercised at power without causing a feedwater transient. The valves are not exercised at cold shutdown in order to prevent unnecessary critical path time. Therefore, the valves are exercised each refueling outage.
- D-08 The following reactor coolant system vent valves function to provide a vent path to exhaust non-condensable gases and/or steam from the RCS that could inhibit natural circulation core cooling: 1,2,3RC-155, 156, 157, 158, 159, and 160. The valves cannot be exercised at power without potentially breaching the RCS pressure boundary. Therefore, the valves are exercised during cold shutdown.
- D-09 The following vacuum system valves function to break condenser vacuum when the Motor Driven Emergency Feedwater Pumps or Turbine-Driven Emergency Feedwater Pumps are required to take suction from the condenser: 1,2,3V-186. The valves cannot be exercised at power without causing the unit to trip due to the loss of condenser vacuum. Therefore, the valves are exercised during cold shutdown if condenser vacuum is not being maintained.
- D-10 The following high pressure injection valve functions to control flow to the auxiliary pressurizer spray: 1,2,3HP-355. The valves are not exercised at power to prevent any inadvertent actuation of auxiliary pressurizer spray. Therefore, the valves are exercised during cold shutdown.
- D-11 The high pressure service water jockey pump maintains level within the elevated storage water tank during normal operation. The high pressure service water jockey pump discharge check valve (0HPSW-8) cannot be full stroke exercised due to a lack of flow indication. Therefore, the valve is disassembled per the guidelines of NUREG-1482 to ensure its functional capability.
- D-12 The main steam bypass valves (1,2,3MS-19, 22, 28, and 31) function to control cool down following an ATWS event. The valves are not exercised at power operation to preclude any adverse affects on secondary plant operation. The valves are exercised during cold shutdown.
- D-13 The following valves open to allow main steam from the auxiliary steam header: 1,2,3MS-25, and 1,2,3MS-34. Due to system constraints, there is no means to pass accident flow rates in order to verify open full stroke. Therefore, the valves are disassembled per the guidelines of NUREG-1482 to ensure their functional capability.
- D-14 The following main steam valves function to align the condenser steam air ejectors (CSAEs) to auxiliary steam following a steam generator tube rupture: 1,2,3MS-47. These valves cannot be exercised at power without affecting the CSAEs and condenser vacuum. Therefore, the valves are exercised during cold shutdown if the CSAEs are taken out of service.
- D-15 The following High Pressure Service Water (HPSW) valves function to regulate pressure from the HPSW system to the High Pressure Injection pump motor coolers: 1,2,3HPSW-556. The valves

can only be tested during cold shutdown since the QA source of cooling water to the pump motor coolers cannot be isolated at power conditions due to Technical Specification requirements.

- D-16 Valves 1,2,3LPSW-502 function during a tornado event to allow the ASW system to supply the HPI pump motor cooler jackets. Due to system constraints, there is no means available to full stroke exercise the valves. Therefore, the valves are disassembled per the guidelines of NUREG-1482 to ensure their functional capability.
- D-17 Due to past water hammer events (PIPs 97-0254, 98-3702) it has been determined that valves 1,2,3C-156 need to have stroke time testing deferred from quarterly to cold shutdown with no vacuum due to the fact that the valves have been contributors to past water hammer events and should not be stroked when the condenser is under vacuum in order to avoid the potential for water hammer induced equipment damage.
- D-18 The SSF Submersible Pumps (0CCWPU0010 and 0CCWPU0011) are tested at a two year frequency. The test parameters monitored are developed head and flow rate. This meets the requirements of Technical Specifications. This is not a deviation from Code as these portable pumps are non-Code Class, non-safety grade components.

*****NEED TO DELETE AFTER ONE CYCLE*****

- D-19 For one cycle, 2AS-40 will be considered passive, as this normally closed valve will remain open, supplying auxiliary steam to unit 2 condenser steam air ejectors. It can not be stroked closed, as it is needed for plant operation to maintain vacuum. The 8" MS piping to Main FDW Pump Turbine 2B experienced a piping shift. Reference PIP 2-O98-5309, 11/6/98. This large movement caused damage to the 3" line that supplies steam to the Condenser Steam Air Ejector 2A. For safety reasons we are isolating main steam supply to air ejectors and will utilize the alternate path from the auxiliary steam supply system. After repairs are made, it will be returned to: stroke test open, quarterly, per PT/2/A/0152/01.

Appendix B

Responsibilities

1.0 *IST Coordinator:*

The IST Coordinator position shall be filled by a qualified individual knowledgeable of plant system operation. He/she ensures the site is in compliance by its performance testing and trending methods. The IST Coordinator accomplishes this by maintaining consistency among the System Engineers and overall program management. The IST Coordinator should publish an overall summary (in the form of an annual summary) on the current status of the site performance monitoring of the valves and pumps tested under the requirements of the IST or Appendix B program.

The IST Coordinator is responsible for notifying Regulatory Compliance of any changes to the Valve and Pump Testing Program described in this directive, including changes to the data sheet information. The IST Coordinator is responsible for updating and maintaining the IST database. The IST Coordinator is responsible for coordinating and implementing the program update and renewal per 10CFR50 every 10 years.

2.0 *Mechanical Systems Engineering:*

MSE is responsible for the following:

- ensuring the accuracy of IST data set information
- notifying IST coordinator of changes in calculations
- defining test acceptance criteria (TAC)
- ensuring Code testing requirements are met
- documenting reasons for scope or Code deviation
- providing technical assistance for writing and reviewing test procedures
- trending data
- complete valve and pump data sheets for program revisions.
- notifying the IST Coordinator of maintenance that could affect the baseline data for any IST component
- overall administration of the relief valve testing program (OM-1)
- administrating the check valve sample disassembly program
- evaluating specific component problems/failures (why test failed, baseline changed, etc.).

MSE is responsible for the components within their systems, which are in the program. If the status of a component changes via the modification process, MSE is responsible for referencing the IST database as an affected document which assures the IST program is properly revised. If the status of a component changes via the calculation or licensing (T.S. or UFSAR) process, MSE is responsible for notifying the IST Coordinator to assure the IST database is properly revised.

3.0 *Operations Test Group:*

OTG is responsible for the following:

- performing tests
- accurately recording test results in procedure and database
- notifying MSE of any testing problems
- initiating a PIP when a test has failed or a problem is encountered
- documenting test discrepancies on the procedure.

4.0 *Operations Procedure Group:*

This group is responsible for the following:

- updating and maintaining all IST procedures
- verifying all technical changes with the IST Coordinator and respective MSE.

Enclosure 9.1
System Piping Classification Correlation for ONS:

Duke System Piping Classification	Safety ¹ Related	NRC Quality Group	Duke QA Cond.	ANS ⁹ Safety Class	Code ⁶ Design Criteria	Seismic Pressure Boundary Integrity	Seismic Category	Normally Contains Radioactive Material
A	YES	A ²	1	1 ²	Class 1 ANSI B31.7	YES	SC-I	YES
B	YES	B ²	1	2 ²	Class 2 ANSI B31.7	YES	SC-I	YES
C	YES	C ²	1	3 ²	Class 3 ANSI B31.7	YES	SC-I	YES
D	NO	-	4	NNS ³	ANSI B31.1	YES	SC-II ⁸	NO
E	NO	D ⁴	2 ⁵	NNS ³	ANSI B31.1	NO	-	YES
F	YES	B,C	1	2,3	ANSI B31.1	YES	SC-I	NO
G	NO	-	.5	-	ANSI B31.1	NO	-	NO
H	NO	-	.5	-	DPCo Specification	NO	-	NO
H (Duke HVAC Duct Classification)	YES	-	.7	-	DPCo Specification	YES	SC-I	NO

NOTES:

- (1) Safety Related as used herein is in accordance with 10CFR50 Appendix A General Design Criteria for Nuclear Power Plants and is applicable to function only; i.e., structures, systems, and components required to function such that the facility can be operated without undue risk to the health and safety of the public are safety related.
- (2) Due to the evolution of requirements, Duke Classes A, B, and C for Oconee are similar but not exact to NRC Quality Group and ANS Safety Class definitions used for McGuire and Catawba, refer to Oconee FSAR for specifics.
- (3) NNS = Non-Nuclear Safety
- (4) Class E piping is equivalent to NRC Quality Group D; i.e., the system is designed to normally carry a radioactive fluid; however, is considered NNS as a component failure would not result in a calculated potential exposure in excess of the limits established by 10 CFR20.
- (5) Class E, G, and H piping systems may also be assigned QA Condition 3 and/or 4 to denote additional requirements for fire protection of safety related components and/or seismic structural integrity (except pressure boundary) to preclude adverse interactions with safety related structures, systems and components, respectively; refer to Duke Nuclear Guide 1.29.
- (6) Code and Standards Applicability: Duke Power Company establishes an "effective code date" in accordance with 10CFR50, par. 50.55a for Oconee Nuclear Site. Due to the numerous code and standards references applicable to each station, no attempt is made to specifically identify these references as they are amended, superseded, or substituted. Duke reviews and complies with all or portions of the latest versions of the above Codes and Standards unless materials and/ or design commitments have progressed to a stage that it is not practical to make a change. When only portions of addenda to Codes and Standards are utilized, the appropriate engineering review of the entire agenda assures that the overall intent of the Code Standard is still maintained. These codes and standards are identified in the Oconee Piping Installation Specification OS-243.00-00-0001.
- (7) HVAC Duct Systems may be constructed of either sheet metal or piping materials depending upon the design function and requirements. Non-Safety Related HVAC may be assigned QA Condition 4, SC-II Support Restraints to preclude adverse interactions with safety related structures, systems, and components. Refer to Duke Nuclear Guide 1.29.
- (8) Class D for piping systems is used when pressure boundary protection is required. Seismic Category II hangers may be use on Class E, G, or H piping systems when pressure boundary integrity is not required. See Duke Guide 1.29.
- (9) ANSI N18.2, 1973 with 1975 addenda.

Enclosure 9.2

Valve Data Sheet

Change Type: **Revision** **Addition** **Deletion** **Prepared By**_____

Valve Number_____ **Description**_____

[illegible]

Flow Diagram _____ **Coordinate** _____

Valve Type: BA BF CK DI EX GB GT FL

PG PR RV SC ST SV VB

Valve Size _____ **Actuator Type:** AO HO MA ML MO MR PA SA SO

Active Valve	Yes	No	Fails to Safe	Yes	No	NA
--------------	-----	----	---------------	-----	----	----

Appendix J	Yes	No	Alternate Feedwater Path	Yes	No
------------	-----	----	--------------------------	-----	----

Auxiliary Safe Guard Valve	Yes	No	Remote Position Indication	Yes	No
-----------------------------------	-----	----	-----------------------------------	-----	----

ESF Valve	Yes	No	Skid Mounted Valve	Yes	No

Program	IST	Appx. B	Vent/Drain	Yes	No
---------	-----	---------	------------	-----	----

ASME/ISI Class	A	B	C	N (non code class)
----------------	---	---	---	--------------------

Valve Category	A	B	C	D	(See OM-10 section 1.4)
----------------	---	---	---	---	-------------------------

Required Accident Position	O	C	TR
----------------------------	---	---	----

Cold Shutdown Position	O	C	TR	NA
------------------------	---	---	----	----

Air Failure Position	O	C	AI	TR	NA
----------------------	---	---	----	----	----

Electric Failure Position	O	C	AI	TR	NA
---------------------------	---	---	----	----	----

*DBD Time OPEN _____

***DBD Time CLOSED**

*TS Time OPEN _____

*TS Time CLOSED _____

*FSAR Time OPEN _____

***FSAR Time CLOSED**

*Minimum accident analysis performance must be reflected in acceptance criteria if more conservative than IST Requirements.

Test Type	Test Direction				Test Frequency			Test Procedure	PM Action Form ^φ	
FS	OC	CO	BOTH	NA	Q	CSD	RF		yes	no
PS	OC	CO	BOTH	NA	Q	CSD	RF		yes	no
ST	OC	CO	BOTH	NA	Q	CSD	RF		yes	no
LJ	AD	RD	BOTH	NA	Q	CSD	RF		yes	no
LT	AD	RD	BOTH	NA	Q	CSD	RF		yes	no
									yes	no

* PM Action Form must be submitted in accordance with Site Directive 4.1.1 to make scheduling changes to the Work Management System (WMS). These include changes to test frequency and/or affected procedure number.

Justification for Deferral

Item Number:

Valve:

Flow Diagram:

Code Category:

ISI Class / Duke Class:

Function:

Test Requirement:

Basis for Deferral:

Test Alternative & Frequency:

Specific Relief Request

Item Number:

Valve(s):

Flow Diagram:

ISI Class / Duke Class:

Function:

Test Requirement:

Basis for Relief:

Test Alternative:

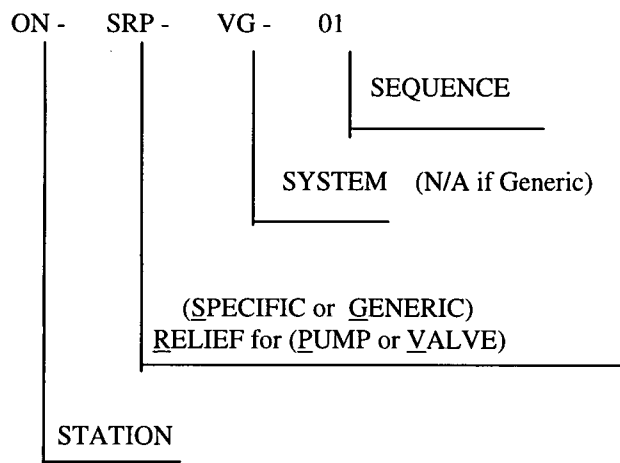
TABLE OF ABBREVIATIONS

ISI Class	Code Design Criteria	ASME XI Classification
A	ANSI B31.7, Class 1	1
B	ANSI B31.7, Class 2	2
C	ANSI B31.7, Class 3	3

Numbering Sequence for Relief Request and Justification For Deferral

Examples:

RELIEF REQUEST



JUSTIFICATION FOR DEFERRAL

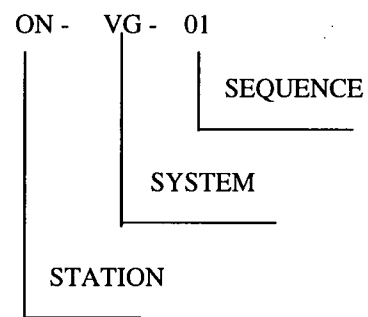


TABLE OF ABBREVIATIONS

VALVE TYPE

VALVE TYPE	Description
BA	Ball
BF	Butterfly
CK	Check
CT	Control
DI	Diagram
EX	Explosive
FL	Float
GB	Globe
GT	Gate
KT	Kerotest
PG	Plug
PR	Pressure Regulating
RV	Relief
SC	Stop Check
ST	Stop
SV	Solenoid
VB	Vacuum Breaker

TEST TYPE

TEST TYPE	Description
BT	New Baseline Test
CSE	Contact System Engineering
CVE	Contact Valve Engineering
CVED	Contact Valve Engineering for DP Test Requirements
EX	Explosive Valve Test
FS	Full Stroke Exercise Valve To Safety Position(s)
FT	Failed To Safe Position
IS	Instrumented Electrical Stroke
LJ	Leak Rate Test Valve To App J Requirements(s)
LT	Leak Rate Test Valve To Section XI Requirements(s)
LTTS	Leak Test Per Tech Spec Requirements
MS	Manual Stroke of Power Operated Valve
NT	No Test Required
PI	Verify The Valve Remote Position Indication
PIS	Pre And Post Maintenance Instrumented Electrical Stroke
PS	Partial Stroke Exercise Valve
RV	Safety And Relief Valve Test
SD	Sample Disassembly
SFB	System Flow Balance
SP	Special Test For Particular Component Or Situation
ST	Measure Full Stroke Time Of Valve
TTB	Torque Test Bench
US	Functional (Uninstrumented) Stroke Only

FREQUENCY	Description
2RF	Every Other Refueling Outage
2Y	Testing Once Every Two Years
6M	Tested Every 6 Months
CS	Tested At Cold Shutdown
CSDRF	Tested Each Cold S/D And Each RFO
ILRT	Tested Every ILRT Outage
M	Tested Once Monthly
NA	No Specified Test Frequency
Note1	See Technical Specification
Note2	6 Month, See Technical Specification
Note3	CSD, Hot Tested Prior To LTOP
NPT	No Periodic Test Required
Q	Tested Once Quarterly
QCS	Tested Quarterly And Each Cold Shut Down
QRF	Tested Quarterly And Each Refueling Outage
RF	Tested Every Refueling Outage
RR	Per Relief Request
RV	Test Relief Valve Per Om-1 Schedule
SD	Disassemble One Valve Per Group Each Refueling Outage
VV	Visual Verification Frequency
W	Tested Once Weekly
Y	Tested Once Yearly

OM-10 VALVE CATEGORIES

Category A Leakage is Critical

Category B Leakage is NOT Critical

Category C Self Actuating (Checks, Reliefs, Etc.,)



DUKE POWER
OCONEE NUCLEAR STATION

Pump Inservice Testing Program

SECTION 3.0

3.1 Pump Inservice Testing General Data
Unit 1 - Unit 2 - Unit 3

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<i>BS - Building Spray</i>							
ON1BSPU0001	Reactor Building Spray Pump	OFD-103A-1.1	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2BSPU0001	Reactor Building Spray Pump	OFD-103A-2.1	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3BSPU0001	Reactor Building Spray Pump	OFD-103A-3.1	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1BSPU0002	Reactor Building Spray Pump	OFD-103A-1.1	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2BSPU0002	Reactor Building Spray Pump	OFD-103A-2.1	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3BSPU0002	Reactor Building Spray Pump	OFD-103A-3.1	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<u>CCW - Condenser Cooling Water</u>							
ON0CCWPU0002	SSF Auxiliary Service Water Pump	OFD-133A-2.5	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON0CCWPU0003	SSF HVAC Service Water Pump	OFD-133A-2.5	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON0CCWPU0004	SSF HVAC Service Water Pump	OFD-133A-2.5	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON0CCWPU0005	SSF Diesel Engine Service Water Pump	OFD-133A-2.5	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<i>ESV - Essential Siphon Vacuum</i>							
ON2ESVPU0001	Essential Siphon Vacuum Pump	OFD-130A-2.1	Centrifugal	C	Flow Test	Tested once quarterly	None
					Vibration Test	Tested once quarterly	None
ON3ESVPU0001	Essential Siphon Vacuum Pump	OFD-130A-3.1	Centrifugal	C	Flow Test	Tested once quarterly	None
					Vibration Test	Tested once quarterly	None
ON2ESVPU0002	Essential Siphon Vacuum Pump	OFD-130A-2.1	Centrifugal	C	Flow Test	Tested once quarterly	None
					Vibration Test	Tested once quarterly	None
ON3ESVPU0002	Essential Siphon Vacuum Pump	OFD-130A-3.1	Centrifugal	C	Flow Test	Tested once quarterly	None
					Vibration Test	Tested once quarterly	None
ON2ESVPU0003	Essential Siphon Vacuum Pump	OFD-130A-2.1	Centrifugal	C	Flow Test	Tested once quarterly	None
					Vibration Test	Tested once quarterly	None
ON3ESVPU0003	Essential Siphon Vacuum Pump	OFD-130A-3.1	Centrifugal	C	Flow Test	Tested once quarterly	None
					Vibration Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<u>FDW - Feedwater</u>							
ON1FDWPU0003	Turbine Driven EFDW Pump	OFD-121D-1.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2FDWPU0003	Turbine Driven EFDW Pump	OFD-121D-2.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3FDWPU0003	Turbine Driven EFDW Pump	OFD-121D-3.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1FDWPU0004	Motor Driven EFDW Pump	OFD-121D-1.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2FDWPU0004	Motor Driven EFDW Pump	OFD-121D-2.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3FDWPU0004	Motor Driven EFDW Pump	OFD-121D-3.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1FDWPU0005	Motor Driven EFDW Pump	OFD-121D-1.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2FDWPU0005	Motor Driven EFDW Pump	OFD-121D-2.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3FDWPU0005	Motor Driven EFDW Pump	OFD-121D-3.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<u>FO - Fuel Oil</u>							
ON0FOPU0005	SSF Diesel Engine Fuel Oil Transfer Pump	OFD-135A-1.2	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<u>GBO - Keowee Turb. Guide Bearing Oil</u>							
K1GBOPU088A	Turbine Guide Bearing Oil Pumps (AC)	KFD-101A-1.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
K2GBOPU088A	Turbine Guide Bearing Oil Pumps (AC)	KFD-101A-2.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
K1GBOPU088D	Turbine Guide Bearing Oil Pumps (DC)	KFD-101A-1.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
K2GBOPU088D	Turbine Guide Bearing Oil Pumps (DC)	KFD-101A-2.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<u>HP - High Pressure Injection</u>							
ON1HPIPU0001	High Pressure Injection Pump	OFD-101A-1.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2HPIPU0001	High Pressure Injection Pump	OFD-101A-2.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3HPIPU0001	High Pressure Injection Pump	OFD-101A-3.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1HPIPU0002	High Pressure Injection Pump	OFD-101A-1.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2HPIPU0002	High Pressure Injection Pump	OFD-101A-2.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3HPIPU0002	High Pressure Injection Pump	OFD-101A-3.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1HPIPU0003	High Pressure Injection Pump	OFD-101A-1.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2HPIPU0003	High Pressure Injection Pump	OFD-101A-2.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3HPIPU0003	High Pressure Injection Pump	OFD-101A-3.3	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1HPIPU0005	SSF RC Makeup Pump	OFD-101A-1.5	Gear Positive Displacement	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2HPIPU0005	SSF RC Makeup Pump	OFD-101A-2.5	Gear Positive Displacement	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3HPIPU0005	SSF RC Makeup Pump	OFD-101A-3.5	Gear Positive Displacement	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<i>LP - Low Pressure Injection</i>							
ON1LPIPU0001	Low Pressure Injection Pump	OFD-102A-1.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	ON-SRP-LP-06
ON2LPIPU0001	Low Pressure Injection Pump	OFD-102A-2.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	ON-SRP-LP-06
ON3LPIPU0001	Low Pressure Injection Pump	OFD-102A-3.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	ON-SRP-LP-06
ON1LPIPU0002	Low Pressure Injection Pump	OFD-102A-1.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2LPIPU0002	Low Pressure Injection Pump	OFD-102A-2.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3LPIPU0002	Low Pressure Injection Pump	OFD-102A-3.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1LPIPU0003	Low Pressure Injection Pump	OFD-102A-1.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON2LPIPU0003	Low Pressure Injection Pump	OFD-102A-2.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3LPIPU0003	Low Pressure Injection Pump	OFD-102A-3.2	Centrifugal	B	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<i>LPSW - Low Pressure Service Water</i>							
ON1LPSPU0001	Low Pressure Service Water Pump	OFD-124A-1.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3LPSPU0001	Low Pressure Service Water Pump	OFD-124A-3.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1LPSPU0002	Low Pressure Service Water Pump	OFD-124A-1.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON3LPSPU0002	Low Pressure Service Water Pump	OFD-124A-3.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
ON1LPSPU0003	Low Pressure Service Water Pump	OFD-124A-1.1	Centrifugal	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<u>OG - Keowee Governor Oil</u>							
K1OGPU0001A	Governor Oil Pump	KFD-105A-1.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
K2OGPU0001A	Governor Oil Pump	KFD-105A-2.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
K1OGPU0002B	Governor Oil Pump	KFD-105A-1.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
K2OGPU0002B	Governor Oil Pump	KFD-105A-2.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
K1OGPU0003C	Governor Oil Pump	KFD-105A-1.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None
K2OGPU0003C	Governor Oil Pump	KFD-105A-2.1	Gear Positive Displacement	C	Vibration Test	Tested once quarterly	None
					Differential Pressure Performance Test	Tested once quarterly	None

Equipment ID	Description	Flow Diagram	Pump Type	ASME Class	Test Type	Frequency	Relief Request
<u>TS - Keowee Turbine Sump</u>							
K1TSPU088SA	AC Turbine Sump Pump	KFD-102A-1.1	Centrifugal	C	Vibration Test	Tested once quarterly	ON-SRP-TS-05
					Differential Pressure Performance Test	Tested once quarterly	ON-SRP-TS-05
K2TSPU088SA	AC Turbine Sump Pump	KFD-102A-2.1	Centrifugal	C	Vibration Test	Tested once quarterly	ON-SRP-TS-05
					Differential Pressure Performance Test	Tested once quarterly	ON-SRP-TS-05
K1TSPU088SD	DC Turbine Sump Pump	KFD-102A-1.1	Centrifugal	C	Vibration Test	Tested once quarterly	ON-SRP-TS-05
					Differential Pressure Performance Test	Tested once quarterly	ON-SRP-TS-05
K2TSPU088SD	DC Turbine Sump Pump	KFD-102A-2.1	Centrifugal	C	Vibration Test	Tested once quarterly	ON-SRP-TS-05
					Differential Pressure Performance Test	Tested once quarterly	ON-SRP-TS-05

DUKE POWER
OCONEE NUCLEAR STATION

Valve Inservice Testing Program

SECTION 4.0

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
<i>AB - Air Circuit Breaker</i>															
1AB0013	KFD-107A-1.1	J2	C	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
1AB0014	KFD-107A-1.1	J3	C	A	Yes	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
1AB0015	KFD-107A-1.1	K3	C	A	Yes	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
1AB0017	KFD-107A-1.1	K2	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2AB0023	KFD-107A-1.1	J12	C	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
2AB0024	KFD-107A-1.1	J13	C	A	Yes	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	
2AB0025	KFD-107A-1.1	K13	C	A	Yes	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	
2AB0027	KFD-107A-1.1	K11	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1AB0033	KFD-107A-1.1	J5	C	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	
1AB0034	KFD-107A-1.1	J6	C	A	Yes	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1AB0035	KFD-107A-1.1	K6	C	A	Yes	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	
1AB0037	KFD-107A-1.1	K5	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2AB0043	KFD-107A-1.1	J9	C	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	
2AB0044	KFD-107A-1.1	J9	C	A	Yes	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	
2AB0045	KFD-107A-1.1	K9	C	A	Yes	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
2AB0047	KFD-107A-1.1	K8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
AG - Keowee Governor Air														
1AG0003	KFD-104A-1.1	G7	C	B	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly
2AG0003	KFD-104A-2.1	G7	C	B	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly
1AG0004	KFD-104A-1.1	G8	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule ON-GRV-10,12,13,14
2AG0004	KFD-104A-2.1	G8	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	--------------	------------	------------	--------	------------	---------------	-----	----	-----------	-----------------------	----------------	----------------	-----------------------	----------------

AS - Auxiliary Steam

1AS0039	OFD-122A-1.4	H6	C	C	Yes	Check	Self Actuated	ON-AS-01	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2AS0039	OFD-122A-2.4	H6	C	C	Yes	Check	Self Actuated	ON-AS-01	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3AS0039	OFD-122A-3.4	H6	C	C	Yes	Check	Self Actuated	ON-AS-01	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	--------------	------------	-------------	--------	------------	---------------	-----	----	-----------	-----------------------	----------------	----------------	-----------------------	----------------

BA - Breathing Air

1BA0171	OFD-137A-1.3	G2	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2BA0171	OFD-137A-2.3	K2	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3BA0171	OFD-137A-3.3	F2	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
1BA0172	OFD-137A-1.3	G2	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2BA0172	OFD-137A-2.3	K3	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3BA0172	OFD-137A-3.3	F2	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	--------------	------------	-------------	--------	------------	---------------	-----	----	-----------	-----------------------	----------------	----------------	-----------------------	----------------

BS - Building Spray

1BS0001	OFD-103A-1.1	J8	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2BS0001	OFD-103A-2.1	J8	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3BS0001	OFD-103A-3.1	J8	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1BS0002	OFD-103A-1.1	E8	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2BS0002	OFD-103A-2.1	E8	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3BS0002	OFD-103A-3.1	E8	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1BS0011	OFD-103A-1.1	J6	B	C	Yes	Check	Self Actuated	ON-BS-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
2BS0011	OFD-103A-2.1	J6	B	C	Yes	Check	Self Actuated	ON-BS-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
3BS0011	OFD-103A-3.1	J6	B	C	Yes	Check	Self Actuated	ON-BS-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1BS0014	OFD-103A-1.1	J10	B	C	Yes	Check	Self Actuated	ON-BS-02	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
2BS0014	OFD-103A-2.1	J10	B	C	Yes	Check	Self Actuated	ON-BS-02	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
3BS0014	OFD-103A-3.1	J10	B	C	Yes	Check	Self Actuated	ON-BS-02	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1BS0016	OFD-103A-1.1	E6	B	C	Yes	Check	Self Actuated	ON-BS-01	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
2BS0016	OFD-103A-2.1	E6	B	C	Yes	Check	Self Actuated	ON-BS-01	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
3BS0016	OFD-103A-3.1	E6	B	C	Yes	Check	Self Actuated	ON-BS-01	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1BS0019	OFD-103A-1.1	E10	B	C	Yes	Check	Self Actuated	ON-BS-02	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
2BS0019	OFD-103A-2.1	E10	B	C	Yes	Check	Self Actuated	ON-BS-02	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
3BS0019	OFD-103A-3.1	E10	B	C	Yes	Check	Self Actuated	ON-BS-02	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
C - Condensate														
1C0176	OFD-121A-1.8	I7	C	B	Yes	Butterfly	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly
2C0176	OFD-121A-2.8	I7	C	B	Yes	Butterfly	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly
3C0176	OFD-121A-3.8	I7	C	B	Yes	Ball	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly
1C0187	OFD-121A-1.8	G7	C	B	Yes	Butterfly	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly
2C0187	OFD-121A-2.8	G7	C	B	Yes	Butterfly	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly
3C0187	OFD-121A-3.8	G7	C	B	Yes	Ball	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1C0192	OFD-121A-1.8	J7	C	B	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
2C0192	OFD-121A-2.8	J7	C	B	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
3C0192	OFD-121A-3.8	J7	C	B	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
1C0391	OFD-121A-1.8	J11	C	B	Yes	Gate	Limitorque	ON-C-04	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
										MS	Manual Stroke of Power Operated Valve	Closed to Open	RF	Tested every refueling outage	None
2C0391	OFD-121A-2.8	J11	C	B	Yes	Gate	Limitorque	ON-C-04	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
										MS	Manual Stroke of Power Operated Valve	Closed to Open	RF	Tested every refueling outage	None
3C0391	OFD-121A-3.8	J11	C	B	Yes	Gate	Limitorque	ON-C-04	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
										MS	Manual Stroke of Power Operated Valve	Closed to Open	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1C0572	OFD-121A-1.8	E7	C	C	Yes	Check	Self Actuated	ON-C-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None	
2C0572	OFD-121A-2.8	E6	C	C	Yes	Check	Self Actuated	ON-C-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None	
3C0572	OFD-121A-3.8	E7	C	C	Yes	Check	Self Actuated	ON-C-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None	
1C0573	OFD-121A-1.8	E7	C	B	Yes	Gate	Manual	ON-C-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
2C0573	OFD-121A-2.8	D6	C	B	Yes	Gate	Manual	ON-C-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
3C0573	OFD-121A-3.8	D7	C	B	Yes	Gate	Manual	ON-C-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1C0850	OFD-121A-1.8	D4	C	C	Yes	Check	Self Actuated	ON-C-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2C0850	OFD-121A-2.8	D4	C	C	Yes	Check	Self Actuated	ON-C-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3C0850	OFD-121A-3.8	D4	C	C	Yes	Check	Self Actuated	ON-C-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
1C0852	OFD-121A-1.8	C4	C	C	Yes	Check	Self Actuated	ON-C-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2C0852	OFD-121A-2.8	C4	C	C	Yes	Check	Self Actuated	ON-C-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3C0852	OFD-121A-3.8	C4	C	C	Yes	Check	Self Actuated	ON-C-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	--------------	------------	-------------	--------	------------	---------------	-----	----	-----------	-----------------------	----------------	----------------	-----------------------	----------------

CA - Chemical Addition

1CA0027	OFD-127B-1.2	G7	B	A	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CA0027	OFD-127B-2.2	G7	B	A	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CA0027	OFD-127B-3.2	G7	B	A	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1CA0029	OFD-127B-1.2	J7	B	A	Yes	Globe	Manual	None	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CA0029	OFD-127B-2.2	J7	B	A	Yes	Gate	Manual	None	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CA0029	OFD-127B-3.2	J7	B	A	Yes	Globe	Manual	None	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Valve Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

CC - Component Cooling

1CC0007	OFD-144A-1.2	D13	B	A	Yes	Butterfly	Limitorque	ON-CC-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2CC0007	OFD-144A-2.2	D11	B	A	Yes	Butterfly	Limitorque	ON-CC-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3CC0007	OFD-144A-3.2	D11	B	A	Yes	Butterfly	Limitorque	ON-CC-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CC0008	OFD-144A-1.2	D13	B	A	Yes	Butterfly	Air	ON-CC-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CC0008	OFD-144A-2.2	D13	B	A	Yes	Butterfly	Air	ON-CC-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CC0008	OFD-144A-3.2	D13	B	A	Yes	Butterfly	Air	ON-CC-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CC0020	OFD-144A-1.2	D4	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CC0020	OFD-144A-2.2	D3	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CC0020	OFD-144A-3.2	D3	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CC0024	OFD-144A-1.2	D2	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CC0024	OFD-144A-2.2	D1	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CC0024	OFD-144A-3.2	D1	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CC0028	OFD-144A-2.2	L7	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3CC0028	OFD-144A-3.2	L7	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
2CC0032	OFD-144A-2.2	K7	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3CC0032	OFD-144A-3.2	K7	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2CC0036	OFD-144A-2.2	J7	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3CC0036	OFD-144A-3.2	J7	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2CC0040	OFD-144A-2.2	H7	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3CC0040	OFD-144A-3.2	H7	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CC0076	OFD-144A-1.3	H6	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CC0076	OFD-144A-2.3	H6	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CC0076	OFD-144A-3.3	H6	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CC0077	OFD-144A-1.3	H7	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CC0077	OFD-144A-2.3	H7	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CC0077	OFD-144A-3.3	H7	B	A/C	Yes	Check	Self Actuated	ON-CC-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

CCW- Condenser Cooling Water

1CCW0001	OFD-133A-1.2	I2	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1CCW0002	OFD-133A-1.2	I4	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1CCW0003	OFD-133A-1.2	I6	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1CCW0004	OFD-133A-1.2	I7	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1CCW0005	OFD-133A-1.2	I9	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1CCW0006	OFD-133A-1.2	II1	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2CCW0007	OFD-133A-2.2	D2	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
0CCW0008	OFD-133A-3.2	B1	C	B	Yes	Butterfly	Motor - Other	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
1CCW0010	OFD-133A-1.1	J2	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2CCW0010	OFD-133A-2.1	J2	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3CCW0010	OFD-133A-3.1	J2	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
1CCW0011	OFD-133A-1.1	J5	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2CCW0011	OFD-133A-2.1	J5	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3CCW0011	OFD-133A-3.1	J5	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1CCW0012	OFD-133A-1.1	J7	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2CCW0012	OFD-133A-2.1	J7	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3CCW0012	OFD-133A-3.1	J7	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
1CCW0013	OFD-133A-1.1	J10	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2CCW0013	OFD-133A-2.1	J10	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3CCW0013	OFD-133A-3.1	J10	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3CCW0093	OFD-133A-3.2	D2	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
0CCW0267	OFD-133A-2.5	J11	C	B	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CCW0268SSF	OFD-133A-2.5	H14	C	B	Yes	Globe	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2CCW0268SSF	OFD-133A-2.5	H13	C	B	Yes	Globe	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3CCW0268SSF	OFD-133A-2.5	H12	C	B	Yes	Globe	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
1CCW0269SSF	OFD-121D-1.1	G13	C	B	Yes	Gate	Rotork	ON-SSF-01	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
2CCW0269SSF	OFD-121D-2.1	G13	C	B	Yes	Gate	Rotork	ON-SSF-01	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
3CCW0269SSF	OFD-121D-3.1	G13	C	B	Yes	Globe	Rotork	ON-SSF-01	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
0CCW0271SSF	OFD-133A-2.5	H5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0CCW0274SSF	OFD-133A-2.5	J6	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
0CCW0284SSF	OFD-133A-2.5	G6	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0CCW0286SSF	OFD-133A-2.5	G10	C	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1CCW0287SSF	OFD-133A-2.5	G14	C	B	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2CCW0287SSF	OFD-133A-2.5	G13	C	B	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3CCW0287SSF	OFD-133A-2.5	G12	C	B	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
0CCW0289SSF	OFD-133A-2.5	J9	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0CCW0384	OFD-133A-2.5	F10	C	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

CF - Core Flood

1CF0003	OFD-102A-1.3	G9	B	A	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

2CF0003	OFD-102A-2.3	G10	B	A	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

3CF0003	OFD-102A-3.3	G9	B	A	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CF0004	OFD-102A-1.3	G5	B	A	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2CF0004	OFD-102A-2.3	G4	B	A	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3CF0004	OFD-102A-3.3	G5	B	A	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
1CF0007	OFD-102A-1.3	G4	B	A	No	Globe	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CF0007	OFD-102A-2.3	F3	B	A	No	Globe	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CF0007	OFD-102A-3.3	G4	B	A	No	Globe	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CF0011	OFD-102A-1.3	E10	A	A/C	Yes	Check	Self Actuated	ON-CF-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-10
2CF0011	OFD-102A-2.3	D10	A	A/C	Yes	Check	Self Actuated	ON-CF-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-10
3CF0011	OFD-102A-3.3	E10	A	A/C	Yes	Check	Self Actuated	ON-CF-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-10

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CF0012	OFD-102A-1.3	D9	A	A/C	Yes	Check	Self Actuated	ON-CF-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-17
2CF0012	OFD-102A-2.3	D10	A	A/C	Yes	Check	Self Actuated	ON-CF-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-17
3CF0012	OFD-102A-3.3	D9	A	A/C	Yes	Check	Self Actuated	ON-CF-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-17

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CF0013	OFD-102A-1.3	E6	A	A/C	Yes	Check	Self Actuated	ON-CF-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-10
2CF0013	OFD-102A-2.3	D6	A	A/C	Yes	Check	Self Actuated	ON-CF-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-10
3CF0013	OFD-102A-3.3	E6	A	A/C	Yes	Check	Self Actuated	ON-CF-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-10

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CF0014	OFD-102A-1.3	D7	A	A/C	Yes	Check	Self Actuated	ON-CF-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-17
2CF0014	OFD-102A-2.3	D6	A	A/C	Yes	Check	Self Actuated	ON-CF-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-17
3CF0014	OFD-102A-3.3	D7	A	A/C	Yes	Check	Self Actuated	ON-CF-02	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	ON-SRV-CF-17

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1CF0015	OFD-102A-1.3	J10	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2CF0015	OFD-102A-2.3	H19	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3CF0015	OFD-102A-3.3	I10	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1CF0017	OFD-102A-1.3	I6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2CF0017	OFD-102A-2.3	H6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3CF0017	OFD-102A-3.3	I6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1CF0019	OFD-102A-1.3	G4	B	A	Yes	Globe	Manual	None	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CF0019	OFD-102A-2.3	G3	B	A	Yes	Globe	Manual	None	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CF0019	OFD-102A-3.3	G4	B	A	Yes	Globe	Manual	None	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CF0042	OFD-127B-1.2	G11	B	A/C	Yes	Check	Self Actuated	ON-CF-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CF0042	OFD-127B-2.2	G11	B	A/C	Yes	Check	Self Actuated	ON-CF-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CF0042	OFD-127B-3.2	G11	B	A/C	Yes	Check	Self Actuated	ON-CF-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CF0044	OFD-127B-1.2	J11	B	A/C	Yes	Check	Self Actuated	ON-CF-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2CF0044	OFD-127B-2.2	J11	B	A/C	Yes	Check	Self Actuated	ON-CF-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3CF0044	OFD-127B-3.2	J11	B	A/C	Yes	Check	Self Actuated	ON-CF-03	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

CS - Coolant Storage

1CS0005	OFD-107A-1.2	D5	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CS0005	OFD-107A-2.2	D5	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3CS0005	OFD-107A-3.2	D5	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1CS0006	OFD-107A-1.2	D8	B	A	Yes	Diaphragm	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CS0006	OFD-107A-2.2	D8	B	A	Yes	Diaphragm	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CS0006	OFD-107A-3.2	D8	B	A	Yes	Diaphragm	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1CS0011	OFD-107A-1.1	J2	B	A/C	Yes	Check	Self Actuated	ON-CS-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CS0011	OFD-107A-2.1	J2	B	A/C	Yes	Check	Self Actuated	ON-CS-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CS0011	OFD-107A-3.1	J3	B	A/C	Yes	Check	Self Actuated	ON-CS-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1CS0012	OFD-107A-1.1	J5	B	A/C	Yes	Check	Self Actuated	ON-CS-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2CS0012	OFD-107A-2.1	J5	B	A/C	Yes	Check	Self Actuated	ON-CS-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3CS0012	OFD-107A-3.1	J5	B	A/C	Yes	Check	Self Actuated	ON-CS-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	--------------	------------	------------	--------	------------	---------------	-----	----	-----------	-----------------------	----------------	----------------	-----------------------	----------------

DA - Diesel Air

0DA0003	OFD-137D-1.1	F3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
0DA0006	OFD-137D-1.1	F4	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
0DA0008	OFD-137D-1.1	G7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
0DA0011	OFD-137D-1.1	F7	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
0DA0013	OFD-137D-1.2	F3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
0DA0016	OFD-137D-1.2	F4	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
0DA0018	OFD-137D-1.2	G72	C	C	Yes	Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										LT Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
0DA0021	OFD-137D-1.2	F7	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
0DA0025	OFD-137D-1.1	H11	C	B	Yes	Globe	Air	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0026	OFD-137D-1.1	H12	C	C	Yes	Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0027	OFD-137D-1.1	I11	C	B	Yes	Solenoid	Solenoid	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
0DA0028	OFD-137D-1.1	I12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0031	OFD-137D-1.1	E11	C	B	Yes	Globe	Air	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0032	OFD-137D-1.1	D12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0033	OFD-137D-1.1	D11	C	B	Yes	Solenoid	Solenoid	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0034	OFD-137D-1.1	D12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0037	OFD-137D-1.2	H11	C	B	Yes	Globe	Air	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0038	OFD-137D-1.2	H12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
0DA0039	OFD-137D-1.2	I11	C	B	Yes	Solenoid	Solenoid	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0040	OFD-137D-1.2	I12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0043	OFD-137D-1.2	E11	C	B	Yes	Globe	Air	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0044	OFD-137D-1.2	E12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0045	OFD-137D-1.2	E11	C	B	Yes	Solenoid	Solenoid	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0DA0046	OFD-137D-1.2	D12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Valve Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------------	---------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

DJW- Diesel Jacket Water

0DJW0001	OFD-138A-1.1	K8	C	C	Yes	Control	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0DJW0003	OFD-138A-1.1	F8	C	C	Yes	Control	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0DJW0005	OFD-138A-1.1	L12	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	NA or Fail Safe Pos	NPT	No Periodic Test Required	None
0DJW0006	OFD-138A-1.1	G12	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	NA or Fail Safe Pos	NPT	No Periodic Test Required	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
<div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></</div></div></div></div></div>														

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
0DLO0014	OFD-135B-1.4	D11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0DLO0015	OFD-135B-1.4	H13	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0DLO0016	OFD-135B-1.4	K12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Valve Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------------	---------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

DW - Demineralized Water

1DW0059	OFD-106E-1.1	H2	B	A	No	Diaphragm	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
---------	--------------	----	---	---	----	-----------	--------	------	----	----	--	--------------------	----	-------------------------------	------

2DW0059	OFD-106E-2.1	H3	B	A	No	Diaphragm	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
---------	--------------	----	---	---	----	-----------	--------	------	----	----	--	-------------------	----	-------------------------------	------

3DW0059	OFD-106E-3.1	H2	B	A	No	Diaphragm	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
---------	--------------	----	---	---	----	-----------	--------	------	----	----	--	--------------------	----	-------------------------------	------

1DW0060	OFD-106E-1.1	H3	B	A	No	Diaphragm	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
---------	--------------	----	---	---	----	-----------	--------	------	----	----	--	--------------------	----	-------------------------------	------

2DW0060	OFD-106E-2.1	H4	B	A	No	Diaphragm	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
---------	--------------	----	---	---	----	-----------	--------	------	----	----	--	-------------------	----	-------------------------------	------

3DW0060	OFD-106E-3.1	H4	B	A	No	Diaphragm	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
---------	--------------	----	---	---	----	-----------	--------	------	----	----	--	--------------------	----	-------------------------------	------

1DW0155	OFD-106E-1.1	E3	B	A/C	No	Check	Self Actuated	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
---------	--------------	----	---	-----	----	-------	---------------	------	----	----	--	--------------------	----	-------------------------------	------

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1DW0156	OFD-106E-1.1	E4	B	A/C	No	Check	Self Actuated	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

ESV - Essential Siphon Vacuum

2ESV0001	OFD-130A-2.1	I2	C	C	Yes	Float	Self Actuated	ON-ESV-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None

3ESV0001	OFD-130A-3.1	I2	C	C	Yes	Float	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
----------	--------------	----	---	---	-----	-------	---------------	------	----	----	--	--------------------	---	-----------------------	------

2ESV0002	OFD-130A-2.1	E2	C	C	Yes	Float	Self Actuated	ON-ESV-01	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None

3ESV0002	OFD-130A-3.1	E2	C	C	Yes	Float	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
----------	--------------	----	---	---	-----	-------	---------------	------	----	----	--	--------------------	---	-----------------------	------

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
2ESV0018	OFD-130A-2.1	F8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	NA or Fail Safe Pos	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3ESV0018	OFD-130A-3.1	F8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2ESV0019	OFD-130A-2.1	J8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	NA or Fail Safe Pos	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3ESV0019	OFD-130A-3.1	K8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2ESV0026	OFD-130A-2.1	I9	C	C	Yes	Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3ESV0026	OFD-130A-3.1	I9	C	C	Yes	Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
2ESV0027	OFD-130A-2.1	E9	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3ESV0027	OFD-130A-3.1	E9	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2ESV0028	OFD-130A-2.1	E6	C	B	Yes	Solenoid	Solenoid	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3ESV0028	OFD-130A-3.1	E6	C	B	Yes	Solenoid	Solenoid	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2ESV0029	OFD-130A-2.1	J6	C	B	Yes	Solenoid	Solenoid	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3ESV0029	OFD-130A-3.1	J6	C	B	Yes	Solenoid	Solenoid	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

FDW- Feedwater

1FDW0032	OFD-121B-1.3	J7	C	B	Yes	Globe	Air	ON-FDW-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2FDW0032	OFD-121B-2.3	J6	C	B	Yes	Globe	Air	ON-FDW-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3FDW0032	OFD-121B-3.3	J7	C	B	Yes	Globe	Air	ON-FDW-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1FDW0033	OFD-121B-1.3	J6	C	B	Yes	Gate	Limitorque	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2FDW0033	OFD-121B-2.3	K5	C	B	Yes	Gate	Limitorque	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3FDW0033	OFD-121B-3.3	K6	C	B	Yes	Gate	Limitorque	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1FDW0035	OFD-121B-1.3	L7	C	B	Yes	Globe	Air	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2FDW0035	OFD-121B-2.3	K6	C	B	Yes	Globe	Air	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3FDW0035	OFD-121B-3.3	K7	C	B	Yes	Globe	Air	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1FDW0037	OFD-121B-1.3	J9	B	C	Yes	Check	Self Actuated	ON-FDW-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
2FDW0037	OFD-121B-2.3	J9	B	C	Yes	Check	Self Actuated	ON-FDW-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
3FDW0037	OFD-121B-3.3	J9	B	C	Yes	Check	Self Actuated	ON-FDW-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1FDW0039	OFD-121D-1.1	J10	B	C	Yes	Check	Self Actuated	ON-FDW-04	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
2FDW0039	OFD-121D-2.1	J10	B	C	Yes	Check	Self Actuated	ON-FDW-04	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
3FDW0039	OFD-121D-3.1	J10	B	C	Yes	Check	Self Actuated	ON-FDW-04	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
1FDW0041	OFD-121B-1.3	D7	C	B	Yes	Globe	Air	ON-FDW-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2FDW0041	OFD-121B-2.3	D5	C	B	Yes	Globe	Air	ON-FDW-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3FDW0041	OFD-121B-3.3	D7	C	B	Yes	Globe	Air	ON-FDW-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1FDW0042	OFD-121B-1.3	E6	C	B	Yes	Gate	Limitorque	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2FDW0042	OFD-121B-2.3	E5	C	B	Yes	Gate	Limitorque	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3FDW0042	OFD-121B-3.3	E6	C	B	Yes	Gate	Limitorque	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1FDW0044	OFD-121B-1.3	F7	C	B	Yes	Globe	Air	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2FDW0044	OFD-121B-2.3	F7	C	B	Yes	Globe	Air	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3FDW0044	OFD-121B-3.3	F7	C	B	Yes	Globe	Air	ON-FDW-01	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0046	OFD-121B-1.3	F8	B	C	Yes	Check	Self Actuated	ON-FDW-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
2FDW0046	OFD-121B-2.3	D9	B	C	Yes	Check	Self Actuated	ON-FDW-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
3FDW0046	OFD-121B-3.3	D9	B	C	Yes	Check	Self Actuated	ON-FDW-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
1FDW0103	OFD-121B-1.5	K8	B	A	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2FDW0103	OFD-121B-2.5	J9	B	A	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3FDW0103	OFD-121B-3.5	J9	B	A	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1FDW0104	OFD-121B-1.5	C8	B	A	Yes	Gate	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2FDW0104	OFD-121B-2.5	C9	B	A	Yes	Gate	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3FDW0104	OFD-121B-3.5	D9	B	A	Yes	Gate	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0105	OFD-110A-1.1	D2	B	A	No	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2FDW0105	OFD-110A-2.1	F3	B	A	No	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3FDW0105	OFD-110A-3.1	D2	B	A	No	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1FDW0106	OFD-110A-1.1	D6	B	A	Yes	Globe	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2FDW0106	OFD-110A-2.1	F6	B	A	Yes	Globe	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3FDW0106	OFD-110A-3.1	D6	B	A	Yes	Globe	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1FDW0107	OFD-110A-1.1	F3	B	A	No	Globe	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2FDW0107	OFD-110A-2.1	D3	B	A	No	Gate	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3FDW0107	OFD-110A-3.1	F3	B	A	No	Gate	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0108	OFD-110A-1.1	F6	B	A	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2FDW0108	OFD-110A-2.1	D6	B	A	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3FDW0108	OFD-110A-3.1	F6	B	A	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1FDW0232	OFD-121D-1.1	K13	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2FDW0232	OFD-121D-2.1	K13	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3FDW0232	OFD-121D-3.1	K13	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0233	OFD-121D-1.1	D13	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2FDW0233	OFD-121D-2.1	D13	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3FDW0233	OFD-121D-3.1	D13	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
1FDW0311	OFD-121D-1.1	J6	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2FDW0311	OFD-121D-2.1	J6	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3FDW0311	OFD-121D-3.1	I6	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0312	OFD-121D-1.1	E6	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2FDW0312	OFD-121D-2.1	E7	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3FDW0312	OFD-121D-3.1	E6	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
1FDW0313	OFD-121D-1.1	H10	C	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2FDW0313	OFD-121D-2.1	H10	C	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3FDW0313	OFD-121D-3.1	H10	C	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0314	OFD-121D-1.1	F10	C	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2FDW0314	OFD-121D-2.1	F10	C	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3FDW0314	OFD-121D-3.1	F10	C	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1FDW0315	OFD-121D-1.1	K10	C	B	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2FDW0315	OFD-121D-2.1	K10	C	B	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3FDW0315	OFD-121D-3.1	K10	C	B	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0316	OFD-121D-1.1	D10	C	B	Yes	Globe	Air	None	Yes						
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None	
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None	
2FDW0316	OFD-121D-2.1	D10	C	B	Yes	Globe	Air	None	Yes						
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None	
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None	
3FDW0316	OFD-121D-3.1	D10	C	B	Yes	Globe	Air	None	Yes						
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None	
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None	
1FDW0317	OFD-121D-1.1	K10	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2FDW0317	OFD-121D-2.1	K10	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3FDW0317	OFD-121D-3.1	K10	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0318	OFD-121D-1.1	D10	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2FDW0318	OFD-121D-2.1	D10	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3FDW0318	OFD-121D-3.1	D10	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
1FDW0345	OFD-121D-1.1	K12	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2FDW0345	OFD-121D-2.1	K12	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3FDW0345	OFD-121D-3.1	K13	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0346	OFD-121D-1.1	D12	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2FDW0346	OFD-121D-2.1	D12	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3FDW0346	OFD-121D-3.1	D12	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
1FDW0347SSF	OFD-121D-1.1	D13	C	B	Yes	Gate	Rotork	ON-SSF-05	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
2FDW0347SSF	OFD-121D-2.1	D13	C	B	Yes	Gate	Rotork	ON-SSF-05	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
3FDW0347SSF	OFD-121D-3.1	D13	C	B	Yes	Globe	Rotork	ON-SSF-05	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0370	OFD-121D-1.1	K3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2FDW0370	OFD-121D-2.1	K3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3FDW0370	OFD-121D-3.1	K4	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
1FDW0373	OFD-121D-1.1	K7	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2FDW0373	OFD-121D-2.1	K7	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3FDW0373	OFD-121D-3.1	K7	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1FDW0378	OFD-121D-1.1	K3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2FDW0378	OFD-121D-2.1	K3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3FDW0378	OFD-121D-3.1	J4	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
1FDW0380	OFD-121D-1.1	D3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2FDW0380	OFD-121D-2.1	D3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3FDW0380	OFD-121D-3.1	D4	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1FDW0383	OFD-121D-1.1	D7	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2FDW0383	OFD-121D-2.1	D6	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3FDW0383	OFD-121D-3.1	D7	C	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
1FDW0388	OFD-121D-1.1	D3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2FDW0388	OFD-121D-2.1	D3	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3FDW0388	OFD-121D-3.1	D4	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1FDW0432	OFD-121D-1.1	F10	C	C	Yes	Check	Self Actuated	ON-FDW-04	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
2FDW0432	OFD-121D-2.1	E10	C	C	Yes	Check	Self Actuated	ON-FDW-04	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
3FDW0432	OFD-121D-3.1	E10	B	C	Yes	Check	Self Actuated	ON-FDW-04	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
1FDW0442	OFD-121D-1.1	D11	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2FDW0442	OFD-121D-2.1	D11	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3FDW0442	OFD-121D-3.1	D11	B	C	Yes	Check	Self Actuated	ON-FDW-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
<hr/> <hr/> FO - Fuel Oil <hr/> <hr/>															
FO0050	OFD-135A-1.2	D7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
FO0052	OFD-135A-1.2	E5	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
FO0078	OFD-135A-1.2	J7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
FO0079	OFD-135A-1.2	J8	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
FO0080	OFD-135A-1.2	J9	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
FO0081	OFD-135A-1.2	I8	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
0FO0082	OFD-135A-1.2	I9	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0FO0083	OFD-135A-1.2	J9	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0FO0084	OFD-135A-1.2	I10	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0FO0089	OFD-135A-1.2	J11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0FO0090	OFD-135A-1.2	J12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0FO0091	OFD-135A-1.2	J13	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0FO0092	OFD-135A-1.2	I12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
0FO0093	OFD-135A-1.2	I13	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0FO0094	OFD-135A-1.2	J13	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0FO0095	OFD-135A-1.2	I14	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
<i>FW - Filtered Water</i>														
1FW0064	OFD-106E-1.1	J2	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2FW0064	OFD-106E-2.1	J3	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3FW0064	OFD-106E-3.1	J3	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1FW0065	OFD-106E-1.1	J4	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2FW0065	OFD-106E-2.1	J6	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3FW0065	OFD-106E-3.1	J4	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	---------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

GBO - Keowee Turb. Guide Bearing Oil

1GBO0001	KFD-101A-1.1	E5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2GBO0001	KFD-101A-2.1	E5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1GBO0003	KFD-101A-1.1	E5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2GBO0003	KFD-101A-2.1	E5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	---------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

GWD- Gaseous Waste Disposal

1GWD0012	OFD-107A-1.1	J11	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2GWD0012	OFD-107A-2.1	J11	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3GWD0012	OFD-107A-3.1	J11	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1GWD0013	OFD-107A-1.1	K13	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2GWD0013	OFD-107A-2.1	K13	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3GWD0013	OFD-107A-3.1	K13	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Valve Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

HP - High Pressure Injection

1HP0003	OFD-101A-1.1	L5	A	A	Yes	Globe	Limitorque	ON-HP-07	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0003	OFD-101A-2.1	L5	A	A	Yes	Globe	Limitorque	ON-HP-07	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0003	OFD-101A-3.1	K5	A	A	Yes	Globe	Limitorque	ON-HP-07	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0004	OFD-101A-1.1	J5	A	A	Yes	Globe	Limitorque	ON-HP-07	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0004	OFD-101A-2.1	J5	A	A	Yes	Globe	Limitorque	ON-HP-07	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0004	OFD-101A-3.1	J5	A	A	Yes	Globe	Limitorque	ON-HP-07	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0005	OFD-101A-1.1	K8	B	A	Yes	Globe	Air	ON-HP-01	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0005	OFD-101A-2.1	K8	B	A	Yes	Globe	Air	ON-HP-01	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0005	OFD-101A-3.1	K8	B	A	Yes	Globe	Air	ON-HP-01	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0020	OFD-101A-1.1	F5	B	A	Yes	Globe	Limitorque	ON-HP-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2HP0020	OFD-101A-2.1	E6	B	A	Yes	Globe	Limitorque	ON-HP-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0020	OFD-101A-3.1	E6	B	A	Yes	Globe	Limitorque	ON-HP-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0021	OFD-101A-1.1	E7	B	A	Yes	Globe	Air	ON-HP-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2HP0021	OFD-101A-2.1	E8	B	A	Yes	Globe	Air	ON-HP-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3HP0021	OFD-101A-3.1	E7	B	A	Yes	Globe	Air	ON-HP-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
1HP0024	OFD-101A-1.3	I3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2HP0024	OFD-101A-2.3	I3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3HP0024	OFD-101A-3.3	I2	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0025	OFD-101A-1.3	F3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2HP0025	OFD-101A-2.3	F3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3HP0025	OFD-101A-3.3	F3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1HP0026	OFD-101A-1.4	J7	B	B	Yes	Globe	Limitorque	ON-HP-03	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
2HP0026	OFD-101A-2.4	J7	B	B	Yes	Globe	Limitorque	ON-HP-03	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
3HP0026	OFD-101A-3.4	J6	B	B	Yes	Globe	Limitorque	ON-HP-03	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0027	OFD-101A-1.4	D7	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2HP0027	OFD-101A-2.4	D7	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3HP0027	OFD-101A-3.4	D7	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
1HP0043	OFD-101A-1.1	J13	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0043	OFD-101A-2.1	J13	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0043	OFD-101A-3.1	J13	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0055	OFD-101A-1.2	H2	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0055	OFD-101A-2.2	H2	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0055	OFD-101A-3.2	H2	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1HP0056	OFD-101A-1.2	H10	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0056	OFD-101A-2.2	H9	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0056	OFD-101A-3.2	H9	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0071	OFD-101A-1.1	F10	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0071	OFD-101A-2.1	F10	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0071	OFD-101A-3.1	F10	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1HP0073	OFD-101A-1.1	G12	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0073	OFD-101A-2.1	G12	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0073	OFD-101A-3.1	G13	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0076	OFD-101A-1.1	E12	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0076	OFD-101A-2.1	E13	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0076	OFD-101A-3.1	E13	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1HP0078	OFD-101A-1.2	F6	B	C	Yes	Stop Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2HP0078	OFD-101A-2.2	F6	B	C	Yes	Stop Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3HP0078	OFD-101A-3.2	F6	B	C	Yes	Stop Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0079	OFD-101A-1.2	C10	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0079	OFD-101A-2.2	C8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0079	OFD-101A-3.2	C11	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0097	OFD-101A-1.2	D12	B	A/C	Yes	Check	Self Actuated	ON-HP-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	
2HP0097	OFD-101A-2.2	D12	B	A/C	Yes	Check	Self Actuated	ON-HP-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	
3HP0097	OFD-101A-3.2	D12	B	A/C	Yes	Check	Self Actuated	ON-HP-05	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0101	OFD-101A-1.3	J3	B	A/C	Yes	Check	Self Actuated	ON-HP-10	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None
2HP0101	OFD-101A-2.3	J3	B	A/C	Yes	Check	Self Actuated	ON-HP-10	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None
3HP0101	OFD-101A-3.3	J2	B	A/C	Yes	Check	Self Actuated	ON-HP-10	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0102	OFD-101A-1.3	E3	B	A/C	Yes	Check	Self Actuated	ON-HP-10	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None
2HP0102	OFD-101A-2.3	E3	B	A/C	Yes	Check	Self Actuated	ON-HP-10	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None
3HP0102	OFD-101A-3.3	E2	B	A/C	Yes	Check	Self Actuated	ON-HP-10	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0104	OFD-101A-1.3	K6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0104	OFD-101A-2.3	K6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0104	OFD-101A-3.3	J5	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0105	OFD-101A-1.3	J10	B	C	Yes	Check	Self Actuated	ON-HP-11	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
2HP0105	OFD-101A-2.3	J10	B	C	Yes	Check	Self Actuated	ON-HP-11	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
3HP0105	OFD-101A-3.3	J10	B	C	Yes	Check	Self Actuated	ON-HP-11	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0108	OFD-101A-1.3	H6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0108	OFD-101A-2.3	H6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0108	OFD-101A-3.3	H5	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0109	OFD-101A-1.3	G10	B	C	Yes	Check	Self Actuated	ON-HP-11	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
2HP0109	OFD-101A-2.3	G10	B	C	Yes	Check	Self Actuated	ON-HP-11	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
3HP0109	OFD-101A-3.3	G10	B	C	Yes	Check	Self Actuated	ON-HP-11	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0112	OFD-101A-1.3	E6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0112	OFD-101A-2.3	D6	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0112	OFD-101A-3.3	C5	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0113	OFD-101A-1.3	D10	B	C	Yes	Check	Self Actuated	ON-HP-11	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
2HP0113	OFD-101A-2.3	D10	B	C	Yes	Check	Self Actuated	ON-HP-11	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
3HP0113	OFD-101A-3.3	D10	B	C	Yes	Check	Self Actuated	ON-HP-11	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0144	OFD-101A-1.4	G13	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2HP0144	OFD-101A-2.4	F12	B	A/C	Yes	Stop Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3HP0144	OFD-101A-3.4	H13	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0145	OFD-101A-1.4	F13	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0145	OFD-101A-2.4	G12	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0145	OFD-101A-3.4	H13	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0146	OFD-101A-1.4	H13	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0146	OFD-101A-2.4	H12	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0146	OFD-101A-3.4	G13	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0147	OFD-101A-1.4	II2	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0147	OFD-101A-2.4	II2	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0147	OFD-101A-3.4	F13	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0155	OFD-127B-1.2	H7	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0155	OFD-127B-2.2	H7	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0155	OFD-127B-3.2	H7	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1HP0156	OFD-127B-1.2	I7	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0156	OFD-127B-2.2	I7	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0156	OFD-127B-3.2	I7	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0188	OFD-101A-1.4	D11	A	C	Yes	Check	Self Actuated	ON-HP-14	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
2HP0188	OFD-101A-2.4	D11	A	C	Yes	Check	Self Actuated	ON-HP-14	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
3HP0188	OFD-101A-3.4	D10	A	C	Yes	Check	Self Actuated	ON-HP-14	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0189	OFD-101A-1.2	F6	B	C	Yes	Check	Self Actuated	ON-HP-08	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
2HP0189	OFD-101A-2.2	F5	B	C	Yes	Check	Self Actuated	ON-HP-08	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
3HP0189	OFD-101A-3.2	F5	B	C	Yes	Check	Self Actuated	ON-HP-08	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0194	OFD-101A-1.4	J10	A	C	Yes	Check	Self Actuated	ON-HP-15	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
2HP0194	OFD-101A-2.4	J10	A	C	Yes	Check	Self Actuated	ON-HP-15	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
3HP0194	OFD-101A-3.4	J8	A	C	Yes	Check	Self Actuated	ON-HP-15	No	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
1HP0247	OFD-101A-1.3	K10	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2HP0247	OFD-101A-2.3	K10	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3HP0247	OFD-101A-3.3	K9	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0248	OFD-101A-1.3	L10	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None
2HP0248	OFD-101A-2.3	L10	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None
3HP0248	OFD-101A-3.3	H9	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None
1HP0249	OFD-101A-1.3	H9	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2HP0249	OFD-101A-2.3	H9	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3HP0249	OFD-101A-3.3	H9	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0250	OFD-101A-1.3	I9	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
2HP0250	OFD-101A-2.3	I9	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
3HP0250	OFD-101A-3.3	I9	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
									PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None	
1HP0251	OFD-101A-1.3	D9	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2HP0251	OFD-101A-2.3	D9	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3HP0251	OFD-101A-3.3	D8	B	B	Yes	Globe	Manual	ON-HP-06	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0252	OFD-101A-1.3	E9	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None
2HP0252	OFD-101A-2.3	E9	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None
3HP0252	OFD-101A-3.3	F8	B	C	Yes	Stop Check	Self Actuated	ON-HP-16	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None
2HP0286	OFD-101A-2.4	H10	B	A/C	Yes	Stop Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0302	OFD-101A-1.1	F10	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0302	OFD-101A-2.1	F8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0302	OFD-101A-3.1	F8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1HP0304	OFD-101A-1.1	G6	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0363	OFD-101A-1.2	F7	B	B	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2HP0363	OFD-101A-2.2	F7	B	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3HP0363	OFD-101A-3.2	F7	B	B	Yes	Gate	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1HP0364	OFD-101A-1.2	F7	B	C	Yes	Check	Self Actuated	ON-HP-09	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None
2HP0364	OFD-101A-2.2	F7	B	C	Yes	Check	Self Actuated	ON-HP-09	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None
3HP0364	OFD-101A-3.2	F8	B	C	Yes	Check	Self Actuated	ON-HP-09	No	SD	Sample Disassembly	Closed to Open	SD	Disassem one vlv per grp ea. RFO	None
										PS	Partial-Stroke Exercise Valve	Closed to Open	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
2HP0389	OFD-101A-2.4	I10	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0390	OFD-101A-1.4	F10	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2HP0390	OFD-101A-2.4	G10	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3HP0390	OFD-101A-3.4	I11	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0393	OFD-101A-1.4	I10	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0393	OFD-101A-3.4	F11	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1HP0398SSF	OFD-101A-1.5	F11	B	B	Yes	Gate	Rotork	ON-SSF-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
2HP0398SSF	OFD-101A-2.5	F11	B	B	Yes	Gate	Rotork	ON-SSF-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
3HP0398SSF	OFD-101A-3.5	F11	B	B	Yes	Gate	Rotork	ON-SSF-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0399SSF	OFD-101A-1.5	G13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2HP0399SSF	OFD-101A-2.5	H13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3HP0399SSF	OFD-101A-3.5	H13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
1HP0400SSF	OFD-101A-1.5	H13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2HP0400SSF	OFD-101A-2.5	G13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3HP0400SSF	OFD-101A-3.5	G13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0401SSF	OFD-101A-1.5	F13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2HP0401SSF	OFD-101A-2.5	F13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3HP0401SSF	OFD-101A-3.5	F13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
1HP0402SSF	OFD-101A-1.5	F13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
2HP0402SSF	OFD-101A-2.5	F13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
3HP0402SSF	OFD-101A-3.5	F13	B	C	Yes	Check	Self Actuated	ON-SSF-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0404	OFD-101A-1.5	G9	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2HP0404	OFD-101A-2.5	G9	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3HP0404	OFD-101A-3.5	G9	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1HP0405SSF	OFD-101A-1.5	H10	B	A	No	Gate	Rotork	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0405SSF	OFD-101A-2.5	H10	B	A	No	Gate	Rotork	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0405SSF	OFD-101A-3.5	H10	B	A	No	Gate	Rotork	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0409	OFD-101A-1.4	D7	B	B	Yes	Globe	Limitorque	ON-HP-04	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
2HP0409	OFD-101A-2.4	E8	B	B	Yes	Gate	Limitorque	ON-HP-04	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
3HP0409	OFD-101A-3.4	E8	B	B	Yes	Globe	Limitorque	ON-HP-04	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
1HP0410	OFD-101A-1.4	H7	B	B	Yes	Globe	Limitorque	ON-HP-04	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
2HP0410	OFD-101A-2.4	F7	B	B	Yes	Gate	Limitorque	ON-HP-04	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
3HP0410	OFD-101A-3.4	I7	B	B	Yes	Globe	Limitorque	ON-HP-04	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0417SSF	OFD-101A-1.5	H9	B	A	No	Globe	Limitorque	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0417SSF	OFD-101A-2.5	I9	B	A	No	Globe	Limitorque	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0417SSF	OFD-101A-3.5	I9	B	A	No	Globe	Limitorque	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1HP0426SSF	OFD-101A-1.5	J9	B	A	Yes	Globe	Limitorque	ON-SSF-04	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0426SSF	OFD-101A-2.5	J9	B	A	Yes	Globe	Limitorque	ON-SSF-04	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0426SSF	OFD-101A-3.5	K9	B	A	Yes	Globe	Limitorque	ON-SSF-04	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0428SSF	OFD-101A-1.5	J13	B	A	Yes	Gate	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2HP0428SSF	OFD-101A-2.5	J13	B	A	Yes	Gate	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0428SSF	OFD-101A-3.5	J13	B	A	Yes	Gate	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0454	OFD-101A-1.4	G10	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2HP0454	OFD-101A-2.4	G10	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3HP0454	OFD-101A-3.4	H11	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1HP0457	OFD-101A-1.4	H10	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3HP0457	OFD-101A-3.4	G11	B	A/C	Yes	Check	Self Actuated	ON-HP-17	No					
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0486	OFD-101A-1.4	J12	A	C	Yes	Check	Self Actuated	ON-HP-12	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
2HP0486	OFD-101A-2.4	J13	A	C	Yes	Check	Self Actuated	ON-HP-12	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
3HP0486	OFD-101A-3.4	J12	A	C	Yes	Check	Self Actuated	ON-HP-12	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0487	OFD-101A-1.4	J13	A	C	Yes	Check	Self Actuated	ON-HP-12	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
2HP0487	OFD-101A-2.4	J13	A	C	Yes	Check	Self Actuated	ON-HP-12	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
3HP0487	OFD-101A-3.4	J12	A	C	Yes	Check	Self Actuated	ON-HP-12	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0488	OFD-101A-1.4	E13	A	C	Yes	Check	Self Actuated	ON-HP-13	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
2HP0488	OFD-101A-2.4	E13	A	C	Yes	Check	Self Actuated	ON-HP-13	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
3HP0488	OFD-101A-3.4	E13	A	C	Yes	Check	Self Actuated	ON-HP-13	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1HP0489	OFD-101A-1.4	D13	A	C	Yes	Check	Self Actuated	ON-HP-13	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
2HP0489	OFD-101A-2.4	D13	A	C	Yes	Check	Self Actuated	ON-HP-13	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
3HP0489	OFD-101A-3.4	D13	A	C	Yes	Check	Self Actuated	ON-HP-13	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	--------------	------------	-------------	--------	------------	---------------	-----	----	-----------	-----------------------	----------------	----------------	-----------------------	----------------

IA - Instrument Air

1IA0090	OFD-137B-1.2	D4	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2IA0090	OFD-137B-1.2	D7	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3IA0090	OFD-137B-1.2	D11	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1IA0091	OFD-137B-1.2	C4	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2IA0091	OFD-137B-1.2	C7	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3IA0091	OFD-137B-1.2	C11	B	A	No	Ball	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
LP - Low Pressure Injection														
1LP0001	OFD-102A-1.1	H2	A	B	Yes	Gate	Limitorque	ON-LP-01	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown
2LP0001	OFD-102A-2.1	H2	A	B	Yes	Gate	Limitorque	ON-LP-01	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown
3LP0001	OFD-102A-3.1	H2	A	B	Yes	Gate	Rotork	ON-LP-01	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown
1LP0002	OFD-102A-1.1	H2	A	B	Yes	Gate	Limitorque	ON-LP-01	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown
2LP0002	OFD-102A-2.1	H2	A	B	Yes	Gate	Limitorque	ON-LP-01	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown
3LP0002	OFD-102A-3.1	H2	A	B	Yes	Gate	Rotork	ON-LP-01	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown
2LP0003	OFD-102A-2.1	H6	B	B	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly
3LP0003	OFD-102A-3.1	H6	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0009	OFD-102A-1.2	I7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2LP0009	OFD-102A-2.2	I8	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3LP0009	OFD-102A-3.2	I7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1LP0010	OFD-102A-1.2	G7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2LP0010	OFD-102A-2.2	H8	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3LP0010	OFD-102A-3.2	G7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0012	OFD-102A-1.2	K11	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2LP0012	OFD-102A-2.2	K11	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3LP0012	OFD-102A-3.2	K11	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
1LP0014	OFD-102A-1.2	E11	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2LP0014	OFD-102A-2.2	E11	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3LP0014	OFD-102A-3.2	E11	B	B	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LP0015	OFD-102A-1.2	L11	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2LP0015	OFD-102A-2.2	L11	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3LP0015	OFD-102A-3.2	K12	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
1LP0016	OFD-102A-1.2	D11	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2LP0016	OFD-102A-2.2	D11	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3LP0016	OFD-102A-3.2	E12	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0017	OFD-102A-1.2	K13	B	B	Yes	Gate	Limitorque	ON-LP-07	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
2LP0017	OFD-102A-2.2	K12	B	B	Yes	Gate	Limitorque	ON-LP-07	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
3LP0017	OFD-102A-3.2	K13	B	B	Yes	Gate	Limitorque	ON-LP-07	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
1LP0018	OFD-102A-1.2	E13	B	B	Yes	Gate	Limitorque	ON-LP-07	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
2LP0018	OFD-102A-2.2	E13	B	B	Yes	Gate	Limitorque	ON-LP-07	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None
3LP0018	OFD-102A-3.2	E13	B	B	Yes	Gate	Limitorque	ON-LP-07	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LP0019	OFD-102A-1.1	D5	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2LP0019	OFD-102A-2.1	D5	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3LP0019	OFD-102A-3.1	D5	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
1LP0020	OFD-102A-1.1	D5	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2LP0020	OFD-102A-2.1	D5	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3LP0020	OFD-102A-3.1	D5	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0021	OFD-102A-1.1	F7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
2LP0021	OFD-102A-2.1	E7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
3LP0021	OFD-102A-3.1	E7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
1LP0022	OFD-102A-1.1	D7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
2LP0022	OFD-102A-2.1	D7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
3LP0022	OFD-102A-3.1	D7	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LP0025	OFD-102A-1.1	J2	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LP0025	OFD-102A-2.1	J2	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LP0025	OFD-102A-3.1	J3	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LP0026	OFD-102A-1.1	G7	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LP0026	OFD-102A-2.1	G7	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LP0026	OFD-102A-3.1	F8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LP0027	OFD-102A-1.1	D8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LP0027	OFD-102A-2.1	D8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LP0027	OFD-102A-3.1	D8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LP0028	OFD-102A-1.1	H10	B	B	Yes	Gate	Manual	ON-LP-05	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2LP0028	OFD-102A-2.1	H10	B	B	Yes	Gate	Manual	ON-LP-05	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3LP0028	OFD-102A-3.1	H10	B	B	Yes	Gate	Manual	ON-LP-05	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0029	OFD-102A-1.1	F6	B	A/C	Yes	Check	Self Actuated	ON-LP-09	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
2LP0029	OFD-102A-2.1	F6	B	A/C	Yes	Check	Self Actuated	ON-LP-09	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
3LP0029	OFD-102A-3.1	E7	B	A/C	Yes	Check	Self Actuated	ON-LP-09	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0030	OFD-102A-1.1	D6	B	A/C	Yes	Check	Self Actuated	ON-LP-09	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
2LP0030	OFD-102A-2.1	D6	B	A/C	Yes	Check	Self Actuated	ON-LP-09	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
3LP0030	OFD-102A-3.1	C6	B	A/C	Yes	Check	Self Actuated	ON-LP-09	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LP0031	OFD-102A-1.2	K5	B	C	Yes	Check	Self Actuated	ON-LP-04	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2LP0031	OFD-102A-2.2	K5	B	C	Yes	Check	Self Actuated	ON-LP-04	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3LP0031	OFD-102A-3.2	K5	B	C	Yes	Check	Self Actuated	ON-LP-04	No					
									PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0033	OFD-102A-1.2	E6	B	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None	
2LP0033	OFD-102A-2.2	E5	B	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None	
3LP0033	OFD-102A-3.2	E5	B	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LP0036	OFD-102A-1.2	K8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LP0036	OFD-102A-2.2	K8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LP0036	OFD-102A-3.2	K8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LP0037	OFD-102A-1.2	D8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LP0037	OFD-102A-2.2	D8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LP0037	OFD-102A-3.2	D8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LP0042	OFD-102A-1.2	G13	B	A	No	Ball	Manual	None	No	LT Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
2LP0042	OFD-102A-2.2	G13	B	A	No	Ball	Manual	None	No	LT Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None
3LP0042	OFD-102A-3.2	H13	B	A	No	Ball	Manual	None	No	LT Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	2Y	Tested once every two years	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0047	OFD-102A-1.2	E14	A	A/C	Yes	Check	Self Actuated	ON-LP-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	None
2LP0047	OFD-102A-2.2	E14	A	A/C	Yes	Check	Self Actuated	ON-LP-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	None
3LP0047	OFD-102A-3.2	E14	A	A/C	Yes	Check	Self Actuated	ON-LP-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0048	OFD-102A-1.2	K14	A	A/C	Yes	Check	Self Actuated	ON-LP-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	None
2LP0048	OFD-102A-2.2	K14	A	A/C	Yes	Check	Self Actuated	*ON-LP-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	None
3LP0048	OFD-102A-3.2	K14	A	A/C	Yes	Check	Self Actuated	ON-LP-02	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	CS	Tested every cold shutdown	None
										LT	Leak-Rate Test Valve to Section XI Requirement(s)	Accident Direction	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0051	OFD-102A-1.1	I7	B	B	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2LP0051	OFD-102A-2.1	H7	B	B	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3LP0051	OFD-102A-3.1	I7	B	B	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1LP0055	OFD-101A-1.3	K3	B	C	Yes	Check	Self Actuated	ON-LP-06	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
2LP0055	OFD-101A-2.3	K3	B	C	Yes	Check	Self Actuated	ON-LP-06	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None
3LP0055	OFD-101A-3.3	K3	B	C	Yes	Check	Self Actuated	ON-LP-06	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0057	OFD-101A-1.3	C3	B	C	Yes	Check	Self Actuated	ON-LP-06	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
2LP0057	OFD-101A-2.3	C3	B	C	Yes	Check	Self Actuated	ON-LP-06	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
3LP0057	OFD-101A-3.3	D2	B	C	Yes	Check	Self Actuated	ON-LP-06	No	PS	Partial-Stroke Exercise Valve	Closed to Open	CS	Tested every cold shutdown	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	RF	Tested every refueling outage	None	
1LP0060	OFD-102A-1.1	J9	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LP0060	OFD-102A-2.1	J9	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LP0060	OFD-102A-3.1	J9	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LP0061	OFD-102A-1.1	J10	C	C	Yes	Vacuum Breaker	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	GNR-VLV-010
2LP0061	OFD-102A-2.1	J10	C	C	Yes	Vacuum Breaker	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	GNR-VLV-010
3LP0061	OFD-102A-3.1	J10	C	C	Yes	Vacuum Breaker	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	GNR-VLV-010
3LP0100	OFD-102A-3.1	D7	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LP0101	OFD-102A-3.1	F7	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LP0103	OFD-102A-1.1	H2	A	B	Yes	Gate	Rotork	ON-LP-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
2LP0103	OFD-102A-2.1	H2	A	B	Yes	Gate	Rotork	ON-LP-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
3LP0103	OFD-102A-3.1	G2	A	B	Yes	Gate	Rotork	ON-LP-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
1LP0104	OFD-102A-1.1	F2	A	B	Yes	Gate	Rotork	ON-LP-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
2LP0104	OFD-102A-2.1	F2	A	B	Yes	Gate	Rotork	ON-LP-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
3LP0104	OFD-102A-3.1	G2	A	B	Yes	Gate	Limitorque	ON-LP-03	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
1LP0105	OFD-102A-1.1	H2	B	B	Yes	Gate	Rotork	ON-LP-08	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

LPSW Low Pressure Service Water

1LPS0004	OFD-124B-1.1	K6	C	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2LPS0004	OFD-124B-2.1	K6	C	B	Yes	Ball	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3LPS0004	OFD-124B-3.1	K6	C	B	Yes	Ball	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
1LPS0005	OFD-124B-1.1	H6	C	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2LPS0005	OFD-124B-2.1	H6	C	B	Yes	Ball	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3LPS0005	OFD-124B-3.1	H6	C	B	Yes	Ball	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0006	OFD-124B-1.4	L2	B	B	Yes	Gate	Limitorque	ON-LPSW-01	Yes	ST Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2LPS0006	OFD-124B-2.4	L2	B	B	Yes	Ball	Limitorque	ON-LPSW-01	Yes	ST Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3LPS0006	OFD-124B-3.4	L2	B	B	Yes	Ball	Limitorque	ON-LPSW-01	Yes	ST Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1LPS0015	OFD-124B-1.4	G14	B	A	Yes	Butterfly	Limitorque	ON-LPSW-01	Yes	ST Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2LPS0015	OFD-124B-2.4	G14	B	A	Yes	Ball	Limitorque	ON-LPSW-01	Yes	ST Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3LPS0015	OFD-124B-3.4	G14	B	A	Yes	Ball	Limitorque	ON-LPSW-01	Yes	ST Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LPS0018	OFD-124B-1.2	D3	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
2LPS0018	OFD-124B-2.2	D3	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
3LPS0018	OFD-124B-3.2	C3	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
1LPS0021	OFD-124B-1.2	D8	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
2LPS0021	OFD-124B-2.2	D8	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
3LPS0021	OFD-124B-3.2	C8	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LPS0024	OFD-124B-1.2	D12	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
2LPS0024	OFD-124B-2.2	D12	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
3LPS0024	OFD-124B-3.2	C12	B	B	Yes	Butterfly	Limitorque	ON-LPSW-05	Yes	PS	Partial-Stroke Exercise Valve	Closed to Open	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
0LPS0025	OFD-124A-1.1	D7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0LPS0028	OFD-124A-1.1	J7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
0LPS0031	OFD-124A-1.1	G7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
3LPS0121	OFD-124A-3.1	J7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3LPS0124	OFD-124A-3.1	G7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1LPS0139	OFD-124A-1.1	K10	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
2LPS0139	OFD-124A-1.1	C8	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
3LPS0139	OFD-124A-3.1	E10	C	B	Yes	Butterfly	Rotork	ON-LPSW-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LPS0148	OFD-124B-1.1	L4	C	C	Yes	Check	Self Actuated	ON-LPSW-03	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2LPS0148	OFD-124B-2.1	L7	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3LPS0148	OFD-124B-3.1	L4	C	C	Yes	Check	Self Actuated	ON-LPSW-03	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
1LPS0151	OFD-124B-1.1	F3	C	C	Yes	Check	Self Actuated	ON-LPSW-03	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0251	OFD-124B-1.1	J8	C	B	Yes	Butterfly	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2LPS0251	OFD-124B-2.1	J8	C	B	Yes	Butterfly	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3LPS0251	OFD-124B-3.1	K7	C	B	Yes	Ball	Air	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1LPS0252	OFD-124B-1.1	I8	C	B	Yes	Butterfly	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2LPS0252	OFD-124B-2.1	I8	C	B	Yes	Butterfly	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3LPS0252	OFD-124B-3.1	H7	C	B	Yes	Ball	Air	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0308	OFD-124B-1.4	I7	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0308	OFD-124B-2.4	I7	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0308	OFD-124B-3.4	I7	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LPS0309	OFD-124B-1.4	I8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0309	OFD-124B-2.4	I8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0309	OFD-124B-3.4	I8	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0310	OFD-124B-1.4	16	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0310	OFD-124B-2.4	16	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0310	OFD-124B-3.4	16	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LPS0311	OFD-124B-1.4	110	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0311	OFD-124B-2.4	110	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0311	OFD-124B-3.4	110	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0312	OFD-124B-1.4	I12	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0312	OFD-124B-2.4	I12	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0312	OFD-124B-3.4	I12	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LPS0313	OFD-124B-1.4	I9	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0313	OFD-124B-2.4	I9	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0313	OFD-124B-3.4	I9	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0314	OFD-124B-1.4	D7	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0314	OFD-124B-2.4	D7	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0314	OFD-124B-3.4	D7	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LPS0315	OFD-124B-1.4	D8	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0315	OFD-124B-2.4	D8	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0315	OFD-124B-3.4	D8	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram		ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0316	OFD-124B-1.4	D6	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0316	OFD-124B-2.4	D6	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0316	OFD-124B-3.4	D6	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LPS0317	OFD-124B-1.4	D10	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0317	OFD-124B-2.4	D10	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0317	OFD-124B-3.4	D10	B	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0318	OFD-124-1.4	D12	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0318	OFD-124-2.4	D12	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0318	OFD-124-3.4	D12	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1LPS0319	OFD-124B-1.4	D9	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2LPS0319	OFD-124B-2.4	D9	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3LPS0319	OFD-124B-3.4	D9	B	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
2LPS0503	OFD-124B-2.1	G3	C	C	Yes	Check	Self Actuated	ON-LPSW-03	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None	
3LPS0503	OFD-124B-3.1	F3	C	C	Yes	Check	Self Actuated	ON-LPSW-03	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None	
1LPS0565	OFD-124B-1.2	J8	B	B	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
2LPS0565	OFD-124B-2.2	J8	B	B	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
3LPS0565	OFD-124B-3.2	I8	B	B	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LPS0566	OFD-124B-1.2	I8	B	B	Yes	Gate	Rotork	ON-LPSW-05	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
2LPS0566	OFD-124B-2.2	I8	B	B	Yes	Gate	Rotork	ON-LPSW-05	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
3LPS0566	OFD-124B-3.2	I8	B	B	Yes	Gate	Rotork	ON-LPSW-05	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	CS	Tested every cold shutdown	None
1LPS0931	OFD-124B-1.1	G10	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
2LPS0931	OFD-124B-2.1	H10	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
3LPS0931	OFD-124B-3.1	K11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------	----------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

LRT - Leak Rate Test

1LRT0017	OFD-137E-1.1	K10	B	A	No	Diaphragm	Air	None	Yes	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2LRT0017	OFD-137E-1.1	H10	B	A	No	Diaphragm	Air	None	Yes	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3LRT0017	OFD-137E-1.1	E9	B	A	No	Diaphragm	Air	None	Yes	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1LRT0024	OFD-137E-1.1	I12	B	A	No	Globe	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2LRT0024	OFD-137E-1.1	G11	B	A	No	Diaphragm	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3LRT0024	OFD-137E-1.1	C11	B	A	No	Globe	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LRT0025	OFD-137E-1.1	I12	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2LRT0025	OFD-137E-1.1	G11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3LRT0025	OFD-137E-1.1	C11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2LRT0036	OFD-137E-1.1	F11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3LRT0036	OFD-137E-1.1	C11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2LRT0037	OFD-137E-1.1	F11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3LRT0037	OFD-137E-1.1	C11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LRT0038	OFD-137E-1.1	J12	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2LRT0038	OFD-137E-1.1	H11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3LRT0038	OFD-137E-1.1	D11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1LRT0039	OFD-137E-1.1	J13	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2LRT0039	OFD-137E-1.1	H12	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3LRT0039	OFD-137E-1.1	D11	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Valve Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	-----------------	---------------------	---------------	--------	---------------	------------------	-----	----	--------------	--------------------------	-------------------	-------------------	--------------------------	-------------------

LWD- Liquid Waste Disposal

1LWD0001	OFD-107B-1.1	C11	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

2LWD0001	OFD-107B-2.1	C11	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None

3LWD0001	OFD-107B-3.1	C11	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1LWD0002	OFD-107B-1.1	C11	B	A	Yes	Diaphragm	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None	
2LWD0002	OFD-107B-2.1	C12	B	A	Yes	Diaphragm	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3LWD0002	OFD-107B-3.1	C12	B	A	Yes	Diaphragm	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None	
1LWD0099	OFD-107D-1.2	E9	B	A	No	Gate	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None
2LWD0099	OFD-107D-2.2	G8	B	A	No	Gate	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None
3LWD0099 ¹	OFD-107D-3.2	G3	B	A	No	Gate	Manual	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1LWD0103	OFD-107D-1.2	E9	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None
2LWD0103	OFD-107D-2.2	G8	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None
3LWD0103	OFD-107D-3.2	G3	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
MS - Main Steam														
1MS0001	OFD-122A-1.1	J9	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0001	OFD-122A-2.1	J9	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0001	OFD-122A-3.1	J9	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0002	OFD-122A-1.1	J4	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0002	OFD-122A-2.1	J4	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0002	OFD-122A-3.1	J4	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0003	OFD-122A-1.1	J7	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0003	OFD-122A-2.1	J7	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0003	OFD-122A-3.1	J7	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0004	OFD-122A-1.1	J5	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0004	OFD-122A-2.1	J5	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0004	OFD-122A-3.1	J5	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0005	OFD-122A-1.1	J8	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0005	OFD-122A-2.1	J8	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0005	OFD-122A-3.1	J8	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0006	OFD-122A-1.1	J5	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0006	OFD-122A-2.1	J5	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0006	OFD-122A-3.1	J5	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0007	OFD-122A-1.1	J7	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0007	OFD-122A-2.1	J7	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0007	OFD-122A-3.1	J7	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0008	OFD-122A-1.1	J6	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0008	OFD-122A-2.1	J6	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0008	OFD-122A-3.1	J6	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0009	OFD-122A-1.1	D9	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0009	OFD-122A-2.1	D9	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0009	OFD-122A-3.1	D9	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0010	OFD-122A-1.1	D4	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0010	OFD-122A-2.1	D4	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0010	OFD-122A-3.1	D4	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0011	OFD-122A-1.1	D7	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0011	OFD-122A-2.1	D7	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0011	OFD-122A-3.1	D7	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0012	OFD-122A-1.1	D5	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0012	OFD-122A-2.1	D5	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0012	OFD-122A-3.1	D5	B	C	Yes	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0013	OFD-122A-1.1	D8	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0013	OFD-122A-2.1	D8	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0013	OFD-122A-3.1	D8	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0014	OFD-122A-1.1	D5	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0014	OFD-122A-2.1	D5	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0014	OFD-122A-3.1	D5	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0015	OFD-122A-1.1	D7	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0015	OFD-122A-2.1	D7	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0015	OFD-122A-3.1	D7	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0016	OFD-122A-1.1	D6	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0016	OFD-122A-2.1	D6	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0016	OFD-122A-3.1	D6	B	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0017	OFD-122A-1.2	I5	B	B	Yes	Gate	Limitorque	ON-MS-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0017	OFD-122A-2.2	I5	B	B	Yes	Gate	Limitorque	ON-MS-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0017	OFD-122A-3.2	I5	B	B	Yes	Gate	Limitorque	ON-MS-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1MS0024	OFD-122A-1.2	H3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2MS0024	OFD-122A-2.2	H3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3MS0024	OFD-122A-3.2	H3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0026	OFD-122A-1.2	D5	B	B	Yes	Gate	Limitorque	ON-MS-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0026	OFD-122A-2.2	D5	B	B	Yes	Gate	Limitorque	ON-MS-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0026	OFD-122A-3.2	D5	B	B	Yes	Gate	Limitorque	ON-MS-02	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1MS0033	OFD-122A-1.2	E3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2MS0033	OFD-122A-2.2	E3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3MS0033	OFD-122A-3.2	E3	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1MS0035	OFD-122A-1.3	L2	B	B	Yes	Gate	Limitorque	ON-MS-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0035	OFD-122A-2.3	L2	B	B	Yes	Gate	Limitorque	ON-MS-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0035	OFD-122A-3.3	L2	B	B	Yes	Gate	Limitorque	ON-MS-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1MS0036	OFD-122A-1.3	F2	B	B	Yes	Gate	Limitorque	ON-MS-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0036	OFD-122A-2.3	F2	B	B	Yes	Gate	Limitorque	ON-MS-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0036	OFD-122A-3.3	F2	B	B	Yes	Gate	Limitorque	ON-MS-03	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1MS0076	OFD-122A-1.1	C10	B	B	Yes	Gate	Limitorque	ON-MS-04	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0076	OFD-122A-2.1	I10	B	B	Yes	Gate	Limitorque	ON-MS-04	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0076	OFD-122A-3.1	I10	B	B	Yes	Gate	Limitorque	ON-MS-04	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1MS0079	OFD-122A-1.1	I10	B	B	Yes	Gate	Limitorque	ON-MS-04	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0079	OFD-122A-2.1	C10	B	B	Yes	Gate	Limitorque	ON-MS-04	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0079	OFD-122A-3.1	C10	B	B	Yes	Gate	Limitorque	ON-MS-04	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1MS0082	OFD-122A-1.4	I2	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
2MS0082	OFD-122A-2.4	I2	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
3MS0082	OFD-122A-3.4	I2	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
1MS0083	OFD-122A-1.4	H2	C	C	Yes	Check	Self Actuated	ON-MS-06	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2MS0083	OFD-122A-2.4	H2	C	C	Yes	Check	Self Actuated	ON-MS-06	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3MS0083	OFD-122A-3.4	H2	C	C	Yes	Check	Self Actuated	ON-MS-06	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1MS0084	OFD-122A-1.4	G2	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
2MS0084	OFD-122A-2.4	G2	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
3MS0084	OFD-122A-3.4	G2	B	B	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
1MS0085	OFD-122A-1.4	G2	C	C	Yes	Check	Self Actuated	ON-MS-06	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2MS0085	OFD-122A-2.4	G2	C	C	Yes	Check	Self Actuated	ON-MS-06	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3MS0085	OFD-122A-3.4	G2	C	C	Yes	Check	Self Actuated	ON-MS-06	No	SD	Sample Disassembly	Open to Closed	SD	Disassem one vlv per grp ea. RFO	None
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1MS0087	OFD-122A-1.4	H3	C	B	Yes	Globe	Air	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2MS0087	OFD-122A-2.4	H3	C	B	Yes	Globe	Air	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3MS0087	OFD-122A-3.4	H3	C	B	Yes	Globe	Air	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1MS0091	OFD-122A-1.4	H5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2MS0091	OFD-122A-2.4	H5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3MS0091	OFD-122A-3.4	H5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0092	OFD-122A-1.4	H6	C	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
2MS0092	OFD-122A-2.4	H6	C	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
3MS0092	OFD-122A-3.4	H6	C	C	Yes	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
1MS0093	OFD-122A-1.4	H7	C	B	Yes	Ball	Air	None	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2MS0093	OFD-122A-2.4	H7	C	B	Yes	Ball	Air	None	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3MS0093	OFD-122A-3.4	H7	C	B	Yes	Ball	Air	None	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1MS0094	OFD-122A-1.4	H8	C	B	Yes	Stop	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
2MS0094	OFD-122A-2.4	H8	C	B	Yes	Stop	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
3MS0094	OFD-122A-3.4	H8	C	B	Yes	Stop	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
1MS0102	OFD-122B-1.1	J3	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0102	OFD-122B-2.1	J3	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0102	OFD-122B-3.1	J3	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1MS0103	OFD-122B-1.1	J4	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0103	OFD-122B-2.1	J4	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0103	OFD-122B-3.1	J4	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
1MS0104	OFD-122B-1.1	J4	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0104	OFD-122B-2.1	J4	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0104	OFD-122B-3.1	J4	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1MS0105	OFD-122B-1.1	J5	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
2MS0105	OFD-122B-2.1	J5	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None
3MS0105	OFD-122B-3.1	J5	B	B	Yes	Stop	Hydraulic	ON-MS-01	Yes	PS	Partial-Stroke Exercise Valve	Open to Closed	Q	Tested once quarterly	None
										ST	Measure Full-Stroke Time of Valve	Open to Closed	CS	Tested every cold shutdown	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
N - Nitrogen														
1N0106	OFD-127B-1.2	E4	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1N0107	OFD-127B-1.2	F4	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1N0129	OFD-127B-1.2	G7	B	A/C	Yes	Check	Self Actuated	ON-N-01	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2N0129	OFD-127B-2.2	G7	B	A/C	Yes	Check	Self Actuated	ON-N-01	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3N0129	OFD-127B-3.2	G7	B	A/C	Yes	Check	Self Actuated	ON-N-01	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1N0131	OFD-127B-1.2	J7	B	A/C	Yes	Check	Self Actuated	ON-N-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2N0131	OFD-127B-2.2	J7	B	A/C	Yes	Check	Self Actuated	ON-N-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3N0131	OFD-127B-3.2	J7	B	A/C	Yes	Check	Self Actuated	ON-N-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	RF	Tested every refueling outage	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1N0246	OFD-127B-1.2	E10	B	A/C	No	Check	Self Actuated	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2N0246	OFD-127B-2.2	E10	B	A/C	No	Check	Self Actuated	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3N0246	OFD-127B-3.2	E10	B	A/C	No	Check	Self Actuated	None	No	LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
2N0263	OFD-127B-2.2	E7	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3N0263	OFD-127B-3.2	E7	B	A	No	Globe	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
<hr/> <hr/> OG - Keowee Governor Oil <hr/> <hr/>															
10G0011	KFD-105A-1.1	H12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
20G0011	KFD-105A-2.1	H12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
10G0013	KFD-105A-1.1	H11	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
20G0013	KFD-105A-2.1	H11	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
10G0014	KFD-105A-1.1	H9	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
20G0014	KFD-105A-2.1	H9	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
10G0016	KFD-105A-1.1	H8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
20G0016	KFD-105-2.1	H8	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
10G0017	KFD-105A-1.1	H6	C	C	Yes	Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
20G0017	KFD-105A-2.1	H6	C	C	Yes	Check	Self Actuated	None	No	FS Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
10G0019	KFD-105A-1.1	H5	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14
20G0019	KFD-105A-2.1	H5	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
<i>PR - Purge</i>														
1PR0001	OFD-116A-1.1	F3	B	A	No	Butterfly	Limiterorque	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2PR0001	OFD-116A-2.1	G3	B	A	No	Butterfly	Limiterorque	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3PR0001	OFD-116A-3.1	G3	B	A	No	Butterfly	Limiterorque	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
1PR0002	OFD-116A-1.1	F5	B	A	No	Butterfly	Air	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0002	OFD-116A-2.1	G5	B	A	No	Butterfly	Air	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0002	OFD-116A-3.1	G5	B	A	No	Butterfly	Air	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1PR0005	OFD-116A-1.1	D5	B	A	No	Butterfly	Air	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0005	OFD-116A-2.1	D5	B	A	No	Butterfly	Air	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0005	OFD-116A-3.1	D5	B	A	No	Butterfly	Air	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1PR0006	OFD-116A-1.1	D3	B	A	No	Butterfly	Limiterorque	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2PR0006	OFD-116A-2.1	D3	B	A	No	Butterfly	Limiterorque	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3PR0006	OFD-116A-3.1	D3	B	A	No	Butterfly	Limiterorque	None	Yes	LJ Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0007	OFD-116C-1.1	G3	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2PR0007	OFD-116C-2.1	G3	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3PR0007	OFD-116C-3.1	G3	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1PR0008	OFD-116C-1.1	K3	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0008	OFD-116C-2.1	K3	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0008	OFD-116C-3.1	K3	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0009	OFD-116C-1.1	D2	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None	
2PR0009	OFD-116C-2.1	D2	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None	
3PR0009	OFD-116C-3.1	D2	B	A	Yes	Diaphragm	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1PR0010	OFD-116C-1.1	C4	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0010	OFD-116C-2.1	C4	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0010	OFD-116C-3.1	C4	B	A	Yes	Diaphragm	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1PR0015	OFD-116B-1.1	I11	C	B	Yes	Butterfly	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2PR0015	OFD-116B-2.1	I11	C	B	Yes	Butterfly	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3PR0015	OFD-116B-3.1	I11	C	B	Yes	Butterfly	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0019	OFD-116B-1.1	E11	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2PR0019	OFD-116B-2.1	E11	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
3PR0019	OFD-116B-3.1	E11	C	B	Yes	Butterfly	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1PR0034	OFD-116B-1.1	I11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2PR0034	OFD-116B-2.1	I11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3PR0034	OFD-116B-3.1	I11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0035	OFD-116B-1.1	E11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2PR0035	OFD-116B-2.1	E11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3PR0035	OFD-116B-3.1	E11	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1PR0059	OFD-116C-1.1	H2	B	A	Yes	Diaphragm	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2PR0059	OFD-116C-2.1	H3	B	A	Yes	Diaphragm	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3PR0059	OFD-116C-3.1	H3	B	A	Yes	Diaphragm	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1PR0060	OFD-116C-1.1	D3	B	A	Yes	Diaphragm	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
2PR0060	OFD-116C-2.1	D3	B	A	Yes	Diaphragm	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
3PR0060	OFD-116C-3.1	D3	B	A	Yes	Diaphragm	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Reverse Direction	RF	Tested every refueling outage	None
1PR0061	OFD-116C-1.1	F9	B	B	Yes	Diaphragm	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2PR0061	OFD-116C-2.1	E9	B	B	Yes	Diaphragm	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3PR0061	OFD-116C-3.1	E9	B	B	Yes	Diaphragm	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram		ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1PR0068	OFD-116C-1.1	J3	B	A	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0068	OFD-116C-2.1	J4	B	A	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0068	OFD-116C-3.1	J3	B	A	Yes	Globe	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1PR0069	OFD-116C-1.1	J10	B	B	Yes	Plug	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2PR0069	OFD-116C-2.1	J10	B	B	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3PR0069	OFD-116C-3.1	J10	B	B	Yes	Plug	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0070	OFD-116C-1.1	D10	B	B	Yes	Plug	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2PR0070	OFD-116C-2.1	D10	B	B	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
3PR0070	OFD-116C-3.1	D10	B	B	Yes	Plug	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1PR0081	OFD-110A-1.3	J6	B	A	No	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0081	OFD-110A-2.3	J6	B	A	No	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0081	OFD-110A-3.3	J6	B	A	No	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1PR0084	OFD-110A-1.3	K6	B	A	No	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0084	OFD-110A-2.3	K6	B	A	No	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0084	OFD-110A-3.3	K6	B	A	No	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1PR0087	OFD-110A-1.3	E6	B	A	No	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0087	OFD-110A-2.3	E6	B	A	No	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0087	OFD-110A-3.3	E6	B	A	No	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0090	OFD-110A-1.3	F6	B	A	No	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2PR0090	OFD-110A-2.3	F6	B	A	No	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3PR0090	OFD-110A-3.3	F6	B	A	No	Solenoid	Solenoid	None	No	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
1PR0115	OFD-116B-1.1	I5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2PR0115	OFD-116B-2.1	I5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3PR0115	OFD-116B-3.1	I5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0116	OFD-116B-1.1	E5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2PR0116	OFD-116B-2.1	E5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
3PR0116	OFD-116B-3.1	E5	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
1PR0121	OFD-116C-1.1	D13	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0121	OFD-107B-2.1	B8	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0121	OFD-116C-3.1	C13	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0123	OFD-116C-1.1	D12	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2PR0123	OFD-107B-2.1	B7	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3PR0123	OFD-116C-3.1	C12	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0124	OFD-116C-1.1	D12	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2PR0124	OFD-107B-2.1	B7	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3PR0124	OFD-116C-3.1	C12	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0127	OFD-116C-1.1	C13	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2PR0127	OFD-107B-2.1	B8	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3PR0127	OFD-116C-3.1	D13	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0129	OFD-116C-1.1	E12	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2PR0129	OFD-107B-2.1	C7	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3PR0129	OFD-116C-3.1	D12	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0130	OFD-116C-1.1	C12	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2PR0130	OFD-107B-2.1	C7	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3PR0130	OFD-116C-3.1	D12	B	A	Yes	Ball	Manual	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0136	OFD-116C-1.1	E13	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2PR0136	OFD-107B-2.1	C8	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3PR0136	OFD-116C-3.1	D13	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1PR0137	OFD-116C-1.1	D13	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2PR0137	OFD-107B-2.1	B8	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3PR0137	OFD-116C-3.1	C13	B	A/C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
RC - Reactor Coolant														
1RC0001	OFD-100A-1.2	H10	A	B	Yes	Globe	Solenoid	ON-RC-02	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown
2RC0001	OFD-100A-2.2	H10	A	B	Yes	Globe	Solenoid	ON-RC-02	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown
3RC0001	OFD-100A-3.2	H10	A	B	Yes	Globe	Solenoid	ON-RC-02	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	CS	Tested every cold shutdown
1RC0004	OFD-100A-1.2	J9	A	B	Yes	Gate	Limiterorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly
2RC0004	OFD-100A-2.2	J9	A	B	Yes	Gate	Limiterorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly
3RC0004	OFD-100A-3.2	J9	A	B	Yes	Gate	Limiterorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1RC0005	OFD-110A-1.1	I3	A	A	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2RC0005	OFD-110A-2.1	I3	A	A	Yes	Globe	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3RC0005	OFD-110A-3.1	I3	A	A	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
										LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1RC0006	OFD-110A-1.1	H3	A	A	Yes	Gate	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2RC0006	OFD-110A-2.1	H3	A	A	Yes	Globe	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3RC0006	OFD-110A-3.1	H3	A	A	Yes	Globe	Limitorque	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1RC0007	OFD-110A-1.1	I6	B	A	Yes	Gate	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2RC0007	OFD-110A-2.1	I6	B	A	Yes	Gate	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3RC0007	OFD-110A-3.1	I6	B	A	Yes	Gate	Air	None	Yes					
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1RC0066	OFD-100A-1.2	J9	A	B	Yes	Relief	Solenoid	ON-RC-04	Yes	RV	Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
2RC0066	OFD-100A-2.2	J9	A	B	Yes	Relief	Solenoid	ON-RC-04	Yes	RV	Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
3RC0066	OFD-100A-3.2	J9	A	B	Yes	Relief	Solenoid	ON-RC-04	Yes	RV	Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14
										FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	CS	Tested every cold shutdown	None
1RC0067	OFD-100A-1.2	J7	A	C	Yes	Relief	Self Actuated	None	Yes	RV	Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14
2RC0067	OFD-100A-2.2	J8	A	C	Yes	Relief	Self Actuated	None	Yes	RV	Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14
3RC0067	OFD-100A-3.2	J8	A	C	Yes	Relief	Self Actuated	None	Yes	RV	Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1RC0068	OFD-100A-1.2	J7	A	C	Yes	Relief	Self Actuated	None	Yes	RV Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14
2RC0068	OFD-100A-2.2	J7	A	C	Yes	Relief	Self Actuated	None	Yes	RV Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14
3RC0068	OFD-100A-3.2	J7	A	C	Yes	Relief	Self Actuated	None	Yes	RV Safety and Relief Valve Test	Closed to Open	RF	Tested every refueling outage	ON-GRV-10,12,13,14
1RC0164	OFD-110A-1.4	G4	B	A	Yes	Solenoid	Solenoid	None	Yes	ST Measure Full-Stroke Time of Valve LJ Leak-Rate Test Valve to App J Requirement(s)	Open to Closed Accident Direction	Q RF	Tested once quarterly Tested every refueling outage	None None
2RC0164	OFD-110A-2.4	G4	B	A	Yes	Solenoid	Solenoid	None	Yes	ST Measure Full-Stroke Time of Valve LJ Leak-Rate Test Valve to App J Requirement(s)	Open to Closed Accident Direction	Q RF	Tested once quarterly Tested every refueling outage	None None
3RC0164	OFD-110A-3.4	G4	B	A	Yes	Globe	Manual	None	No	FS Full-Stroke Exercise Valve to Safety Position(s) LJ Leak-Rate Test Valve to App J Requirement(s)	Both (Stroke Test) Accident Direction	Q RF	Tested once quarterly Tested every refueling outage	None None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1RC0165	OFD-110A-1.4	G4	C	A	Yes	Solenoid	Solenoid	None	No						
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2RC0165	OFD-110A-2.4	G4	C	A	Yes	Solenoid	Solenoid	None	Yes						
									ST	Measure Full-Stroke Time of Valve	Open to Closed	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3RC0165	OFD-110A-3.4	G4	C	A	Yes	Globe	Manual	None	No						
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
1RC01RX	NA	NA	NA	C	Yes	Check	Self Actuated	ON-RX-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None
2RC02RX	NA	NA	NA	C	Yes	Check	Self Actuated	ON-RX-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None
3RC03RX	NA	NA	NA	C	Yes	Check	Self Actuated	ON-RX-01	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
<i>SF - Spent Fuel</i>														
1SF0060	OFD-104A-1.1	D3	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None
3SF0060	OFD-104A-3.1	C5	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None
1SF0061	OFD-104A-1.1	D3	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None
2SF0061	OFD-104A-1.1	D12	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None
3SF0061	OFD-104A-3.1	C4	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1SF0072	OFD-104A-1.1	J3	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2SF0072	OFD-104A-1.1	J12	B	A	No	Ball	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3SF0072	OFD-104A-3.1	J4	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
1SF0073	OFD-104A-1.1	J3	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2SF0073	OFD-104A-1.1	J12	B	A	No	Ball	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3SF0073	OFD-104A-3.1	J5	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1SF0074	OFD-104A-1.1	I3	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2SF0074	OFD-104A-1.1	II2	B	A	No	Ball	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
3SF0074	OFD-104A-3.1	I5	B	A	No	Diaphragm	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None
2SF0081	OFD-104A-1.1	D12	B	A	No	Gate	Manual	None	No	LJ Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	ILRT	Tested every ILRT outage	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1SF0082SSF	OFD-101A-1.5	F2	B	A	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2SF0082SSF	OFD-101A-2.5	F2	B	A	Yes	Gate	Limitorque	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3SF0082SSF	OFD-101A-3.5	F2	B	A	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
1SF0097SSF	OFD-104A-1.1	K3	B	A	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
2SF0097SSF	OFD-104A-1.1	K12	B	A	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	
3SF0097SSF	OFD-104A-3.1	K3	B	A	Yes	Gate	Rotork	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
									ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	RF	Tested every refueling outage	None	
									FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None	
									LJ	Leak-Rate Test Valve to App J Requirement(s)	Accident Direction	RF	Tested every refueling outage	None	

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
<div>SSW - Siphon Seal Water</div>															
0SSW0003	OFD-129A-1.1	K2	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
0SSW0004	OFD-129A-1.1	J2	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Open to Closed	Q	Tested once quarterly	None
0SSW0007	OFD-129A-1.1	L2	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0SSW0008	OFD-129A-1.1	J2	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
0SSW0081	OFD-129A-1.1	I2	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None
0SSW0082	OFD-129A-1.1	F2	C	C	No	Relief	Self Actuated	None	No	RV	Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
0SSW0083	OFD-129A-2.2	L6	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None
1SSW0153	OFD-129A-1.2	K13	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None
2SSW0153	OFD-129A-2.2	K10	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None
3SSW0153	OFD-129A-3.2	K2	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
1SSW0154	OFD-129A-1.2	J13	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None
2SSW0154	OFD-129A-2.2	J10	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None
3SSW0154	OFD-129A-3.2	K2	C	C	No	Relief	Self Actuated	None	No	RV Safety and Relief Valve Test	Closed to Open	RV	Test relief valve per OM-1 schedule	None
2SSW0155	OFD-129A-2.1	D8	C	B	Yes	Solenoid	Solenoid	None	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3SSW0155	OFD-129A-1.1	D11	C	B	Yes	Solenoid	Solenoid	None	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
2SSW0156	OFD-129A-1.1	D10	C	B	Yes	Solenoid	Solenoid	None	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3SSW0156	OFD-129A-1.1	D13	C	B	Yes	Solenoid	Solenoid	None	Yes	ST Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request	
2SSW0157	OFD-129A-1.1	D9	C	B	Yes	Solenoid	Solenoid	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None
3SSW0157	OFD-129A-1.1	D12	C	B	Yes	Solenoid	Solenoid	None	Yes	ST	Measure Full-Stroke Time of Valve	Both (Stroke Test)	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg.	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	--------------	------------	-------------	--------	------------	---------------	-----	----	-----------	-----------------------	----------------	----------------	-----------------------	----------------

TS - Keowee Turbine Sump

1TS0002	KFD-102A-1.1	G8	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2TS0002	KFD-102A-2.1	G8	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1TS0004	KFD-102A-1.1	H8	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2TS0004	KFD-102A-2.1	H8	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1TS0013	KFD-102A-1.1	H12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None
2TS0013	KFD-102A-1.2	H12	C	C	Yes	Check	Self Actuated	None	No	FS	Full-Stroke Exercise Valve to Safety Position(s)	Closed to Open	Q	Tested once quarterly	None

Valve	Flow Diagram	ASME Class	Valve Catg	Active	Valve Type	Actuator Type	JFD	PI	Test Type	Test Type Description	Test Direction	Test Frequency	Frequency Description	Relief Request
-------	--------------	------------	------------	--------	------------	---------------	-----	----	-----------	-----------------------	----------------	----------------	-----------------------	----------------

WL - Keowee Turb. Gen. Cooling Wtr

1WL0011	KFD-100A-1.1	J1	C	B	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
2WL0011	KFD-100A-2.1	J1	C	B	Yes	Globe	Air	None	Yes	ST	Measure Full-Stroke Time of Valve	Closed to Open	Q	Tested once quarterly	None
1WL0040	KFD-100A-1.1	B11	C	C	Yes	Vacuum Breaker	Self Actuated	None	Yes	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2WL0040	KFD-100A-2.1	B11	C	C	Yes	Vacuum Breaker	Self Actuated	None	Yes	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
1WL0077	KFD-100A-1.1	F10	C	C	Yes	Vacuum Breaker	Self Actuated	None	Yes	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None
2WL0077	KFD-100A-2.1	F10	C	C	Yes	Vacuum Breaker	Self Actuated	None	Yes	FS	Full-Stroke Exercise Valve to Safety Position(s)	Both (Stroke Test)	Q	Tested once quarterly	None

DUKE POWER
OCONEE NUCLEAR STATION

RELIEF REQUEST

Section 5.0

5.1 PUMP GENERIC RELIEF REQUESTS

Relief Request	Applicability	Status
ON-GRP-01	N/A	Deleted 1/31/99
ON-GRP-02	N/A	Deleted 1/31/99
ON-GRP-03	N/A	Deleted 2/13/95
ON-GRP-04	N/A	Deleted 2/13/95
ON-GRP-05	N/A	Deleted 9/01/95
ON-GRP-06	N/A	Deleted 1/31/99

5.2 PUMP SPECIFIC RELIEF REQUESTS

Relief Request	Applicability	Status
ON-SRP-XX-01	N/A	Deleted 2/13/95
ON-SRP-XX-02	N/A	Deleted 3/26/96
ON-SRP-XX-03	N/A	Deleted 2/13/95
ON-SRP-XX-04	N/A	Deleted 2/13/95
ON-SRP-TS-05	Keowee Turbine Sump Pumps	Revised 01/31/99
ON-SRP-LPI-06	Low Pressure Injection Pumps	Submitted 01/31/99

XX=Relief Request previously deleted-system designation not applicable.

Oconee Units 1, 2, and 3
(Keowee Hydro Station Units 1 and 2)

Pump Specific Relief Request

Item Number: ON-SRP-TS-05

Pump(s): K1TSPU88SD
K1TSPU88SA
K2TSPU88SD
K2TSPU88SA

Flow Diagram: KFD-102A-1.1/H7
KFD-102A-1.1/G7
KFD-102A-2.1/H7
KFD-102A-2.1/G7

ISI Class/Duke Class: C/F

Function: These pumps maintain water level below 34" in the sump as measured from the bottom of the sump. This is below the level at which water can enter the Turbine Guide Bearing Reservoir.

Test Requirement: IWP-3100 Inservice Test Procedure (Table IWP-3100-1 and
IWP-3300 Scope of Tests

Measure pump inlet pressure before pump startup and during test.
Observe proper lubricant level or pressure during tests.
Measure pump bearing temperature at least one inservice test each year.

IWP-3210 Allowable Ranges of Inservice Test Quantities

If these ranges cannot be met, the Owner shall specify in the record of tests (IWP-6000) the reduced range limits to allow the pump to fulfill its function, and those limits shall be used in lieu of the ranges given in Table IWP-3100-2.

IWP-3500 Duration of Tests

When measurement of bearing temperature is not required, each pump shall be run at least 5 minutes under conditions as stable as the system permits. At the end of this time at least one measurement or observation of each of the quantities specified shall be made and recorded.

IWP-4100 Quality (Table IWP-4110-1) and IWP-4600 Flow Measurement

Flow rate instrument accuracy must be within $\pm 2\%$ of full scale.
Flow rate shall be measured using a rate or quantity meter installed in the pump test circuit. The meter may be in any class that provides an overall readout repeatability within the accuracy limits of Table IWP-

Basis for Relief:

Per NUREG-1482 Section 5.1.2 and discussion in the ONS ASME Inservice Testing Program Document Section 5.2.8, inlet pressure proper lubricant level or pressure, and bearing temperature are no longer required to be monitored. These data provide no useful data with regards to the intent of IST requirements.

Per discussion in Section 5.7.2 in the ONS ASME Inservice Testing Program Document, alternate acceptance criteria are used in lieu of the acceptance criteria prescribed in Table IWP-3100-2. This is consistent with IWP since the procedures clearly specify the acceptance criteria, and the procedures reference the ONS ASME Inservice Testing Program Document.

Per discussion in Section 5.8 of NUREG-1482, a licensee may follow the requirements of Paragraph 5.6 OM-6 for the duration of tests if it determines the shorter duration represents stable operation pursuant of 10CFR50.55a(f)(4)(iv). Paragraph 5.6 OM-6 states after pump conditions are as stable as the system permits, each pump shall be run at least 2 min. At the end of this time at least one measurement or observation of each of the quantities required shall be made and recorded. These pumps are aligned to drain the turbine wheel pit sump. The sump volume that can be removed by the sump pumps is limited to ensure adequate margin for safety when performing the test. This limits run time of the pumps to approximately 7 minutes.

No flow instrumentation exists on the suction or discharge piping for the subject pumps. Pumping rate must be measured by determining the time period required to drain a predetermined volume from the sump. Indications are placed on the wall of the sump, so they are not subject to electrical drift and the uncertainty limits imposed on such equipment.

Test Alternative:

Vibration measurement will commence as soon as the pumps are started to ensure that sufficient data are collected during the IST. A stopwatch is started when the level in the sump is even with the indicator marking the test starting level. The stopwatch is stopped and pressure readings are recorded when the level in the sump is even with the indicator marking the test finishing level. Pumping rate will be determined by measuring the time required to reduce the sump level from the upper to lower placards. Acceptance criteria will be based on differential pressure developed by the pump and time required to reduce sump level from the upper to lower placards.

Pump Specific Relief Request

Item Number: ON-SRP-LPI-06

Pump(s): Low Pressure Injection Pumps
1A, 2A, and 3A
(Not applicable to 1B, 1C; 2B, 2C; and 3B, 3C LPI Pumps)

Flow Diagram: OFD-102A-1.2, OFD-102A-2.2, OFD-102A-3.2

ISI Class / Duke Class: B/B

Function: Provide emergency core cooling flow from the BWST Directly to the Reactor Vessel in the event of a large break LOCA. Provide NPSH for the HPI pumps in piggyback alignment for small break LOCA's. Provide long term post-accident sump recirculation cooling.

Test Requirement: The resistance of the system shall be varied until the flow rate equals the reference value. The pressure shall then be determined and compared to its reference value. Alternatively, the flow rate can be varied until the pressure equals the reference value and the flow rate shall be determined and compared to the reference flow rate value. Where system resistance can not be varied, flow rate and pressure shall be determined and compared to their respective reference values.

Basis for Relief: The 1A, 2A, and 3A Low Pressure Injection (LPI) pumps are tested during power operation through a recirculation flow path to the Borated Water Storage Tank (BWST). The "A" pump for each unit can only be tested using a line-up, which contains a section of 3 inch pipe. Other flow alignments are physically possible, but are prohibited by our Technical Specifications due to the necessity of having both trains of the system inoperable simultaneously. From past test data, the recirculation line of the A train pumps is only capable of passing approximately 1200 gpm. Due to a smaller recirculation line on the A train, it is not desirable to throttle these pumps below this point. During the performance testing, the system resistance is not varied and all valves in the flow path are full open; however, the flow is specified as the fixed parameter and the differential pressure is examined for degradation. Examining past performance data, the flow rate during the pump performance testing varies ± 6 percent from the fixed reference flow. From examination of the manufacturer's pump curve for the 1A, 2A, and 3A LPI pumps, the developed head is constant between 500 and 1300 gpm. Thus, the acceptance range for the differential pressure is unaffected by variations in the pump flow rate between 500 and 1300 gpm. Therefore, a tolerance of ± 6 percent of the reference flow is acceptable as long as the allowable flow range remains between 500 and 1300 gpm.

Test Alternative: Where system resistance can not be varied, flow rate and pressure shall be determined and compared to their respective reference values.

5.3 VALVE GENERIC RELIEF REQUESTS

Relief Request	Applicability	Status
ON-GRV-01	N/A	Deleted 2/13/95
ON-GRV-02	N/A	Deleted 2/13/95
ON-GRV-03	Fail-Safe Valves	Revised 02/13/95
ON-GRV-04	N/A	Deleted 2/13/95
ON-GRV-05	N/A	Deleted 2/13/95
ON-GRV-06	N/A	Deleted 2/13/95
ON-GRV-07	N/A	Deleted 2/13/95
ON-GRV-08	Valves Required for Cold Shutdown	Revised 02/13/95
ON-GRV-09	N/A	Deleted 2/13/95
ON-GRV-10	Pressure Relief Devices	Revised 09/01/95
ON-GRV-11	N/A	Deleted 2/13/95
ON-GRV-12	Safety/And Relief Valves Tested Under Ambient Conditions (remove 10 minute hold time) written 10/03/98	Submitted 01/31/99
ON-GRV-13	Safety/ Relief Valves Tested At Other Than Ambient Conditions (reduce 10 minute hold to 5 minute hold) written 10/03/98	Submitted 01/31/99
ON-GRV-14	Safety/Relief Valves Tested Under Ambient Conditions (Thermal Equilibrium) written 10/03/98	Submitted 01/31/99

Generic Relief Request

Item Number: ON-GRV-03

Category Type: **Fail-Safe Valves**

Test Requirement: ¶4.2.1.6: "Valves with fail-safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power in accordance with the exercising frequency of par. 4.2.1.1."

Basis for Relief: Testing by loss of actuator power is not practical. First, loss of actuator power generally involves maintenance action to interrupt power, which must subsequently be restored and verified. This greatly increases the manpower requirements for testing and increases possibility for human error in returning component to service. Second, by ¶4.2.1.9 (e), a subsequent post-maintenance test is required to verify return to acceptable operation. Third, some components, especially pneumatic valves, have two modes of "loss of actuator power": they can lose pneumatic power by loss of instrument air or they can lose electrical power to control solenoids. Therefore, to test all modes of failure at least three tests would be required on some valves.

The net result is a significant increase in manpower and time to perform the tests, an increase in radiation exposure for valves in radiation areas, and an increase in the possibility of improper return to service.

Alternate Testing: Fail safe valves will be tested using normal controls. Where both normal controls and engineered safeguard (ESG) control switches exist, the ESG switches will be used. The action of the switch is the same as if the actuator power is removed. Fail/Safe valves installed have pneumatic or mechanical devices to fail the valve in the safe direction. Response to I.E. Notice 88-14 and recent analysis has shown all valves installed to fail in the safe direction and/or mechanical means have been provided and incorporated into procedures to reposition the valve.

Generic Relief Request

Item Number: ON-GRV-08

Category Type: **Valves Required For Cold Shutdown**

Test Requirement: The Scope of OMa-1988 Part 10 include valves which are required to perform a specific function in shutting down the reactor to the cold shutdown condition and in maintaining the cold shutdown condition in the in-service testing program.

Basis for Relief: It is implicit within the Oconee licensing basis that operation of the LPI system in the normal decay heat removal mode and operation of other systems solely required to bring a Unit from hot shutdown to cold shutdown is not required to mitigate the consequences of a Design Basis Accident. Operability and detection of degradation affecting operation is assured each time the Unit is shutdown to the cold shutdown condition. In the event inoperability or degradation is discovered during shutdown to the cold shutdown condition the Design Basis of ONS is such that decay heat may be removed using other means for an extended period of time until repairs can be affected. Therefore, testing of these valves in accordance with OM-10 provides no commensurate increase in plant safety.

Alternate Testing: Valves which are required to perform a specific function in shutting down a reactor to the cold shutdown condition, but are not required to mitigate the consequences of a Design Basis Accidents, are tested in accordance with the ONS 10 CFR 50 Appendix B testing program.

Generic Relief Request

Item Number: ON-GRV-10

Category Type: **All Pressure Relief Devices**

Test Requirement: OM-1 - 1987, 1.3.3.1.5(a) and 1.3.4.1.5(a), Valves Not Meeting Acceptance Criteria. For valves which fail the test....., additional valves shall be set pressure tested on the basis of two additional valves to be tested for each valve failure up to the total number of valves of the same type and manufacture.

Basis for Relief: Relief Device application should also be taken into account when doing additional testing in order to detect any common mode failure of the type and manufacturer of the valve, i.e. raw water corrosive service, vibration, etc..

Alternate Testing: If a valve fails to meet the set pressure acceptance criteria, additional valves to be tested will be selected from the grouping parameter related to the common mode of failure. For example, if the common mode of failure is related to application, additional valves to be tested will be limited to those valves in a similar application, regardless of valve type or manufacturer. This approach is in compliance with Duke Power's existing Problem Investigation Process whose intent is to fully investigate potential common mode failure mechanisms.

Generic Relief Request

Item Number: ON-GRV-12

Category Type (s): **All safety and relief valves tested under ambient conditions using a test medium at ambient conditions.**

Flow Diagram (s): All applicable

Function (s): Provide over-pressure protection to associated systems.

Test Requirement: OM-1, 1987 Sections 8.1.2.8 and 8.1.3.7, Time Between Valve Openings; A minimum of 10 min. shall elapse between successive openings.

Basis for Relief: This is a generic request for relief for safety and relief valves in compressible fluid service (other than steam) and liquid service applications, tested under ambient conditions using a test medium at ambient conditions. For these valves, the requirement for verifying temperature stability (by waiting 10 min. between successive openings) is inappropriate and of no value. There is negligible affect on valve setpoint due to minor temperature deviations that might occur at these ambient conditions.

The net result of having to wait 10 minutes between successive openings is an increase in manpower and time to perform the tests and an increase in radiation exposure when located in radiation areas, without a commensurate increase in test accuracy.

Note: This issue has been identified by the ASME Code Committees along with safety and relief valve industry experts and is reflected in a change made to the 1995 version of the code (Appendix I). In addition, NUREG-1482, 4.3.9 (6) states " Thermal equilibrium need not be verified for liquid service valves tested at ambient temperature using a test medium (*at ambient*) temperature."

Code Alternative: For safety and relief valves tested under ambient conditions using test medium at ambient conditions, the 10 min. hold requirement between successive openings will be deleted.

Generic Relief Request

Item Number: ON-GRV-13

Category Type (s): **All safety and relief valves tested at other than ambient conditions.**

Flow Diagram (s): All applicable

Function (s): Provide over-pressure protection to associated systems.

Test Requirement: OM-1, 1987 Sections 8.1.1.8, 8.1.2.8 and 8.1.3.7, Time Between Valve Openings; A minimum of 10 min. shall elapse between successive openings.

Basis for Relief: This is a generic request for relief for all safety and relief valves. The 1995 version of the code, Appendix I has adopted a 5 minute hold time for steam, compressible fluid, and water service applications rather than the 10 minute hold time. This change was based on actual test data that revealed insignificant effect on valve setpoint by reducing the hold time between successive openings to 5 minutes.

Code Alternative: For safety and relief valves tested at other than ambient conditions, a 5 minute hold time will be used between successive valve openings.

Generic Relief Request

Item Number: ON-GRV-14

Category Type (s): **All safety and relief valves tested under ambient conditions using a test medium at ambient conditions.**

Flow Diagram (s): All applicable

Function (s): Provide over-pressure protection to associated systems.

Test Requirement: OM-1, 1987 Sections 8.1.2.4, 8.1.3.4, Temperature Stability; ... the temperature of the valve body shall be known and stabilized before commencing set pressure testing.

Basis for Relief: This is a generic request for relief for all safety and relief valves tested under ambient conditions using a test medium at ambient conditions. For these valves, the requirement for verifying temperature stability (by ensuring no change in measured temperature of more than 10⁰ F in 30 minutes) is inappropriate and needlessly adds time to the test activity. Since the valves will be tested at ambient conditions, no temperature differential exists and the valves would already be considered stable per the test requirement above. There is negligible affect on valve setpoint associated with any minor temperature deviations at these ambient conditions.

Note: This issue has been identified by the ASME Code Committees along with safety and relief valve industry experts and is reflected in a change made to the 1995 version of the code, Appendix I, (“Verification of thermal equilibrium is not required for valves which are tested at ambient temperature using a test medium at ambient temperature”).

Code Alternative: For safety and relief valves tested at ambient conditions using test medium at ambient conditions, the *Temperature Stability* requirements of OM-1, 1987 Sections 8.1.2.4 and 8.1.3.4 will be replaced by the *Thermal Equilibrium* requirements in the 1995 edition of the code.

5.4 VALVE SPECIFIC RELIEF REQUESTS

Relief Request	Applicability	Status
ON-SRV-XX-01	N/A	Deleted 2/13/95
ON-SRV-XX-02	N/A	Deleted 2/13/95
ON-SRV-XX-03	N/A	Deleted 12/6/93
ON-SRV-XX-04	N/A	Deleted 2/13/95
ON-SRV-XX-05	N/A	Deleted 2/13/95
ON-SRV-XX-06	N/A	Deleted 2/13/95
ON-SRV-XX-07	N/A	Deleted 2/13/95
ON-SRV-XX-08	N/A	Deleted 2/13/95
ON-SRV-XX-09	N/A	Deleted 2/13/95
ON-SRV-CF-10	Core Flood Tank "A" and "B" Outlet Checks	Revised 2/13/95
ON-SRV-BS-11	N/A	Deleted 01/31/99
ON-SRV-XX-12	N/A	Deleted 2/13/95
ON-SRV-XX-13	N/A	Deleted 2/13/95
ON-SRV-XX-14	N/A	Deleted 2/13/95
ON-SRV-XX-15	N/A	Deleted 2/13/95
ON-SRV-XX-16	N/A	Deleted 2/13/95
ON-SRV-CF-17	LPI Header "A" and "B" Check Valves	Revised 02/13/95
ON-SRV-XX-18	N/A	Deleted 2/13/95
ON-SRV-XX-19	N/A	Deleted 2/13/95
ON-SRV-XX-20	N/A	Deleted 12/6/93
ON-SRV-XX-21	N/A	Deleted 2/13/95
ON-SRV-XX-22	N/A	Deleted 2/13/95
ON-SRV-XX-23	N/A	Deleted 2/13/95
ON-SRV-XX-24	N/A	Deleted 01/31/99
ON-SRV-XX-25	N/A	Deleted 2/13/95
ON-SRV-XX-26	N/A	Deleted 2/13/95
ON-SRV-XX-27	N/A	Deleted 12/6/93
ON-SRV-XX-28	N/A	Deleted 2/13/95
ON-SRV-XX-29	N/A	Deleted 2/13/95
ON-SRV-XX-30	N/A	Deleted 2/13/95
ON-SRV-XX-31	N/A	Deleted 2/13/95
ON-SRV-XX-32	N/A	Deleted 2/13/95

XX=Relief Request previously deleted-system designation not applicable.

Specific Relief Request

Item Number: ON-SRV-CF-10

Valve(s): 1CF0011, 1CF0013
2CF0011, 2CF0013
3CF0011, 3CF0013

Flow Diagram / Coordinates: OFD-102A-1.3/E-10, E-6
OFD-102A-2.3/D-10, D-6
OFD-102A-3.3/E-10, E-6

Function: These valves normally prevent backflow from RCS to core flood tanks. In an emergency they open to permit flow from core flood tanks to the Reactor Coolant System.

ISI Class/Duke Class: A/A

Valve Category: A/C

Test Requirement: ¶3.4 Effect of Valve or Actuator Replacement, Repair, and Maintenance on Reference Values

Relief is requested from requirement for post-maintenance flow testing.

¶4.2.1.9(e) Corrective Action
¶4.3.2.6 Corrective Action

Relief is requested from requirement to flow test prior to returning valve to service following corrective action.

Basis for Relief: Relief from ¶3.4 requirement for post-maintenance testing is requested on the following basis. Any maintenance required on these valves would be scheduled after the full flow test because the valve cannot be removed from the system for maintenance until after the core flood tanks are drained (low-point maintenance). Full flow testing is concurrent with draining of the tanks, and therefore precedes valve removal. Revising the outage schedule to provide for valve maintenance prior to full-flow testing would create a significant hardship on outage management and would adversely affect shutdown risk as explained below.

The maintenance on the valve must be performed during the defueled maintenance window. To fill the CF Tanks after defueled maintenance window and perform the full flow test before fuel is reloaded would take roughly 30 hours of critical path outage time. Additionally, during that phase of the outage there is no available space to mix water for the CF Tank fill. There is also no piping system available to refill the tanks. Realignment of the piping necessary to refill the tanks would require extensive procedure revisions and many Block Tagout revisions.

Performing the test just prior to fuel movement as required by the above scenario would cloud the water in the vessel and limit the ability to properly verify fuel assembly locations. This increases the risk of a fuel handling error during the refueling process.

Relief from the retest requirement following corrective action (§4.2.1.9 and §4.3.2.6) is requested on the same basis as stated above for §3.4. Corrective action as intended in this context would necessarily require disassembly for these valves. Such corrective action will be scheduled during the defueled maintenance window of each respective refueling outage.

Alternate Testing:

As an alternative to post-maintenance retesting required by §3.4, §4.2.1.9, and §4.3.2.6, all maintenance which can affect the performance of the valve will be performed during refueling. The valves will be exercised by hand following disassembly, prior to returning the valves to service. While not the preferred method, disassembly is recognized by Generic Letter 89-04 as an acceptable alternate to full flow testing. In some respects, disassembly can be the most effective method of advance detection of deterioration. For example, it can detect wear, corrosion, or other mechanical damage that flow testing may not detect. Therefore, this method will assure an acceptable level of safety. A partial stroke test will be performed during unit startup following disassembly.

Specific Relief Request

Item Number: ON-SRV-CF-17

Valve(s): 1CF0012, 1CF0014
2CF0012, 2CF0014
3CF0012, 3CF0014

Flow Diagram / Coordinates: OFD-102A-1.3/D-9, D-7
OFD-102A-2.3/D-10, D-6
OFD-102A-3.3/D-9, D-7

Function: These valves normally prevent backflow from RCS to LPI/CF Systems. In an emergency they open to permit flow from core flood tanks or LPI to the Reactor Coolant System.

ISI Class/Duke Class: A/A

Valve Category: A/C

Test Requirement: ¶3.4 Effect of Valve or Actuator Replacement, Repair, and Maintenance on Reference Values

Relief is requested from requirement for post-maintenance full-flow testing.

¶4.2.1.9(e) Corrective Action
¶4.3.2.6 Corrective Action

Relief is requested from requirement to full-flow test prior to returning valve to service following corrective action.

Basis for Relief: Relief from ¶3.4 requirement for post-maintenance testing is requested on the following basis. These valves cannot be isolated from the RCS. Therefore, disassembly of these valves for maintenance must be performed when the reactor is defueled and the refueling canal drained. (This is called the "defueled maintenance window" or "low point maintenance window".) Operability testing of these valves is scheduled immediately following defueling and just prior to draining the canal for maintenance. Since the operability test requires draining of the core flood tanks, there will be no water source for testing after the completion of maintenance.

Revising the outage schedule to provide for valve maintenance prior to full-flow testing would require either a) isolating the core flood tanks with CF-1 and CF-2 while draining the canal and performing maintenance, or b) draining the core flood tanks prior to the defueled maintenance window. Option a) is a safety risk to maintenance personnel, since the tanks would have only single isolation. Also, it does not allow for maintenance of CF-1 and CF-2, if required. Option b) creates an outage scheduling burden in that the core flood tanks would have to be refilled in order to perform the operability test. During that phase of the outage there is no available space to mix water for the CF Tank fill. There is also no piping system available to refill the tanks. Realignment of the piping necessary to refill the tanks would require extensive procedure revisions and many Block Tagout revisions. Furthermore, any problems discovered during the operability test would require a second draining of the refueling canal for repairs. These hardships are not offset by a compensating increase in the level of safety. In fact, both of the above options would adversely affect shutdown risk, as follows. The water in the canal will be clouded by the operability test. The sequences described above result in reduced time allowed for this cloudiness to clear up prior to refueling. This would make it harder to identify fuel assembly locations correctly, increasing the risk of a fuel handling accident.

Relief from the retest requirement following corrective action (§4.2.1.9 and §4.3.2.6) is requested on the same basis as stated above for §3.4. Corrective action as intended in this context would necessarily require disassembly of the valves, as the condition of the valve internals would need to be ascertained. Such corrective action will be scheduled during the defueled maintenance window of each respective refueling outage.

Alternate Testing:

As an alternative to post-maintenance retesting required by §3.4, §4.2.1.9, and §4.3.2.6, all maintenance which can affect the performance of the valve will be performed during refueling. The valves will be exercised by hand following disassembly, prior to returning the valves to service. While not the preferred method, disassembly is recognized by Generic Letter 89-04 as an acceptable alternate to full flow testing. In some respects, disassembly can be the most effective method of advance detection of deterioration. For example, it can detect wear, corrosion, or other mechanical damage that flow testing may not detect. Therefore, this method will assure an acceptable level of safety. A partial stroke test will be performed during unit startup following disassembly.



DUKE POWER
OCONEE NUCLEAR STATION

JUSTIFICATION FOR DEFERRAL

Section 6.0

6.1 VALVE JUSTIFICATION FOR DEFERRALS

Justification for Deferral	Applicability	Status
ON-AS-01	EFWPT AS Supply Checks	Revised 01/31/99
ON-AS-02	Deleted 09/01/95	Revised 01/31/99
ON-BS-01	A or B RBSP Discharge Checks	Revised 01/31/99
ON-BS-02	A or B RBS Containment Isolation Checks	Revised 01/31/99
ON-C-01	MDEFWPs Suction from UST Block	Revised 01/31/99
ON-C-02	MDEFWPs Suction from UST Check	Revised 01/31/99
ON-C-03	MDEFWPs Suction from Hotwell Check	Revised 01/31/99
ON-C-04	TDEFWPs Suction from Hotwell (written 12/98)	Submitted 01/31/99
ON-CC-01	CC Supply/Return Containment Isol.	Revised 01/31/99
ON-CC-02	CC Supply Containment Isol. Check	Revised 01/31/99
ON-CF-01	CFT A and B Outlet Checks	Revised 01/31/99
ON-CF-02	LPI/CF Header Checks	Revised 01/31/99
ON-CF-03	CFT A and B Inlet Checks	Revised 01/31/99
ON-CS-01	Quench Tank Recirc. Containment Isolation Check	Revised 01/31/99
ON-ESV-01	Essential Siphon Vacuum Float Valves (written 08/98)	Submitted 01/31/99
ON-FDW-01	OTSG Startup Block and Control	Revised 01/31/99
ON-FDW-02	TDEFWP Discharge Checks, EFW to OTSG A or B, and	Revised 01/31/99
ON-FDW-03	OTSG Emergency Header Checks A or B OTSG Main Flow Control	Revised 01/31/99
ON-FDW-04	Normal FDW to Emergency Checks	Revised 01/31/99
ON-FDW-05	Steam Generator Check Valves (written 09/98)	Submitted 01/31/99
ON-HP-01	Letdown Containment Isolation	Revised 01/31/99
ON-HP-02	RCP Seal Return Containment Isol.	Revised 01/31/99
ON-HP-03	HPI Loop A Emergency Injection Control	Revised 01/31/99
ON-HP-04	HPI A or B Crossover Valves	Revised 01/31/99
ON-HP-05	LDST Outlet Checks	Revised 01/31/99
ON-HP-06	HPI Pump Min. Recirculation Block	Revised 01/31/99
ON-HP-07	Letdown Containment Isolation	Revised 01/31/99
ON-HP-08	RC Seal Return Line Check	Revised 01/31/99
ON-HP-09	HPI Min. Recirc. to LPI Suction Check	Revised 01/31/99
ON-HP-10	HPI Pump Emergency Suction Checks	Revised 01/31/99
ON-HP-11	HPI Pump Discharge Checks	Revised 01/31/99

6.1 VALVE JUSTIFICATION FOR DEFERRALS

Justification for Deferral	Applicability	Status
ON-HP-12	A1 or A2 Loop Injection Stop Checks	Revised 01/31/99
ON-HP-13	B1 or B2 Loop Injection Stop Checks	Revised 01/31/99
ON-HP-14	HPI Loop B Emergency Injection Checks	Revised 01/31/99
ON-HP-15	HPI Loop A Emergency/Normal Injection Checks	Revised 01/31/99
ON-HP-16	HPI Pump Min. Recirculation Stop Checks	Revised 01/31/99
ON-HP-17	RCP Seal Supply Containment Isol. Checks	Revised 01/31/99
ON-LP-01	Decay Heat Drop Line Isolation	Revised 01/31/99
ON-LP-02	A or B LPI Header Containment Isol. Checks	Revised 01/31/99
ON-LP-03	Post-LOCA Boron Dilution Valves	Revised 01/31/99
ON-LP-04	A LPI Pump Discharge	Revised 01/31/99
ON-LP-05	BWST Outlet Isolation	Revised 01/31/99
ON-LP-06	LPI Supply to HPI Isolation	Revised 01/31/99
ON-LP-07	A or B LPI Header Isolation	Revised 01/31/99
ON-LP-08	LPI Post Boron Dilution Valves	Revised 01/31/99
ON-LP-09	BWST to LPI Pump Check Valves (written 08/98)	Submitted 01/31/99
ON-LPSW-01	RCP Cooler Supply and Discharge Block	Revised 01/31/99
ON-LPSW-02	U3 MTOT Cooler Supply Block	Revised 01/31/99
ON-LPSW-03	Normal/Emergency Supply Checks to HPIP Motor	Revised 01/31/99
ON-LPSW-04	Deleted 3/26/96	Revised 01/31/99
ON-LPSW-05	RBCU Cooling Coil Outlet Valves (written 08/98)	Submitted 01/31/99
ON-MS-01	Turbine Stop	Revised 01/31/99
ON-MS-02	Main Steam Turbine Bypass	Revised 01/31/99
ON-MS-03	MS Supply to FDWPTs Block	Revised 01/31/99
ON-MS-04	MS Supply to SSRH Block	Revised 01/31/99
ON-MS-05	Deleted 09/01/95	Revised 01/31/99
ON-MS-06	MS to TDEFP Turbine Check Valves (written 09/98)	Submitted 01/31/99
ON-N-01	CFT A and B Inlet Containment Isol. Checks	Revised 01/31/99
ON-PR-01	Deleted 01/31/99	Revised 01/31/99
ON-RC-01	Deleted 3/26/96	Revised 01/31/99
ON-RC-02	Pressurizer Spray Control	Revised 01/31/99
ON-RC-03	Deleted 01/31/99	Revised 01/31/99

6.1 VALVE JUSTIFICATION FOR DEFERRALS

Justification for Deferral	Applicability	Status
ON-RC-04	Pressurizer Power Operated Relief Valves (written 08/98)	Submitted 01/31/99
ON-RX-01	RX Vessel Inlet Vent Valves	Submitted 01/31/99
ON-SSF-01	SSF ASW Supply to A OTSG	Revised 01/31/99
ON-SSF-02	SSF RC Makeup Supply to RCP Seals	Revised 01/31/99
ON-SSF-03	SSF RC Makeup to RCP Seals Block	Revised 01/31/99
ON-SSF-04	Letdown to Spent Fuel Vent	Revised 01/31/99
ON-SSF-05	SSF AFW Supply to B OTSG Control	Revised 01/31/99

Justification for Deferral

Item Number: ON-AS-01

Valve: Auxiliary Steam to TDEFWP Turbine Check Valve
1AS0039, 2AS0039, 3AS0039

Flow Diagram: OFD-122A-1.4/H-6, OFD-122A-2.4/H-6, and OFD-122A-3.4/H-6

Code Category: C

ISI Class / Duke Class: C/F

Function: These valves open when steam is supplied from the auxiliary steam header to the EFWPT. These valves are required to close or remain closed when steam is supplied from the main steam header(s).

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Due to system constraints, there is no means to verify these valves close upon cessation or reversal of flow.

Test Alternative & Frequency: Per Oma-1988 Part 10, the valves are tested to the open position every three months.

An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closed test.

The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the closure function of the valves.

Justification for Deferral

Item Number:	ON-BS-01
Valve:	Reactor Building Spray Pump Discharge Check Valves 1BS0011, 2BS0011, 3BS0011, 1BS0016, 2BS0016, 3BS0016
Flow Diagram:	OFD-103A-1.1/J-6, OFD-103A-2.1/J-6, and OFD-103A-3.1/J-6 OFD-103A-1.1/E-6, OFD-103A-2.1/E-6, and OFD-103A-3.1/E-6
Code Category:	C
ISI Class / Duke Class:	B/B
Function:	These valves shall be capable of opening to pass flow from the Reactor Building Spray Pumps.
Test Requirement:	Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.
Basis for Deferral:	These valves cannot be full stroke exercised at power conditions, cold shutdown conditions, or refueling conditions. The present piping size configuration prevents recirculation flow from the pumps and through these check valves from equaling reactor building spray design flow. Normal recirculation flow is approximately 1250 gpm and design flow for the system is 1500 gpm.
Test Alternative & Frequency:	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves are partially stroked to the open position every three months.</p> <p>The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the full opening function of the valves.</p>

Justification for Deferral

Item Number: ON-BS-02

Valve: Reactor Building Spray Header Isolation Check Valves
1BS0014, 2BS0014, 3BS0014, 1BS0019, 2BS0019, 3BS0019

Flow Diagram: OFD-103A-1.1/J-10, OFD-103A-2.1/J-10, and OFD-103A-3.1/J-10
OFD-103A-1.1/E-10, OFD-103A-2.1/E-10, and OFD-103A-3.1/E-10

Code Category: C

ISI Class / Duke Class: B/B

Function: These valves shall be capable of opening to provide spray to containment atmosphere.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: These valves cannot be full stroke exercised at power conditions, cold shutdown conditions, or refueling conditions. Full flow testing of the valves with system flow would spray down the containment building, which is unacceptable. Full flow testing of the valves with air is not possible due to the pipe size and available volume of air. In addition, frequent testing of these valves is not deemed necessary because of the following:

- There are two independent RB spray trains.
- These valves are not subjected to liquid or a corrosive atmosphere.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked using air to the open position every refueling outage.

The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the full opening function of the valves.

Justification for Deferral

Item Number: ON-C-01

Valve: Motor Driven Emergency Feedwater (MDEFW) Pump Suction from Upper Surge Tank Isolation Valve
1C0573, 2C0573, 3C0573

Flow Diagram: OFD-121A-1.8/E-7, OFD-121A-2.8/D-6, and OFD-121A-3.8/E-7

Code Category: B

ISI Class / Duke Class: C/F

Function: These valves are required to be locked open to provide suction to both of the MDEFW pumps from the Upper Surge Tank (UST). When transferring MDEFW pump suction from the upper surge tanks to the hotwell, this valve is unlocked and shall be closed to provide a system boundary.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: These valves cannot be full stroke exercised at power conditions. Stroking these valves at power operation would require removing both trains of the MDEFW system from service, which is not allowed by Technical Specifications.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercise closed during cold shutdown.

Justification for Deferral

Item Number: ON-C-02

Valve: Motor Driven Emergency Feedwater (MDEFW) Pump Suction from Upper Surge Tank (UST) Check Valve
1C0572, 2C0572, 3C0572

Flow Diagram: OFD-121A-1.8/E-7, OFD-121A-2.8/E-6, and OFD-121A-3.8/E-7

IST Valve Category: C

ISI Class / Duke Class: C/F

Function: This valve shall open to allow water to flow from the upper surge tanks to the MDEFW pumps.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Both MDEFW Pumps must be operated simultaneously in order to full stroke the valve. Both MDEFW Pumps must be taken out of service in order to simultaneously operate the pumps. During power operation, Technical Specifications does not allow both MDEFW Pumps to be taken out of service simultaneously.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partial stroked open every three months during power operation. The valves are full stroke exercised open during cold shutdown.

Justification for Deferral

Item Number: ON-C-03

Valve: Motor Driven Emergency Feedwater (MDEFW) Pump Suction from Hotwell Check Valve
1C0850, 2C0850, 3C0850, 1C0852, 2C0852, 3C0852

Flow Diagram: OFD-121A-1.8/D-4, OFD-121A-2.8/D-4, and OFD-121A-3.8/E-4
OFD-121A-1.8/E-4, OFD-121A-2.8/C-4, and OFD-121A-3.8/D-4

Code Category: C

ISI Class / Duke Class: C/F

Function: The valves shall open to allow water to flow from the condenser hotwell to the MDEFW pumps. The valves shall be closed as a system boundary when the MDEFW pumps take suction from the Upper Surge Tank.

Test Requirement: Verify proper valve movement every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Condenser vacuum must be broken to stroke these valves.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised open and closed during cold shutdown conditions when condenser vacuum is broken or at refueling conditions.

Justification for Deferral

Item Number:	ON-C-04
Valve:	Turbine Driven Emergency Feedwater Pump Suction from Hotwell 1C0391, 2C0391, 3C0391
Flow Diagram:	OFD-121A-1.8/J-11, OFD-121A-2.8/J-11, OFD-121A-3.8/J-11
IST Valve Category:	B
ISI Class / Duke Class:	C/F
Function:	These normally closed valves must be manually opened to allow the TDEFWP to take suction from the hotwell following depletion of the Upper Surge Tank.
Test Requirement:	Verify proper valve movement to the open position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	Exercising these valves while the condenser is under vacuum represents a potential threat to plant equipment (PIPs 98-2291). Stroking C0391 open exposes the TDEFWP pump seals to vacuum. The potential exists to draw air into the TDEFWP casing during testing thus jeopardizing TDEFPW reliability due to air binding.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, these valves are full stroke exercised to the open position during cold shutdown conditions when condenser vacuum is broken or at refueling conditions.</p>

Justification for Deferral

Item Number: ON-CC-01

Valve: Component Cooling Return Penetration Block Valves
1CC0007, 2CC0007, 3CC0007, 1CC0008, 2CC0008, 3CC0008

Flow Diagram: OFD-144A-1.2/D-14, OFD-144A-2.2/D-13, and OFD-144A-3.2/D-13
OFD-144A-1.2/D-12, OFD-144A-2.2/D-12, and OFD-144A-3.2/D-12

Code Category: A

ISI Class / Duke Class: B/F

Function: These valves shall be capable of closing to perform their Containment Isolation function.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves during power operation would remove cooling water to the control rod drive mechanism and to the reactor coolant pumps, resulting in damage to thermal barriers and pump seal failure. In addition, closing these valves would cause over heating of the letdown fluid, which could cause isolation of the letdown flow, which could cause loss of pressurizer level control and/or damage to the purification demineralizers.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised to the closed position during cold shutdown conditions, when the component cooling system is isolated.

Justification for Deferral

Item Number: ON-CC-02

Valve: Component Cooling Penetration Check Valve
1CC0020, 2CC0020, 3CC0020, 1CC0024, 2CC0024, 3CC0024
1CC0076, 2CC0076, 3CC0076, 1CC0077, 2CC0077, 3CC0077

Flow Diagram: OFD-144A-1.2/D-4, OFD-144A-2.2/D-3, and OFD-144A-3.2/D-3
OFD-144A-1.3/H-6, OFD-144A-2.3/H-6, and OFD-144A-3.3/H-5
OFD-144A-1.2/D-2, OFD-144A-2.2/D-1, and OFD-144A-3.2/D-2
OFD-144A-1.3/H-7, OFD-144A-2.3/H-8, and OFD-144A-3.3/H-7

Code Category: A/C

ISI Class / Duke Class: B/F

Function: These valves shall be capable of closing to perform their Containment Isolation function.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves during power operation would isolate cooling water to the control rod drive mechanism, letdown coolers, and reactor coolant pumps, resulting in damage to thermal barriers and pump seal failure. Testing at each cold shutdown would require personnel to drain portions of the component cooling system and install test equipment. This would unnecessarily expose personnel to hazardous chemicals as well as generate excessive radioactive waste since the component cooling water is chromated.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closure test. The valves are tested in the closed position each refueling outage during the local leak rate test for each penetration. This alternative is consistent with Section 4.1.4 of NUREG-1482 which states, "If no other practical means is available, it is acceptable to verify that check valves are capable of closing by performing leak rate testing at each reactor refueling outage...The NRC has determined that the need to set up [leak rate] test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage."

Justification for Deferral

Item Number: ON-CF-01

Valve: Core Flood Tank Discharge Line Check Valve
1CF0011, 2CF0011, 3CF0011, 1CF0013, 2CF0013, 3CF0013

Flow Diagram: OFD-102A-1.3/E-10, OFD-102A-2.3/D-10, and OFD-102A-3.3/E-10
OFD-102A-1.3/E-6, OFD-102A-2.3/D-6, and OFD-102A-3.3/E-6

Code Category: A/C

ISI Class / Duke Class: A/A

Function: These valves normally prevent backflow from the RCS to the core flood tanks. These valves shall be capable of opening when RCS pressure drops below the pressure in the core flood tank so that the tank contents can be injected into the reactor vessel.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves during power operation is not possible since the core flood tank pressure cannot be increased above RCS pressure during normal operation. The valves cannot be full-stroke exercised during cold shutdown due to the possibility of over pressurization and hydraulic shock to the reactor coolant system.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked to the open position during cold shutdown. The valves are full stroke exercised to the open position during each refueling outage.

During each refueling outage, testing is performed at a lower than accident pressure. The test method utilizes nitrogen overpressure on the core flood tanks which are filled to normal Technical Specification level with the core flood tank outlet block valves closed. The outlet valves are opened while tank level and pressure data are recorded versus time. This data is utilized to calculate a flow rate through the check valves and to determine the flow coefficient (Cv) of the check valves. This Cv is then compared to the required accident Cv to ensure that the valves are capable of passing the design basis accident flow and to ensure acceptable valve performance. Qualification of the calculations of the data is provided by independent review in accordance with the owner's Quality Assurance Program.

Justification for Deferral

Item Number: ON-CF-02

Valve: Core Flood Tank and Low Pressure Injection Header Check Valve
1CF0012, 2CF0012, 3CF0012, 1CF0014, 2CF0014, 3CF0014

Flow Diagram: OFD-102A-1.3/D-9, OFD-102A-2.3/D-10, and OFD-102A-3.3/D-9
OFD-102A-1.3/D-7, OFD-102A-2.3/D-6, and OFD-102A-3.3/D-7

Code Category: A/C

ISI Class / Duke Class: A/A

Function: These valves normally prevent backflow from the RCS to the core flood tanks and the Low Pressure Injection System. In an emergency these valves open to permit flow from the core flood tanks or the Low Pressure Injection System to the RCS.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves during power operation is not possible since the core flood tank pressure cannot be increased above RCS pressure during normal operation. The valves cannot be full-stroke exercised during cold shutdown due to the possibility of over pressurization and hydraulic shock to the reactor coolant system.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked to the open position during cold shutdown. The valves are full stroke exercised to the open position during each refueling outage.

During each refueling outage, testing is performed at a lower than accident pressure. The test method utilizes nitrogen overpressure on the core flood tanks, which are filled to normal Technical Specification level with the core flood tank outlet block valves closed. The outlet valves are opened while tank level and pressure data are recorded versus time. This data is utilized to calculate a flow rate through the check valves and to determine the flow coefficient (Cv) of the check valves. This Cv is then compared to the required accident Cv to ensure that the valves are capable of passing the design basis accident flow and to ensure acceptable valve performance. Qualification of the calculations of the data is provided by independent review in accordance with the owner's Quality Assurance Program.

Justification for Deferral

Item Number: ON-CF-03

Valve: Core Flood Tank Nitrogen/Makeup Header Check Valve
1CF0042, 2CF0042, 3CF0042, 1CF0044, 2CF0044, 3CF0044

Flow Diagram: OFD-127B-1.2/G-11, OFD-127B-2.2/G-11, and OFD-127B-3.2/G-11
OFD-127B-1.2/J-11, OFD-127B-2.2/J-11, and OFD-127B-3.2/J-11

Code Category: A/C

ISI Class / Duke Class: B/F

Function: Although this is a normally closed valve, the likelihood of it being open has been judged to be great enough to classify it as an active (to close) valve for containment isolation purposes.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves can only be accomplished by local leak rate testing. The only available pressurization path is inside the reactor building. Making a reactor building entry at power exposes personnel to excessive risk to their safety as well as potentially excessive radiation exposure. Testing at each cold shutdown would require personnel to drain portions of the system and install test equipment.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closure test. The valves are tested in the closed position each refueling outage during the local leak rate test for each penetration. This alternative is consistent with Section 4.1.4 of NUREG-1482 which states, "If no other practical means is available, it is acceptable to verify that check valves are capable of closing by performing leak rate testing at each reactor refueling outage...The NRC has determined that the need to set up [leak rate] test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage."

Justification for Deferral

Item Number: ON-CS-01

Valve: Quench Tank Recirculation Check Valve
1CS0011, 2CS0011, 3CS0011, 1CS0012, 2CS0012, 3CS0012

Flow Diagram: OFD-107A-1.1/J-2, OFD-107A-2.1/J-2, and OFD-107A-3.1/J-2
OFD-107A-1.1/J-5, OFD-107A-2.1/J-5, and OFD-107A-3.1/J-5

Code Category: A/C

ISI Class / Duke Class: B/F

Function: Although this is a normally closed valve, the likelihood of it being open has been judged to be great enough to classify it as an active (to close) valve for containment isolation purposes.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves can only be accomplished by local leak rate testing since there is no means to simulate reverse flow in the line.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closure test. The valves are tested in the closed position each refueling outage during the local leak rate test for each penetration. This alternative is consistent with Section 4.1.4 of NUREG-1482 which states, "If no other practical means is available, it is acceptable to verify that check valves are capable of closing by performing leak rate testing at each reactor refueling outage. The NRC has determined that the need to set up [leak rate] test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage."

Justification for Deferral

Item Number:	ON-ESV-01
Valve:	Essential Siphon Vacuum Float Valves 2ESV0001, 2ESV0002
Flow Diagram:	OFD-130A-2.1/I-2, OFD-130A-2.1/E-2
IST Valve Category:	C
ISI Class / Duke Class:	C/C
Function:	These valves shall open to vent unwanted air from the CCW System and close to prevent excessive water carryover into the ESV System.
Test Requirement:	Verify proper valve movement to the open and closed positions every three months as required per Section 4.3 of Oma-1988 Part 10.
Basis for Deferral:	There is not a means of verifying accident flow (vacuum) through these valves in order to provide for full open verification.
Test Alternative & Frequency	<p>Per Oma-1988 Part 10, the valves are stroked to the closed position every three months.</p> <p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the open test.</p> <p>Per Oma-1988 Part 10, the valves are partially stroked to the open position every three months.</p> <p>The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the full opening function of the valves.</p>

Justification for Deferral

Item Number: ON-FDW-01

Valve: OTSG Startup Block Valves
1FDW0033, 2FDW0033, 3FDW0033
1FDW0042, 2FDW0042, 3FDW0042
OTSG Startup Control Valves
1FDW0035, 2FDW0035, 3FDW0035
1FDW0044, 2FDW0044, 3FDW0044

Flow Diagram: OFD-121B-1.3/J-6, OFD-121B-2.3/J-5, and OFD-121B-3.3/J-6
OFD-121B-1.3/E-6, OFD-121B-2.3/E-5, and OFD-121B-3.3/E-6
OFD-121B-1.3/L-7, OFD-121B-2.3/K-7, and OFD-121B-3.3/ K-7
OFD-121B-1.3/L-7, OFD-121B-2.3/K-7, and OFD-121B-3.3/ K-7

Code Category: B

ISI Class / Duke Class: C/F

Function: These normally open valves close to provide feedwater isolation after a Main Steam Line Break in which overcooling is a concern.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: These valves are normally open to allow feedwater flow to continue through the startup line. Exercising these valves would result in a feedwater transient, which could cause a reactor trip.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves will be stroked closed during cold shutdown.

Justification for Deferral

Item Number:

ON-FDW-02

Valve:

TDEFWP Discharge Header Check Valves
1FDW0311, 2FDW0311, 3FDW0311
1FDW0312, 2FDW0312, 3FDW0312
Emergency Feedwater Header Check Valves
1FDW0317, 2FDW0317, 3FDW0317
1FDW0318, 2FDW0318, 3FDW0318
MDEFWP Normal Discharge Header Check Valves
1FDW0373, 2FDW0373, 3FDW0373
1FDW0383, 2FDW0383, 3FDW0383
Emergency Feedwater Inside Containment Penetration Check Valves
1FDW0345, 2FDW0345, 3FDW0345
1FDW0346, 2FDW0346, 3FDW0346
Emergency Feedwater Outside Containment Penetration Check Valves
1FDW0442, 2FDW0442, 3FDW0442
Steam Generator Isolation Check Valves
1FDW0232, 2FDW0232, 3FDW0232
1FDW0233, 2FDW0233, 3FDW0233

Flow Diagram:

OFD-121D-1.1/J-6, E-6
OFD-121D-2.1/J-6, E-7
OFD-121D-3.1/I-6, E-6
OFD-121D-1.1/K-10, D-10, K-7, D-7
OFD-121D-2.1/K-10, D-10, K-7, D-7
OFD-121D-3.1/K-10, D-10, K-7, D-7
OFD-121D-1.1/K-13, D-12, D-11
OFD-121D-2.1/K-13, D-12, D-11
OFD-121D-3.1/K-13, D-12, D-11
OFD-121D-1.1/K-13, D-13
OFD-121D-2.1/K-13, D-13
OFD-121D-3.1/K-13, D-13

Valve Category:

C

ISI Class / Duke Class:

C/F, C/F, B/F, and B/F

Function:

- FDW0311, 0312 open to allow the TDEFDW pump to feed the steam generators. They close to preclude diversion of flow when the TDEFDW pump is not running and MDEFDW pumps are running.
- FDW0317, 0318, 0373, 0383 are normally closed preventing backflow from the feedwater line to the emergency feedwater pump. In an emergency they open to allow flow from the emergency feedwater pump to the normal and emergency feedwater nozzles.
- FDW0345, 0346, 0442 are normally closed preventing backflow from the feedwater line to the Emergency feedwater pump. In an emergency they open to allow flow from the Emergency feedwater pump to the emergency feedwater nozzles.
- FDW0232, 0233 are normally closed check valves open to supply emergency feedwater to the steam generators.

Test Requirement:

Verify proper valve movement every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral:

Emergency Feedwater pumps must supply water to the steam generators in order to test these valves to their proper position. The emergency feedwater pumps supply unheated condensate to the steam generators. Therefore, exercising these valves at power would create undue thermal stresses on the steam generator tubes and nozzles. In addition, testing these valves by supplying the steam generators with unheated condensate would place the plant in a feedwater transient which could cause a reactor trip.

Test Alternative & Frequency:

An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves will be full stroke exercised to their required safety positions during cold shutdown.

Justification for Deferral

Item Number: ON-FDW-03

Valve: Steam Generator Main Feedwater Control Valve
1FDW0032, 2FDW0032, 3FDW0032
1FDW0041, 2FDW0041, 3FDW0041

Flow Diagram: OFD-121B-1.3/J-7, OFD-121B-2.3/J-6, OFD-121B-3.3/J-7
OFD-121B-1.3/D-7, OFD-121B-2.3/D-5, OFD-121B-3.3/D-7

Code Category: B

ISI Class / Duke Class: C/F

Function: These normally open valves must close to provide feedwater isolation after a Main Steam Line Break where overcooling is a concern.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves at power would disrupt the normal feedwater flow and steam generator level causing a plant transient and possible reactor trip.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves will be full stroke exercised closed during cold shutdown.

Justification for Deferral

Item Number: ON-FDW-04

Valve: Main Feedwater Return to Emergency Feedwater Header Check Valve
1FDW0039, 2FDW0039, 3FDW0039
1FDW0432, 2FDW0432, 3FDW0432

Flow Diagram: OFD-121D-1.1/J-10, OFD-121D-2.1/J-10, OFD-121D-3.1/J-10
OFD-121D-1.1/E-10, OFD-121D-2.1/E-10, OFD-121D-3.1/E-10

Code Category: C

ISI Class / Duke Class: B and C/F

Function: These valves can be opened to allow the normal feedwater pumps to feed the steam generators through the emergency header. This is a not a required function as it is based on a passive single failure. During an emergency they shall close or remain closed to preclude a diversion of emergency feedwater.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Due to system constraints, there is no means to verify these valves close upon cessation or reversal of flow. A supplemental program test of the opening function can only be performed during a refueling outage. Exercising these valves at power would disrupt the normal feedwater flow and steam generator level causing a plant transient and possible reactor trip. Exercising at cold shutdown is not practicable as chemistry requirements are met just prior to plant start-up. Therefore performing and restoring from this supplemental test becomes critical path and causes unnecessary delays to plant start-up.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closed test.

The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the closure function of the valves.

Per Oma-1988 Part 10, the valves are full stroke exercised to the open position every refueling. This is based on the guidelines within NUREG-1482 to perform at least a partial flow test following reassembly. It also satisfies our supplemental test program to perform a full stroke exercise open.

Justification for Deferral

Item Number:	ON-FDW-05
Valve:	Steam Generator Normal Header Check Valves 1FDW0037, 2FDW0037, 3FDW0037, 1FDW0046, 2FDW0046, 3FDW0046
Flow Diagram:	OFD-121B-1.3/J-9, OFD-121B-2.3/J-9, OFD-121B-3.3/J-9 OFD-121B-1.3/F-8, OFD-121B-2.3/D-9, OFD-121B-3.3/D-9
IST Valve Category:	C
ISI Class / Duke Class:	B/F
Function:	These valves are normally open to supply Feedwater to the respective steam generators. These valves are required to close for containment isolation.
Test Requirement:	Verify proper valve movement to the closed position every three months as required per Section 4.3 of Oma-1988 Part 10.
Basis for Deferral:	These valves are normally open to supply normal Feedwater flow to the respective steam generators. Exercising these valves during plant operation would result in a total loss of Feedwater, which could cause a reactor trip.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves will be full stroke exercised closed during cold shutdown.</p>

Justification for Deferral

Item Number: ON-HP-01

Valve: Letdown Line Outside Containment Isolation Valve
1HP0005, 2HP0005, 3HP0005

Flow Diagram: OFD-101A-1.1/K-8, OFD-101A-2.1/K-8, OFD-101A-3.1/K-8

Code Category: A

ISI Class / Duke Class: B/C

Function: These valves are open during normal unit power operation to allow letdown flow from the Reactor Coolant System. The valves shall close for containment isolation.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves at power operation will isolate letdown flow from the Reactor Coolant System. The resulting transient due to loss of volume and chemistry control could cause a reactor trip.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves will be full stroke exercised closed during cold shutdown.

Justification for Deferral

Item Number: ON-HP-02

Valve: Reactor Coolant Pump Seal Return Line Containment Isolation Valve
1HP0020, 2HP0020, 3HP0020, 1HP0021, 2HP0021, 3HP0021

Flow Diagram: OFD-101A-1.1/E-7, OFD-101A-2.1/E-8, OFD-101A-3.1/E-8
OFD-101A-1.1/F-6, OFD-101A-2.1/E-6, OFD-101A-3.1/E-6

Code Category: A

ISI Class / Duke Class: B/C

Function: These valves are open during normal unit power operation to align a flow path to return water that passes through the Reactor Coolant Pumps seals to the Letdown Storage Tank. The valves shall close for containment isolation.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: These valves are containment isolation valves in a non-redundant flow path. Failure of the valves during testing could result in the loss of the RCP seal water return system. This could cause a loss of RCP seals and the release of reactor coolant into the Reactor Building. Damage to the RCP seals would require a reactor shutdown.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves will be full stroke exercised closed during cold shutdown.

Justification for Deferral

Item Number:	ON-HP-03
Valve:	HPI Train A Discharge Header Isolation Valve 1HP0026, 2HP0026, 3HP0026
Flow Diagram:	OFD-101A-1.4/I-7, OFD-101A-2.4/J-7, OFD-101A-3.4/J-6
Code Category:	B
ISI Class / Duke Class:	B/B
Function:	The valves shall open to align the HPI Pump discharge header to the reactor vessel. The valve shall be capable of being throttled from the control room to limit HPI flow. This may be required to prevent runout of the HPI Pumps, assure adequate NPSHa during piggyback operation, or maintain the RCS pressure/temperature within subcooling limits to prevent Pressurized Thermal Shock of the RCS.
Test Requirement:	Verify proper valve movement to the open and closed position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	Valve alignments necessary to perform this stroke test would remove the warming flow from the reactor coolant system normal makeup flow nozzles. This would increase the number of thermal stress cycles induced into the makeup nozzles, which are restrictive over plant life. Failure of the loss of primary pressurizer level control, and possible reactor trip.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves will be full stroke exercised open and closed during cold shutdown.</p>

Justification for Deferral

Item Number: ON-HP-04

Valve: HPI Pumps Discharge Line Crossover Header Valve
1HP0409, 2HP0409, 3HP0409, 1HP0410, 2HP0410, 3HP0410

Flow Diagram: OFD-101A-1.4/D-7, OFD-101A-2.4/E-8, OFD-101A-3.4/E-8
OFD-101A-1.4H-7, OFD-101A-2.4/F-8, OFD-101A-3.4/H-7

Code Category: B

ISI Class / Duke Class: B/B and B/BC

Function: The valves shall open for HPI flow to be cross-connected in the event of a single failure during an accident. The valves shall be capable of being throttled from the control room to limit HPI flow. This may be required to prevent runout of the HPI Pumps, assure adequate NPSHa during piggyback operation, or maintain the RCS pressure/temperature within subcooling limits to prevent Pressurized Thermal Shock of the RCS.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Failure of these valves during exercise testing at power operation would result in the loss of primary pressurizer level control and possibly a reactor trip. The exercising of HP0409 would also cause a thermal transient on the B Loop. The isolation necessary to perform this valve stroke test will remove seal supply flow/cooling to the RCPs, which would cause a thermal transient on the RCP seals.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves will be full stroke exercised open and closed during cold shutdown.

Justification for Deferral

Item Number: ON-HP-05

Valve: Letdown Storage Tank Outlet Header Check Valve
1HP0097, 2HP0097, 3HP0097

Flow Diagram: OFD-101A-1.2/D-12, OFD-101A-2.2/D-12, OFD-101A-3.2/D-12

Code Category: A/C

ISI Class / Duke Class: C/C

Function: These valves shall be capable of opening to align the Let Down Storage Tank (LDST) to the suction header of the HPI Pumps after an accident. This allows HPI Pump minimum flow to be recirculated through the LDST rather than being diverted to the radwaste system. These valves shall close to prevent backflow from HPI pump suction to the LDST during LPI to HPI "piggyback" operation.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: These valves close during LPI to HPI "piggyback" operation to prevent filling the LDST. "Piggyback" alignment to HPI can only be accomplished during cold shutdown due to the possibility of the RCS overpressurizing the LPI system.

Test Alternative & Frequency: Per Oma-1988 Part 10, the valves are full stroke exercised open every three months.

An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closed test.

Per Oma-1988 Part 10, the valves are full stroke exercised closed during cold shutdown.

Valve leakage acceptability is determined at a minimum of every 2 years (as required by OM-10) by monitoring LDST level during the LPI to HPI "piggy back" operation performed during cold shutdown.

Justification for Deferral

Item Number: ON-HP-06

Valve: HPI Pump Recirculation Block Valve
1HP0247, 2HP0247, 3HP0247
1HP0249, 2HP0249, 3HP0249
1HP0251, 2HP0251, 3HP0251

Flow Diagram: OFD-101A-1.3/K-10, OFD-101A-2.3/K-10, OFD-101A-3.3/K-9
OFD-101A-1.3/H-9, OFD-101A-2.3/H-9, OFD-101A-3.3/H-9
OFD-101A-1.3/H-9, OFD-101A-2.3/H-9, OFD-101A-3.3/H-9

Code Category: B

ISI Class / Duke Class: B/B

Function: Valves shall close to isolate HPI pump minimum flow recirculation lines during LPI to HPI "piggyback" operation if the Letdown Storage Tank inlet to the Low Pressure Injection pump suction flow path is inoperable.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves during power operation would remove minimum flow protection from the HPI pumps. Pump damage could occur if an idle pump started without adequate discharge flow or on loss of discharge flow to a running pump.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised closed during cold shutdown.

Justification for Deferral

Item Number: ON-HP-07

Valve: Letdown Cooler Outlet and Inside Containment Isolation Valve
1HP0003, 2HP0003, 3HP0003, 1HP0004, 2HP0004, 3HP0004

Flow Diagram: OFD-101A-1.1/J-5, OFD-101A-2.1/J-5, OFD-101A-3.1/J-5
OFD-101A-1.1/K-5, OFD-101A-2.1/K-5, OFD-101A-3.1/K-5

Code Category: A

ISI Class / Duke Class: A/B

Function: Valves shall close to isolate the letdown cooler for containment isolation.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves during power operation induces undesirable transients within the letdown coolers which could compromise integrity of the reactor coolant system pressure boundary.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised closed during cold shutdown.

Justification for Deferral

Item Number: ON-HP-08

Valve: HPI Pumps Minimum Flow to the LDST Header Isolation Check Valve
1HP0189, 2HP0189, 3HP0189

Flow Diagram: OFD-101A-1.2/F-6, OFD-101A-2.2/F-5, OFD-101A-3.2/F-5

Code Category: C

ISI Class / Duke Class: C/C

Function: Valves shall open to pass flow from the HPI pump minimum recirculation to the suction of the LPI pumps during LPI to HPI "piggyback" operation.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: There is no existing flow instrumentation to monitor flow through these valves.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the open test.

The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the full opening function of the valves.

Per Oma-1988 Part 10, the valves are partially stroked to the open position every refueling in conjunction with the full flow pump test. This is also based on the guidelines within NUREG-1482 to perform at least a partial flow test following reassembly.

Justification for Deferral

Item Number: ON-HP-09

Valve: HPI Pumps Minimum Recirculation Flow to LPI Pump Suction Check Valve
1HP0364, 2HP0364, 3HP0364

Flow Diagram: OFD-101A-1.2/F-7, OFD-101A-2.2/F-7, OFD-101A-3.2/F-7

Code Category: C

ISI Class / Duke Class: C/C

Function: Valves shall open to pass flow from the HPI pump minimum recirculation to the suction of the LPI pumps during LPI to HPI "piggyback" operation.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: There is no existing flow instrumentation to monitor flow through these valves.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the open test.

The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the full opening function of the valves.

Per Oma-1988 Part 10, the valves are partially stroked to the open position every refueling in conjunction with the full flow pump test. This is also based on the guidelines within NUREG-1482 to perform at least a partial flow test following reassembly.

Justification for Deferral

Item Number: ON-HP-10

Valve: HPI Pump Emergency Supply (From the BWST) Check Valve
1HP0101, 2HP0101, 3HP0101, 1HP0102, 2HP0102, 3HP0102

Flow Diagram: OFD-101A-1.3/J-3, OFD-101A-2.3/J-3, OFD-101A-3.3/J-3
OFD-101A-1.3/E-3, OFD-101A-2.3/E-3, OFD-101A-3.3/E-2

Code Category: A/C

ISI Class / Duke Class: B/B

Function: These valves are closed during normal unit power operation since there is no flow from the BWST to the HPI Pump suction. The valves shall open to supply the HPI Pumps from the BWST whenever its associated isolation valve opens. The valves shall close to prevent reverse flow from the suction header to the BWST when HPI is aligned for piggyback operation.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Quarterly HPI pump tests utilize suction from the letdown storage tank. These valves are located in piping, which contains highly borated water from the BWST. Stroking these valves open would cause injection of highly borated water into the RCS, necessitating extensive cleanup. Late in core life injecting BWST water (>1800 ppm boron) would cause a rapid power transient and consequent reactor trip. Full stroking these valves open at cold shutdown could prevent reactor startup due to a relatively high boron concentration. In addition, full stroke exercising these valves at power or cold shutdown could cause overpressurization of the RCS.

Testing of these valves in the closed position is performed by leak rate testing of the valves. Adequate differential pressure is achieved during the LPI to HPI "piggyback" operation. The LPI to HPI "piggyback" operation is limited to cold shutdown conditions.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked open each cold shutdown and full stroke exercised open each refueling. The valves are full stroke exercised closed during cold shutdown by leak rate testing of the valves.

Justification for Deferral

Item Number: ON-HP-11

Valve: HPI Pump Discharge Check Valve
1HP0105, 2HP0105, 3HP0105
1HP0109, 2HP0109, 3HP0109
1HP0113, 2HP0113, 3HP0113

Flow Diagram: OFD-101A-1.3/J-10, OFD-101A-2.3/J-10, OFD-101A-3.3/J-10
OFD-101A-1.3/G-10, OFD-101A-2.3/G-10, OFD-101A-3.3/G-10
OFD-101A-1.3/D-10, OFD-101A-2.3/D-10, OFD-101A-3.3/D-10

Code Category: C

ISI Class / Duke Class: B/B

Function: These valves shall open as a result of its pump starting and delivering flow. The valves shall close to prevent reverse flow.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: These valves cannot be full-stroke exercised at power or at cold shutdown due to the possibility of RCS overpressurization.

Test Alternative & Frequency: Per Oma-1988 Part 10, the valves are full stroke exercised to the closed position every three months.

An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the open test.

Per Oma-1988 Part 10, the valves are partially stroked to the open position every three months.

These valves are full stroke exercised to the open position each refueling outage. During a refueling outage, the capability to adequately vent the RCS prevents the overpressurization of the RCS when full flow testing these valves.

Justification for Deferral

Item Number: ON-HP-12

Valve: HPI Injection Line RCS Boundary Check Valve
1HP0486, 2HP0486, 3HP0486, 1HP0487, 2HP0487, 3HP0487

Flow Diagram: OFD-101A-1.4/J-13, OFD-101A-2.4/J-13, OFD-101A-3.4/J-12
OFD-101A-1.4/J-13, OFD-101A-2.4/J-13, OFD-101A-3.4/J-12

Code Category: C

ISI Class / Duke Class: A/A

Function: This valve shall open to pass flow in the forward direction to allow emergency HPI injection into the RCS as required.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: These valves cannot be full stroke exercised at power or during cold shutdown due to the possibility of RCS overpressurization.

The valves cannot be partial flow tested at power due to the lack of flow instrumentation on each cold leg injection line. Measuring flow would require closing one injection line while measuring flow through the open injection line. Isolating one injection line would require personnel entries into the Reactor Building at power, which presents a safety hazard because of high radiation levels and proximity to high energy systems.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked to the open position during cold shutdown.

These valves are full stroke exercised to the open position each refueling outage. During a refueling outage, the capability to adequately vent the RCS prevents the overpressurization of the RCS when full flow testing these valves.

Justification for Deferral

Item Number: ON-HP-13

Valve: HPI Injection Line RCS Boundary Check Valve
1HP0488, 2HP0488, 3HP0488, 1HP0489, 2HP0489, 3HP0489

Flow Diagram: OFD-101A-1.4/D-14, OFD-101A-2.4/D-13, OFD-101A-3.4/D-13
OFD-101A-1.4/D-13, OFD-101A-2.4/E-13, OFD-101A-3.4/E-13

Code Category: C

ISI Class / Duke Class: A/A

Function: This valve shall open to pass flow in the forward direction to allow emergency HPI injection into the RCS as required.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: These valves cannot be full stroke exercised at power or during cold shutdown due to the possibility of RCS overpressurization.

The valves cannot be partial flow tested at power due to the lack of flow instrumentation on each cold leg injection line. Measuring flow would require closing one injection line while measuring flow through the open injection line. Isolating one injection line would require personnel entries into the Reactor Building at power which presents a safety hazard because of high radiation levels and proximity to high energy systems. In addition, partial stroking these valves at power would thermally shock the emergency header injection nozzles.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked to the open position during cold shutdown.

These valves are full stroke exercised to the open position each refueling outage. During a refueling outage, the capability to adequately vent the RCS prevents the overpressurization of the RCS when full flow testing these valves.

Justification for Deferral

Item Number: ON-HP-14

Valve: HPI Train B Injection Line Containment Isolation Check Valve
1HP0188, 2HP0188, 3HP0188

Flow Diagram: OFD-101A-1.4/D-11, OFD-101A-2.4/D-11, OFD-101A-3.4/D-10

Code Category: C

ISI Class / Duke Class: B/B and B/BC

Function: These valves are closed during normal operation. In an emergency, the valves shall open to provide emergency high pressure injection.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves at power would thermally stress the injection nozzles by injecting water from the Letdown Storage Tank (~110 F) into the nozzles which are at RCS cold leg temperature (~560 F). Injection through the "B" HPI loop with RCS temperature >250 F is classified as an "Allowable Operating Transient Cycle" (AOTC) and is limited to prevent exceeding the design limits of the nozzles. Full flow testing these valves at cold shutdown could overpressurize the RCS.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked to the open position during cold shutdown.

These valves are full stroke exercised to the open position each refueling outage. During a refueling outage, the capability to adequately vent the RCS prevents the overpressurization of the RCS when full flow testing these valves.

Justification for Deferral

Item Number: ON-HP-15

Valve: HPI Train A Injection Line Containment Isolation Check Valve
1HP0194, 2HP0194, 3HP0194

Flow Diagram: OFD-101A-1.4/J-10, OFD-101A-2.4/J-10, OFD-101A-3.4/J-8

Code Category: C

ISI Class / Duke Class: B/B and B/BC

Function: In an emergency, the valves shall open to provide High Pressure Injection.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: These valves cannot be full-stroke exercised at power or at cold shutdown due to the possibility of RCS overpressurization.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked to the open position every three months.

These valves are full stroke exercised to the open position each refueling outage. During a refueling outage, the capability to adequately vent the RCS prevents the overpressurization of the RCS when full flow testing these valves.

Justification for Deferral

Item Number: ON-HP-16

Valve: HPI Pump Minimum Flow Line Stop/Check Valve
1HP0248, 2HP0248, 3HP0248
1HP0250, 2HP0250, 3HP0250
1HP0252, 2HP0252, 3HP0252

Flow Diagram: OFD-101A-1.3/L-10, OFD-101A-2.3/L-10, OFD-101A-3.3/H-9
OFD-101A-1.3/I-9, OFD-101A-2.3/I-9, OFD-101A-3.3/I-9
OFD-101A-1.3/E-9, OFD-101A-2.3/E-9, OFD-101A-3.3/F-8

Code Category: B/C

ISI Class / Duke Class: B/B

Function: These valves shall open to pass HPI pump minimum recirculation flow.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: No flow instrumentation exists to measure pump recirculation flow.

Test Alternative & Frequency: An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the open test.

The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the full opening function of the valves.

Per Oma-1988 Part 10, the valves are partially stroked to the open position every refueling in conjunction with the full flow pump test. This is also based on the guidelines within NUREG-1482 to perform at least a partial flow test following reassembly.

Justification for Deferral

Item Number: ON-HP-17

Valve: Reactor Coolant Pump Seal Injection Line Inside Containment Isolation Check Valve
1HP0144, 2HP0144, 3HP0144, 1HP0145, 2HP0145, 3HP0145
1HP0146, 2HP0146, 3HP0146, 1HP0147, 2HP0147, 3HP0147
Reactor Coolant Pump Seal Injection Line Outside Containment Isolation Check Valve
1HP0390, 2HP0454, 3HP0390, 1HP0454, 2HP0286, 3HP0454
1HP0457, 2HP0389, 3HP0393, 1HP0393, 2HP0390, 3HP0457

Flow Diagram: OFD-101A-1.4/G-13, OFD-101A-2.4/F-12, OFD-101A-3.4/H-13
OFD-101A-1.4/F-13, OFD-101A-2.4/G-12, OFD-101A-3.4/I-13
OFD-101A-1.4/H-13, OFD-101A-2.4/H-12, OFD-101A-3.4/G-13
OFD-101A-1.4/I-12, OFD-101A-2.4/I-12, OFD-101A-3.4/F-13
OFD-101A-1.4/E-10, OFD-101A-2.4/F-10, OFD-101A-3.4/I-11
OFD-101A-1.4/G-10, OFD-101A-2.4/H-10, OFD-101A-3.4/H-11
OFD-101A-1.4/H-10, OFD-101A-2.4/I-10, OFD-101A-3.4/F-11
OFD-101A-1.4/I-10, OFD-101A-2.4/G-10, OFD-101A-3.4/G-11

Code Category: A/C

ISI Class / Duke Class: B/B and B/BC

Function: These valves shall open to establish seal injection. These valves shall close for containment isolation.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Closing these valves during power operation will isolate reactor coolant pump seal injection. Reactor coolant pump seal injection must be maintained during power operation to prevent causing a LOCA. Testing these valves at cold shutdown would require the draining of the injection line piping, the connection of leak rate test equipment, and the venting or the reactor coolant pump seals during the refilling of the system. Draining and venting these increases the probability of leaving air in the lines which increases the probability of reactor coolant pump seal damage. In addition, draining and venting these lines increases personnel radiation exposure since the water being drained is reactor coolant system water.

Test Alternative & Frequency:

The valves are full stroke exercised to the open position every three months.

An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closure test. The valves are tested in the closed position each refueling outage during the local leak rate test for each penetration. This alternative is consistent with Section 4.1.4 of NUREG-1482 which states, "If no other practical means is available, it is acceptable to verify that check valves are capable of closing by performing leak rate testing at each reactor refueling outage...The NRC has determined that the need to set up [leak rate] test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage."

Justification for Deferral

Item Number:	ON-LP-01
Valve:	Reactor Coolant System/Low Pressure Injection Isolation Valve 1LP0001, 2LP0001, 3LP0001 Low Pressure Injection Hot Leg Suction Isolation 1LP0002, 2LP0002, 3LP0002
Flow Diagram:	OFD-102A-1.1/H-2, OFD-102A-2.1/H-2, OFD-102A-3.1/H-2 OFD-102A-1.1/H-2, OFD-102A-2.1/H-2, OFD-102A-3.1/H-3
Code Category:	B
ISI Class / Duke Class:	A/B
Function:	The valve shall be capable of being opened after any LOCA to pass flow from the RCS hot leg to the containment sump or the suction of an operating LPI pump. This flow prevents the formation of an unacceptably high concentration of boric acid in the reactor vessel for certain LOCAs.
Test Requirement:	Verify proper valve movement to the open position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	<p>These valves are redundant pressure boundary isolation valves for the RCS. They open to permit flow from RCS decay heat drop line through LPI system for cooling, and back into RCS. They are designed to perform this function at pressures below 350 psig, and interlocks are provided to prevent their opening at pressures higher than 400 psig for LP0001 and 450 psig for LP0002. Opening either of these valves at power would therefore require defeating this interlock.</p> <p>Even if interlocks were defeated, LP0001 cannot be opened at power. The motor operators on these valves are not adequately sized to open the valves against the full RCS pressure differential (practical differential pressure capability limit is about 600-650 psid). Any attempt to do so could result in damage to the motor operators, since the protective torque switches are bypassed on the opening stroke. There is also risk of damage to LP0002 for the same reason, since there is no way to be certain that LP0001 has not leaked by enough to pressurize the upstream side of LP0002.</p>
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves are full stroke exercised to the open position during cold shutdown.</p>

Justification for Deferral

Item Number:	ON-LP-02
Valve:	Low Pressure Injection Header Check Valve 1LP0047, 2LP0047, 3LP0047, 1LP0048, 2LP0048, 3LP0048
Flow Diagram:	OFD-102A-1.2/E-14, OFD-102A-2.2/E-14, OFD-102A-3.2/E-14 OFD-102A-1.2/K-14, OFD-102A-2.2/K-14, OFD-102A-3.2/K-14
Code Category:	A/C
ISI Class / Duke Class:	A/A
Function:	The valve shall open when the LPI pumps are started and the LPI header isolation valves open so that LPI injection can occur. As pressure isolation valves (PIVs), maximum allowable leakage for this valve is established within Technical Specifications. The valves are containment isolation valves for the LPI injection headers.
Test Requirement:	Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.
Basis for Deferral:	These valves open to permit flow from LPI system into RCS. During plant operation, aligning LPI pumps' suction headers to the RCS would result in overpressurization of LPI system. When taking suction from the BWST, the discharge pressure of the LPI pumps is insufficient to pass flow into the RCS through these valves. No alternate pressure source or flow path exists through which flow can be passed through these valves at power. Testing the valves in the closed position is limited to leak rate testing of the valves.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves will be full stroke exercise open during cold shutdown.</p> <p>The valves will be tested closed on a frequency consistent with Technical Specifications. Technical Specifications requires the valves to be leak rate tested each cold shutdown if the test has not been performed within the last nine months. This alternative is more conservative than the alternative documented within Section 4.1.4 of NUREG-1482 which states, "If no other practical means is available, it is acceptable to verify that check valves are capable of closing by performing leak rate testing at each reactor refueling outage...The NRC has determined that the need to set up [leak rate] test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage".</p>

Justification for Deferral

Item Number:	ON-LP-03
Valve:	Post0LOCA Boron Dilution Isolation 1LP0103, 2LP0103, 3LP0103, 1LP0104, 2LP0104, 3LP0104
Flow Diagram:	OFD-102A-1.1/H-2, OFD-102A-2.1/G-2, OFD-102A-3.1/G-2 OFD-102A-1.1/G-2, OFD-102A-2.1/F-2, OFD-102A-3.1/G-2
Code Category:	B
ISI Class / Duke Class:	A/A
Function:	The valves shall be capable of opening after any LOCA to align a flow path to direct fluid from the RCS hot leg to the containment sump. This prevents the formation of an unacceptably high concentration of boric acid in the reactor vessel for certain LOCAs.
Test Requirement:	Verify proper valve movement to the open position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	<p>These valves are redundant pressure boundary isolation valves for the RCS. They open to permit flow from RCS decay heat drop line into the RB emergency sump. They are designed to perform this function at pressures below 400 psig.</p> <p>LP0103 cannot be opened at power, since the motor operator is not designed to handle full RCS differential pressure. (Practical limitation on opening differential pressure for these valves is 1000-1300 psid.) Attempting to open LP0103 at power would result in damage to the motor operators, since the protective torque switches are bypassed on the opening stroke. There is also risk of damage to LP0104 for the same reason, since there is no way to be certain that LP0103 has not leaked by enough to pressurize the upstream side of LP0104.</p>
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves will be full stroke exercised open during cold shutdown.</p>

Justification for Deferral

Item Number:	ON-LP-04
Valve:	LPI Pump A Discharge Check Valve 1LP0031, 2LP0031, 3LP0031
Flow Diagram:	OFD-102A-1.2/K-5, OFD-102A-2.2/K-5, OFD-102A-3.2/K-5
Code Category:	C
ISI Class / Duke Class:	B/B
Function:	The valve shall open so that the Low Pressure Injection pump can supply flow to the reactor vessel. The valve shall close to prevent back flow through the pump when the pump is not running and the LPI Discharge headers are cross-connected.
Test Requirement:	Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.
Basis for Deferral:	To test the "A" Low Pressure Injection (LPI) Header at power, it must be recirculated to the BWST. The flow rate that can be obtained under test conditions is approximately 1000 GPM. Since there is no direct, external indication of valve position, there is no means for determining if the valves are full-stroke exercised at this flow rate.
Test Alternative & Frequency	<p>Per Oma-1988 Part 10, the valves are full stroke exercised to the closed position every three months.</p> <p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the open test.</p> <p>Per Oma-1988 Part 10, the valves are partially stroked to the open position every three months. The valves are full stroke exercised to the open position during cold shutdown.</p>

Justification for Deferral

Item Number:	ON-LP-05
Valve:	BWST Outlet Isolation Valve 1LP0028, 2LP0028, 3LP0028
Flow Diagram:	OFD-102A-1.1/H-10, OFD-102A-2.1/H-10, OFD-102A-3.1/H-10
Code Category:	B
ISI Class / Duke Class:	B/C
Function:	These manual isolation valves are normally locked open to align the Borated Water Storage Tank (BWST) to the suction of the ECCS pumps when ECCS is required to operate per Technical Specifications. The valve shall be capable of being manually closed to prevent reverse flow from the containment sump to the BWST after a postulated accident if either valve LP0021 or LP0022 fails to close.
Test Requirement:	Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	Closing these valves at power would isolate the suction of Low Pressure Injection, Reactor Building Spray, and High Pressure Injection from their source of borated water. This alignment is not allowed by Technical Specifications.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, these manual isolation valves will be full stroke exercised during cold shutdown.</p>

Justification for Deferral

Item Number:	ON-LP-06
Valve:	LPI Cooler To HPI Pump Suction Header Check Valve 1LP0055, 2LP0055, 3LP0055, 1LP0057, 2LP0057, 3LP0057
Flow Diagram:	OFD-101A-1.3/K-3, OFD-102A-2.3/K-3, OFD-102A-3.3/K-3 OFD-101A-1.3/C-3, OFD-102A-2.3/C-3, OFD-102A-3.3/C-3
Code Category:	C
ISI Class / Duke Class:	B/B
Function:	The valve shall be capable of opening when aligning the HPI pumps in piggyback mode to allow flow from LPI discharge header to the suction of the HPI pumps.
Test Requirement:	Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.
Basis for Deferral:	Stroking these valves open during power operation would cause injection of highly borated water into the RCS, necessitating extensive cleanup. Late in core life injecting BWST water (>1800 ppm boron) would cause a rapid power transient and consequent reactor trip. Full stroking these valves open at cold shutdown could prevent reactor startup due to a relatively high boron concentration. In addition, full stroke exercising these valves at power or cold shutdown could cause overpressurization of the RCS.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, The valves are partially stroked open during cold shutdown and full stroke exercise to the open position each refueling. During refueling outages, adequate venting of the RCS is established to prevent overpressurization.</p>

Justification for Deferral

Item Number:	ON-LP-07
Valve:	LPI Header Isolation Valve 1LP0017, 2LP0017, 3LP0017, 1LP0018, 2LP0018, 3LP0018
Flow Diagram:	OFD-102A-1.2/K-13, OFD-102A-2.2/K-13, OFD-102A-3.2/K-13 OFD-102A-1.2/E-13, OFD-102A-2.2/E-13, OFD-102A-3.2/E-13
Code Category:	B
ISI Class / Duke Class:	B/B
Function:	These valves shall open to align the Low Pressure Injection Headers for emergency injection to the RCS. The valve shall be capable of being closed in the event of a Core Flood line break LOCA.
Test Requirement:	Verify proper valve movement to the open and closed position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	Technical Specifications do not allow these valves to be stroked during power operation. Technical Specifications limits stroking of these valves to cold shutdown conditions.
Test Alternative & Frequency	An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed. Per Oma-1988 Part 10, the valves are full stroke exercised open and closed during cold shutdown.

Justification for Deferral

Item Number: ON-LP-08

Valve: Post-LOCA Alternate Boron Dilution Isolation Valve
1LP0105

Flow Diagram: OFD-102A-1.1/H-2

Code Category: B

ISI Class / Duke Class: B/B

Function: The valve shall be capable of being opened after any LOCA to align a flow path to direct fluid from the RCS hot leg to the containment sump. This prevents the formation of an unacceptably high concentration of boric acid in the reactor vessel for certain LOCAs.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: The valve and piping arrangement is unique to Unit-1. The LPI suction from the Reactor Coolant System (RCS) has a high point that may get vapor locked if used as a gravity flow path (to mitigate boron precipitation concern post accident). Cycling of this valve will drain this portion of the LPI suction and introduce air. Due to this system constraint, this valve must be kept closed in order to avoid damaging the LPI pump(s). This valve must only be cycled when the system can be replenished properly and vented to ensure that the LPI suction from the RCS is maintained water solid. The RCS cannot replenish this line at power due to system pressure/temperature design limitations.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valve is full stroke exercised open during cold shutdown.

Justification for Deferral

Item Number: ON-LP-09

Valve: BWST Supply to LPI Pump Check Valve
1LP0029, 2LP0029, 3LP0029, 1LP0030, 2LP0030, 3LP0030

Flow Diagram: OFD-102A-1.1/F-6, OFD-102A-2.1/F-6, and OFD-102A-3.1/F-6
OFD-102A-1.1/D-6, OFD-102A-2.1/D-6, and OFD-102A-3.1/D-6

Code Category: A/C

ISI Class / Duke Class: B/B

Function: These valves shall open to supply water from the BWST to the suction of the LPI and RBS pumps. These valves shall be capable of closing when swapping the suction of LPI Pumps from the BWST to the sump following an accident. This isolates flow from the Reactor Building Emergency Sump to the BWST.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves to the closed position can only be accomplished by local leak rate testing since there is no means to simulate reverse flow in the line.

Test Alternative & Frequency Per Oma-1988 Part 10, the valves are full stroke exercised to the open position every three months.

An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed to assure the closure function of the valves. The valves are tested in the closed position each refueling outage during the local leak rate test for each penetration. This alternative is consistent with Section 4.1.4 of NUREG-1482 which states, "If no other practical means is available, it is acceptable to verify that check valves are capable of closing by performing leak rate testing at each reactor refueling outage...The NRC has determined that the need to set up [leak rate] test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage."

Justification for Deferral

Item Number: ON-LPSW-01

Valve: RCP Motor Bearing and Air Coolers Isolation Valve
1LPSW0006, 2LPSW0006, 3LPSW0006
1LPSW0015, 2LPSW0015, 3LPSW0015

Flow Diagram: OFD-124B-1.4/L-4, OFD-124B-2.4/L-2, OFD-124B-3.4/L-4
OFD-124B-1.4/G-14, OFD-124B-2.4/G-14, OFD-124B-3.4/G-14

Code Category: A

ISI Class / Duke Class: B/F

Function: Valve shall close to provide containment isolation

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: These valves isolate flow to the reactor coolant pump motor coolers. Closure of these valves during power operation would result in overheating and consequent damage to the reactor coolant pumps.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised closed during cold shutdown.

Justification for Deferral

Item Number:	ON-LPSW-02
Valve:	Non-Essential Header Isolation Valve 3LPSW0139
Flow Diagram:	OFD-124A-3.1/E-10
Code Category:	B
ISI Class / Duke Class:	C/F
Function:	Valve shall close prior to aligning LPSW to the LPI Coolers to ensure adequate LPSW pump NPSH and sufficient LPSW flow to the safety related loads.
Test Requirement:	Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	Closure of this valve at power would interrupt cooling water to the main turbine oil tank. This would increase turbine oil temperature, which could lead to high vibrations, manual turbine trip, and turbine damage.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valve is full stroke exercised closed during cold shutdown.</p>

Justification for Deferral

Item Number: ON-LPSW-03

Valve: LPSW Header to the HPI Pump Motor Bearing Cooling Jacket Supply Check Valve
1LPSW0148, 1LPSW0151, 2LPSW0503, 3LPSW0148, 3LPSW0503

Flow Diagram: OFD-124B-1.1/L-4, OFD-124B-1.1/F-3, OFD-124B-2.1/G-3
OFD-124B-3.1/L-4, OFD-124B-3.1/F-3

Code Category: C

ISI Class / Duke Class: C/F

Function: These valves shall open to allow LPSW cooling water to the HPI pump motor bearing coolers.

During a tornado event, these valves shall close to prevent Auxiliary Service Water from entering the LPSW supply header.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Closure of this valve at power would interrupt cooling water to the main turbine oil tank. This would increase turbine oil temperature which could lead to high vibrations, manual turbine trip, and turbine damage.

Test Alternative & Frequency Per Oma-1988 Part 10, the valves are stroked to the open position every three months.

An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closure test.

The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the full closure function of the valves.

Justification for Deferral

Item Number: ON-LPSW-05

Valve: RBCU Cooling Coil Outlet Isolation Valves
1LPSW0018, 2LPSW0018, 3LPSW0018
1LPSW0021, 2LPSW0021, 3LPSW0021
1LPSW0024, 2LPSW0024, 3LPSW0024
B RBCU Cooling Coil Inlet Isolation Valves
1LPSW-566, 2LPSW-566, 3LPSW-566

Flow Diagram: OFD-124B-1.2/D-3, OFD-124B-2.2/D-3, OFD-124B-3.2/C-3
OFD-124B-1.2/D-8, OFD-124B-2.2/D-8, OFD-124B-3.2/C-8
OFD-124B-1.2/D-12, OFD-124B-2.2/D-12, OFD-124B-3.2/C-12
OFD-124B-1.2/I-2, OFD-124B-2.2/I-2, OFD-124B-3.2/I-2

IST Valve Category: B

ISI Class / Duke Class: B/F

Function: These valves shall open to allow LPSW flow through the RBCU cooling coils.

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: From a system review performed to meet the concerns addressed within Generic Letter 96-06, the potential for a water hammer within the LPSW piping with the outlet isolation valves closed was identified. The operability evaluation performed to address the potential water hammer concluded that closing these valves at power operation is not allowed by Technical Specifications. Since these valves can not be (fully) closed, it is not possible to perform a full stroke exercise open.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

During monthly Engineered Safeguards testing, the valves are partially stroked from the throttled position to the full open position.

Per Oma-1988 Part 10, the valves are full stroke exercised to the open position during cold shutdown.

Justification for Deferral

Item Number: ON-MS-01

Valve: Main Turbine Stop Valves
1MS0102, 2MS0102, 3MS0102, 1MS0103, 2MS0103, 3MS0103
1MS0104, 2MS0104, 3MS0104, 1MS0105, 2MS0105, 3MS0105

Flow Diagram: OFD-122B-1.1/J-3, OFD-122B-2.1/J-3, OFD-122B-3.1/J-3
OFD-122B-1.1/J-4, OFD-122B-2.1/J-4, OFD-122B-3.1/J-4
OFD-122B-1.1/J-4, OFD-122B-2.1/J-4, OFD-122B-3.1/J-4
OFD-122B-1.1/J-5, OFD-122B-2.1/J-5, OFD-122B-3.1/J-5

Code Category: B

ISI Class / Duke Class: B/F

Function: These hydraulically operated valves shall close to isolate the unaffected steam generator during a main steam line break. The main turbine stop valves limit the Reactor Coolant System cool down rate and resultant reactivity insertion following a main steam line break accident. The valves shall also close to isolate the affected steam generator following a steam generator tube rupture. For a number of events, failure to close could result in an uncontrolled cool down (and is unanalyzed). The main turbine stop valves also shall close as required to preserve the seismic boundary of the system.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves at full power results in a water hammer effect which is considered to be a cause of steam generator tube leaks and additional stress is placed on the Steam Generators from the upsets in steam flow. Stroke testing these valves at power operation requires a power reduction to ~ 86 %, which is undesirable due to the increased risk of xenon transients during power maneuvering.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are partially stroked to the closed position every three months. The valves are full stroke exercised to the closed position during cold shutdown.

Justification for Deferral

Item Number: ON-MS-02

Valve: Main Steam Bypass Valves
1MS0017, 2MS0017, 3MS0017, 1MS0026, 2MS0026, 3MS0026

Flow Diagram: OFD-122A-1.2/I-5, OFD-122A-2.2/I-4, OFD-122A-3.2/I-4
OFD-122A-1.2/D-5, OFD-122A-2.2/D-4, OFD-122A-3.2/D-4

Code Category: B

ISI Class / Duke Class: B/F or non-Code class/G

Function: These valves shall close to isolate the affected steam generator in the event of a Steam Generator Tube Rupture.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: These valves' torque switches are set up based on a differential pressure of 400 psid. Stroke exercising these valves at power would introduce a 900 psid differential pressure across them. Imposing this differential pressure on the valve would inhibit a full stroke closed based on the torque setting and damage the operator on the open stroke due to the torque switch being bypassed on open. In the event of a turbine trip, exercising these valves will eliminate our bypass capability.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised closed during cold shutdown.

Justification for Deferral

Item Number:	ON-MS-03
Valve:	Main Steam to the Main Feedwater Pump Turbine Isolation Valve 1MS0035, 2MS0035, 3MS0035, 1MS0036, 2MS0036, 3MS0036
Flow Diagram:	OFD-122A-1.3/L-3, OFD-122A-2.3/L-2, OFD-122A-3.3/L-2 OFD-122A-1.3/F-2, OFD-122A-2.3/F-2, OFD-122A-3.3/F-2
Code Category:	B
ISI Class / Duke Class:	B/F
Function:	This valve shall close to isolate the affected steam generator in the event of a Steam Generator Tube Rupture.
Test Requirement:	Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	Exercising these valves at power operations could cause a swing of main feedwater flow and a possible reactor runback or trip.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves are full stroke exercised closed during cold shutdown.</p>

Justification for Deferral

Item Number:	ON-MS-04
Valve:	Main Steam Supply to 2nd Stage Reheaters Isolation Valve 1MS0076, 2MS0076, 3MS0076, 1MS0079, 2MS0079, 3MS0079
Flow Diagram:	OFD-122A-1.1/C-10, OFD-122A-2.1/I-10, OFD-122A-3.1/I-10 OFD-122A-1.1/I-10, OFD-122A-2.1/C-10, OFD-122A-3.1/C-10
Code Category:	B
ISI Class / Duke Class:	B/F
Function:	These valves shall close to isolate the affected steam generator in the event of a Steam Generator Tube Rupture.
Test Requirement:	Verify proper valve movement to the closed position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	Exercising these valves at power operation isolates the second stage reheater allowing lower temperature, higher moisture content steam to the Low Pressure Turbines. Unit response would be a loss of power generation, a secondary transient and increased thermal differences across the low pressure turbines steam inlet, possibly beyond the manufacturer recommendations.
Test Alternative & Frequency	An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed. Per Oma-1988 Part 10, the valves are full stroke exercised closed during cold shutdown.

Justification for Deferral

Item Number: ON-MS-06

Valve: Main Steam Supply to the Turbine Driven Emergency Feedwater Pump
Turbine Check Valve
1MS0083, 2MS0083, 3MS0083, 1MS0085, 2MS0085, 3MS0085

Flow Diagram: OFD-122A-1.4/H-2, OFD-122A-2.4/H-2, OFD-122A-3.4/H-2
OFD-122A-1.4/G-2, OFD-122A-2.4/G-2, OFD-122A-3.4/G-2

Code Category: C

ISI Class / Duke Class: C/F

Function: These valves shall open to allow steam flow to reach the emergency feedwater pump turbine. These valves shall close to isolate an affected from an unaffected generator in the event of a Main Steam Line Break.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Due to system constraints, there is no means to verify these valves close upon cessation or reversal of flow.

Test Alternative & Frequency Per Oma-1988 Part 10, the valves are full stroke exercised to the open position every three months.

An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed for the closure test.

The valves are sample disassembled during each refueling outage based on the guidelines within NUREG-1482 to assure the closure function of the valves.

Justification for Deferral

Item Number: ON-N-01

Valve: Core Flood Tank Nitrogen Supply Check Valve
1N0129, 2N0129, 3N0129, 1N0131, 2N0131, 3N0131

Flow Diagram: OFD-127B-1.2/J-7, OFD-127B-2.2/J-7, OFD-127B-3.2/J-7
OFD-127B-1.2/G-7, OFD-127B-2.2/G-7, OFD-127B-3.2/G-7

Code Category: A/C

ISI Class / Duke Class: B/F

Function: These valves shall close to for containment isolation.

Test Requirement: Verify proper valve movement to the closed position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves can only be accomplished by local leak rate testing since there is no other means to simulate reverse flow in the line.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed to assure the closure function of the valves. The valves are tested in the closed position each refueling outage during the local leak rate test for each penetration. This alternative is consistent with Section 4.1.4 of NUREG-1482 which states, "If no other practical means is available, it is acceptable to verify that check valves are capable of closing by performing leak rate testing at each reactor refueling outage...The NRC has determined that the need to set up [leak rate] test equipment is adequate justification to defer backflow testing of a check valve until a refueling outage."

Justification for Deferral

Item Number: ON-RC-02

Valve: Pressurizer Spray
1RC0001, 2RC0001, 3RC0001

Flow Diagram: OFD-100A-1.2/H-10, OFD-100A-2.2/H-10, OFD-100A-3.2/H-10

Code Category: B

ISI Class / Duke Class: A/A

Function: These valves shall be capable of opening and closing as one means of reducing RCS pressure following a Steam Generator Tube Rupture.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Exercising these valves open above cold shutdown conditions will cause unnecessary reactor coolant system pressure transients.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised to the open and closed positions during cold shutdown.

Justification for Deferral

Item Number: ON-RC-04

Valve: Pressurizer Power Operated Relief Valve (PORV)
1RC0066, 2RC0066, 3RC0066

Flow Diagram: OFD-100A-1.2/J-9, OFD-100A-2.2/J-9, OFD-100A-3.2/J-9

IST Valve Category: B

ISI Class / Duke Class: A/A

Function: These valves shall be capable of opening and closing to provide one train of LTOP Protection.

These valves shall be capable of being opened and closed from the control room to provide an RCS vent path.

These valves shall be capable of being closed during a design basis event. These valves could be opened following a design basis event and reclosure could be required to isolate the RCS pressure boundary.

These valves shall be capable of opening and closing as one means of reducing RCS pressure following a Steam Generator Tube Rupture.

Test Requirement: Verify proper valve movement to the open and closed positions every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Per NUREG-1482 Section 4.4.1, the NRC recognized that the PORVs have shown a high probability of sticking open and are not needed for overpressure protection during power operation. The NRC has deemed therefore, quarterly testing at power operation "not practical".

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised to the open and closed positions during cold shutdown.

Justification for Deferral

Item Number:	ON-RX-01
Valve:	Reactor Vessel Internal Vent Valves 1RC03RX, 2RC03RX, 3RC03RX
Flow Diagram:	None
IST Valve Category:	C
ISI Class / Duke Class:	A/A
Function:	These valves shall open when the pressure in the core exit plenum is above the pressure in the core downcomer region. This function reduces the pressure in the core exit plenum during postulated cold leg breaks and is required to assure an adequate amount of ECCS water reaches the fuel. There are eight 14" diameter check valves mounted in the Core Support Shield that effectively separates the core outlet plenum from the inlet nozzles and downcomer. These valves are normally closed and required to remain closed during normal operation and for postulated hot leg breaks since reverse flow during these modes would bypass the core.
Test Requirement:	Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.
Basis for Deferral:	During power operation or cold shutdown conditions, there are no means to exercise these valves. The reactor vessel head must be removed in order to test these valves to the open and closed positions.
Test Alternative & Frequency	Per NUREG-1482 guidelines and Om-10 requirements, the valves are tested each refueling outage. Each refueling outage the reactor vessel head is removed allowing the valves to be tested. The valves are tested by measuring the forces required to open the valves. Acceptance criteria for the forces required to open the valves is based on accident analyses.

Justification for Deferral

Item Number: ON-SSF-01

Valve: SSF Steam Generator Feedwater Control Valve
SSF-1CCW0269, SSF-2CCW0269, SSF-3CCW0269

Flow Diagram: OFD-121D-1.1/G-13, OFD-121D-2.1/G-13, OFD-121D-3.1/G-13

Code Category: B

ISI Class / Duke Class: C/B

Function: In an SSF emergency these valves can be throttled open from SSF Control Room to allow Auxiliary Feedwater from several sources to feed the "A" Steam Generator.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: Technical Specifications require emergency feedwater train separation when a unit is above 250 degrees F. Exercising this valve at power would violate technical Specifications. Failure of these valves during Exercise Testing at Power Operation would result in Auxiliary Feedwater Injection being distributed to both the "A" and "B" Steam Generators. These valves are in an inaccessible radiation area during normal power operation.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised to the open and closed positions during cold shutdown.

Justification for Deferral

Item Number: ON-SSF-02

Valve: RC Make up to RCP, HPI Boundary Check
SSF-1HP0399, SSF-2HP0399, SSF-3HP0399
SSF-1HP0400, SSF-2HP0400, SSF-3HP0400
SSF-1HP0401, SSF-2HP0401, SSF-3HP0401
SSF-1HP0402, SSF-2HP0402, SSF-3HP0402

Flow Diagram: OFD-101A-1.5/G-14, OFD-101A-2.5/H-13, OFD-101A-3.5/H-13
OFD-101A-1.5/H-14, OFD-101A-2.5/G-13, OFD-101A-3.5/G-14
OFD-101A-1.5/F-14, OFD-101A-2.5/F-13, OFD-101A-3.5/F-14
OFD-101A-1.5/F-14, OFD-101A-2.5/F-13, OFD-101A-3.5/F-14

Code Category: C

ISI Class / Duke Class: B/B

Function: In an SSF emergency these valves open to allow flow from the RC Makeup System to the RC Pump Seal Supply

Test Requirement: Verify proper valve movement to the open position every three months as required per Section 4.3 of Oma-1988 Part 10.

Basis for Deferral: Any exercise testing of these valves at Power Operation would result in injecting Spent Fuel Pool Water into the RC Pump Seals. This could result in Power Transients, Uncontrolled Reactivity Changes, Reactor Trips or Extensive Cleanup Requirements, particularly near the end of cycle.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised to the open position during cold shutdown.

Justification for Deferral

Item Number:	ON-SSF-03
Valve:	RC Make Up Discharge to RC Pump Seals Block SSF-1HP0398, SSF-2HP0398, SSF-3HP0398
Flow Diagram:	OFD-101A-1.5/F-11, OFD-101A-2.5/F-12, OFD-101A-3.5/F-12
Code Category:	B
ISI Class / Duke Class:	B/B
Function:	These valves are normally closed to prevent Spent Fuel Pool Flow from the RC Makeup System to the RC Pump Seals. In an SSF emergency, they open on command from the SSF to allow the RC Makeup System to supply emergency RC Pump seal water.
Test Requirement:	Verify proper valve movement to the open position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	Failure of these valves to close during exercise testing at power operation would result in injecting Spent Fuel Pool water into the RC Pump Seals at the next running of the RC Makeup Pump. This valve is inaccessible during power operation due to the local radiation fields in the reactor building. Seat leakage could result in power transients, uncontrolled reactivity changes, reactor trips or extensive cleanup requirements, particularly near the end of the cycle.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves are full stroke exercised to the open position during cold shutdown.</p>

Justification for Deferral

Item Number: ON-SSF-04

Valve: RCS Letdown to Spent Fuel Pool Inside Containment Isolation
SSF-1HP0426, SSF-2HP0426, SSF-3HP0426

Flow Diagram: OFD-101A-1.5/J-10, OFD-101A-2.5/K-9, OFD-101A-3.5/K-9

Code Category: A

ISI Class / Duke Class: B/B

Function: During an SSF Event, these valves shall be capable of opening, and closing as needed to control flow through their corresponding Unit's SSF RC letdown line so that pressurizer level is maintained within an acceptable range.

Test Requirement: Verify proper valve movement to the open and closed position every three months as required per Section 4.2 of Oma-1988 Part 10.

Basis for Deferral: This valve is the first normally closed valve from the reactor coolant system. Failure of this valve to close during exercise testing during power operation would eliminate double isolation from the reactor coolant system. Any leakage past the second boundary would result in a loss of reactor coolant to the Spent Fuel Pool. Due to high radiation levels, this valve is located in an inaccessible area of the reactor building during power operation, which would prevent manual isolation.

Test Alternative & Frequency An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.

Per Oma-1988 Part 10, the valves are full stroke exercised to the open and closed positions during cold shutdown.

Justification for Deferral

Item Number:	ON-SSF-05
Valve:	SSF ASW to Steam Generator Control/Block Valve SSF-1FDW0347, SSF-2FDW0347, SSF-3FDW0347
Flow Diagram:	OFD-121D-1.1/D-13, OFD-121D-2.1/D-13, OFD-121D-3.1/D-13
Code Category:	B
ISI Class / Duke Class:	C/F
Function:	In an SSF emergency, these valves can be throttled from SSF to control the Auxiliary Feedwater flow to the "B" Steam Generator to bring and maintain the unit in hot shutdown.
Test Requirement:	Verify proper valve movement to the open and closed position every three months as required per Section 4.2 of Oma-1988 Part 10.
Basis for Deferral:	This valve is inaccessible during power operation due to high radiation. Failure of these valves during exercise testing at power operation would result in blocking Auxiliary Feedwater from the "B" Steam Generator.
Test Alternative & Frequency	<p>An alternative test method based on the guidelines within NUREG-1482 and the requirements within Oma-1988 Part 10 is followed.</p> <p>Per Oma-1988 Part 10, the valves are full stroke exercised to the open and closed positions during cold shutdown.</p>

CORRESPONDENCE

Duke Power Company
Oconee Nuclear Site
P.O. Box 1439
Seneca, SC 29679

J. W. HAMPTON
Vice President
(803) 885-3499 Office
(803) 885-3564 Fax



DUKE POWER

September 28, 1995

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


Subject: Duke Power Company
Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Inservice Testing Program, Revision 23
Third Ten-Year Inservice Inspection Interval

Pursuant to 10CFR 50.55a, Revision 23 to the ONS IST Program is enclosed. The revision is divided into two attachments as follows:

- 1) Summary of Changes
- 2) Instructions for insertion of revised pages and ONS ASME IST Program Revision 23

If there are any questions or additional information is needed, you may contact D. A. Nix at (803) 885-3634.

Very truly yours,


J. W. Hampton
Site Vice-President

Attachments

U. S. Nuclear Regulatory Commission
Page 2

xc w/attachment: L. A. Wiens, Projects Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

xc wo/attachment: Mr. S. D. Ebner
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission

Mr. P. E. Harmon
Senior NRC Resident Inspector
Oconee Nuclear Station

Mr. Max Batavia
Bureau of Radiological Health
SC Dept. of Health & Environmental Control
2600 Bull St.
Columbia, SC 29201

U. S. Nuclear Regulatory Commission
Page 3

bxc w/att: J. M. Boyles
D. A. Nix
A. N. Anderson
D. H. Wood

bxc w/o att: G. K. McAninch
S. L. Nader
J. O. Barbour
M. B. Chapman
T. J. Coleman
ELL EC050

**ATTACHMENT 1
SUMMARY OF CHANGES**

1. The following valves are no longer included in Oconee's ASME IST Program since they do not meet the scope of this program. These valves are installed in Duke Class G piping. Class G piping is not ASME Code Class 1, 2, or 3. These valves will be tested per Oconee's supplemental, 10 CFR50 Appendix B Testing Program.

1AS-001	1LPSW-525
2AS-001	2LPSW-525
3AS-001	3LPSW-525
1AS-040	1MS-025
2AS-040	2MS-025
3AS-040	3MS-025
1FDW-091	1MS-034
2FDW-091	2MS-034
3FDW-091	3MS-034
1LPSW-516	
2LPSW-516	
3LPSW-516	

2. Valves 2LPSW-151 and 3LPSW-151 have been removed from the system per OE-6751 and OE-7145, respectively.
3. Valves 3BS-005 and 3BS-006 have been cut-out and not replaced per OE-7143 and OE-7144, respectively.
4. The following valves are no longer included in Oconee's ASME IST Program since they do not meet the scope of this program. These valves are no longer active per OSS-0254.00-00-1002. The non-safety related function of these valves will be tested per Oconee's supplemental, 10CFR50 Appendix B Testing Program.

1HPSW-184
2HPSW-184
3HPSW-184
1HPSW-193
2HPSW-193
3HPSW-193

5. Valve 2LPSW-900 is no longer included in Oconee's ASME IST Program since it does not meet the scope of this program. This valve is no longer active per OSS-0254.00-00-1039. The non-safety related function of this valve will be tested per Oconee's supplemental, 10CFR50 Appendix B Testing Program.

SUMMARY OF CHANGES
Attachment I - Continued

6. Valve 1CCW-009 is not active per Design Basis Document OSS-0254.00-00-1003 and has been removed from the IST Program.
7. Valve 1CCW-383 is not active per active valve calculation OSC-3590 and has been removed from the IST Program.

8. Per the referenced Design Basis Documents (DBD), the following valves are added to the Pump and Valve Inservice Testing Program for the noted reasons:

<u>Valve</u>	<u>DBD Number</u>	<u>Reason</u>
1LPSW-931	OSS-0254.00-00-1039	Active
2LPSW-931	OSS-0254.00-00-1039	Active
3LPSW-931	OSS-0254.00-00-1039	Active
1PR-115	OSS-0254.00-00-1023	Active
2PR-115	OSS-0254.00-00-1023	Active
3PR-115	OSS-0254.00-00-1023	Active
1PR-116	OSS-0254.00-00-1023	Active
2PR-116	OSS-0254.00-00-1023	Active
3PR-116	OSS-0254.00-00-1023	Active
1SF-074	OSS-0254.00-00-1006	Containment Isolation
2SF-074	OSS-0254.00-00-1006	Containment Isolation
3SF-074	OSS-0254.00-00-1006	Containment Isolation

9. Changes made in Section 4.1 - Valve Generic Relief Requests - as follows:

- ⇒ Revised GNR-VLV-10, based on comments in 4/21/95 SER from NRC.
- ⇒ Revised Table 4.1 to reflect changes.

10. Changes made in Section 4.2 - Valve Specific Relief Requests - as follows:

- ⇒ Revised RR-VLV-11 to delete valves 3BS-005 and 3BS-006.
- ⇒ Revised Table 4.2 to reflect changes.

11. Changes made in Section 4.3 - Valve Justification for Deferral - as follows:

- ⇒ Revised ON-LP-02 - Changed Test Alternative and Frequency to include "stroked open".
- ⇒ Added ON-LP-08 - Generated a new deferral on 1LP-105 as a result of internal review.
- ⇒ Added ON-RC-03, Page 1 of 1 - This Interim Justification for Deferral was submitted due to un-isolable leakage concerns with 1RC-4 and 1RC-66.
- ⇒ Removed ON-AS-02, Page 1 of 1 - Valves removed from Program.
- ⇒ Removed ON-MS-05, Page 1 of 1 - Valves removed from Program.
- ⇒ Revised ON-CF-01, Page 1 and 2 - Deleted seat leakage portion.
- ⇒ Revised ON-CF-02, Page 1 and 2 - Deleted seat leakage portion.
- ⇒ Revised Table 4.3 to reflect changes.

SUMMARY OF CHANGES

Attachment I - Continued

12. Changes made in Section 4.4 - Pump Generic Relief Requests - as follows:

- ⇒ Revised GNR-PMP-06.
- ⇒ Deleted GNR-PMP-05, ONS is now in compliance with Code.
- ⇒ Revised GNR-PMP-02, Added discussion which was unintentionally omitted from revision 22 of Oconee's ASME IST Program.
- ⇒ Revised Table 4.4 to reflect changes.

13. Program Document

- ⇒ General changes sections 1.0 - 9.0. All changes are marked Revision 23.

14. Revisions to Flow Diagrams have altered some Flow Coordinates. These coordinates have been corrected and are as follows:

- | | | |
|----------------|-------------|-----|
| ⇒ ICCW-271-SSF | should read | H06 |
| ⇒ ICCW-274-SSF | should read | J06 |
| ⇒ ICCW-284-SSF | should read | G06 |
| ⇒ ICCW-286-SSF | should read | G10 |
| ⇒ ICCW-289-SSF | should read | J09 |
| ⇒ ILP-016 | should read | D11 |
| ⇒ 3FDW-378 | should read | J04 |

15. All changes to the IST Program are marked and noted by "Rev. 23."

ATTACHMENT 2
INSTRUCTIONS FOR INSERTION OF REVISED PAGES

Attachment 3 contains revised pages for insertion/replacement into IST Program Manual. Replace pages in the manual as follows:

<u>SECTION</u>	<u>REMOVE PAGE (s)</u>	<u>INSERT PAGE (s)</u>
Program Cover Sheet (Signed)	Revision 22	Revision 23
Valve List ONS1	1	1
	7	7
	12	12
	13	13
	20	20
	22	22
	23	23
	24	24
	27	27
	28	28
	30	30
	31	31
	32	32
Valve List ONS2	1	1
	11	11
	12	12
	18	18
	22	22
	25	25
	26	26
	28	28
	30	30
Valve List ONS3	1	1
	3	3
	11	11
	12	12
	18	18
	22	22
	25	25
	26	26
	28	28
	30	30

ATTACHMENT 2
INSTRUCTIONS FOR INSERTION OF REVISED PAGES

<u>SECTION</u>	<u>REMOVE PAGE (s)</u>	<u>INSERT PAGE (s)</u>
4.1 Valve Generic Relief Requests GNR-VLV-10	Table 4.1 Page 1 of 1	Table 4.1 Page 1 of 1
4.2 Valve Specific Relief Requests RR-VLV-11	Table 4.2 Page 1 of 2	Table 4.2 Page 1 of 2
4.3 Valve Justification for Deferrals ON-AS-02 ON-CF-01 ON-CF-01 ON-CF-02 ON-CF-02 ON-LP-02 ON-LP-08 ON-MS-05 ON-RC-03	Table 4.3 Page 1 of 1 Page 1 of 2 Page 2 of 2 Page 1 of 2 Page 2 of 2 Page 1 of 1 Page 1 of 1 Page 1 of 1 Page 1 of 1	Table 4.3 Page 1 of 2 Page 2 of 2 Page 1 of 2 Page 2 of 2 Page 1 of 1 Page 1 of 1 Page 1 of 1
4.4 Pump Generic Relief Requests GNR-PMP-02 GNR-PMP-05 GNR-PMP-05 GNR-PMP-06	Table 4.4 Page 1 of 1 Page 1 of 2 Page 2 of 2 Page 1 of 1	Table 4.4 Page 1 of 1 Page 1 of 1
Program Document	Pages 1 - 32	Pages 1 - 32

Duke Power Company
Oconee Nuclear Site
P.O. Box 1439
Seneca, SC 29679

J. W. Hampton
Site President
(864) 885-3420 Office
(864) 885-3571 Fax



DUKE POWER

March 29, 1996

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

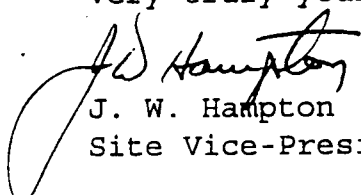
Subject: Duke Power Company
Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Inservice Testing Program, Revision 24
Third Ten-Year Inservice Inspection Interval

Pursuant to 10CFR 50.55a, Revision 24 to the ONS IST Program is enclosed. The revision is divided into three attachments as follows:

- 1) Instructions for insertion of Revision 24
- 2) Summary of Changes
- 3) ONS ASME IST Program Revision 24

If there are any questions or additional information is needed, you may contact D. A. Nix at (803) 885-3634.

Very truly yours,


J. W. Hampton
Site Vice-President

Attachments

U. S. Nuclear Regulatory Commission
March 29, 1996
Page 2

xc w/attachment: L. A. Wiens, Projects Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. S. D. Ebnetter
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission

xc wo/attachment: Mr. P. E. Harmon
Senior NRC Resident Inspector
Oconee Nuclear Station

Mr. Max Batavia
Bureau of Radiological Health
SC Dept. of Health & Environmental Control
2600 Bull St.
Columbia, SC 29201

U. S. Nuclear Regulatory Commission
March 29, 1996
Page 3

bxc w/att: J. M. Boyles
D. A. Nix
A. N. Anderson
D. H. Wood

bxc w/o att: G. K. McAninch
S. L. Nader
J. O. Barbour
M. B. Chapman
T. J. Coleman
ELL EC050

ATTACHMENT 1 INSTRUCTIONS FOR INSERTION OF REVISED PAGES

Attachment 3 contains revised pages for insertion/replacement into IST Program Manual. Replace pages in the manual as follows:

SECTION	REMOVE PAGE(s)	INSERT PAGE (s)
Program Cover Sheet (Signed)	Revision 23	Revision 24
Table of Contents	Table of Contents	Table of Contents
1.0 Unit 1 IST Program	Tab	No Replacement
1.1 Pump Inservice Testing Program	All Pages	New Pump List
1.2 Valve Inservice Testing Program	All Pages	New Valve List
2.0 Unit 2 IST Program	Tab	No Replacement
2.1 Pump Inservice Testing Program	Tab and All Pages	No Replacement
2.2 Valve Inservice Testing Program	Tab and All Pages	No Replacement
3.0 Unit 3 IST Program	Tab	No Replacement
3.1 Pump Inservice Testing Program	Tab and All Pages	No Replacement
3.2 Valve Inservice Testing Program	Tab and All Pages	No Replacement
4.2 Valve Specific Relief Requests RR-VLV-11	Table 4.2 Page 1 of 2	Table 4.2 Page 1 of 2
4.3 Valve Justification for Deferrals ON-LPSW-04	Table 4.3 Pages 1 and 2	Table 4.3 No Replacement
ON-PR-01	Page 1 of 1	Page 1 of 1
ON-RC-01	Page 1 of 1	No Replacement
4.4 Pump Generic Relief Requests	Table 4.4	Table 4.4
4.5 Pump Specific Relief Requests RR-PMP-02	Table 4.5 Pages 1 and 2	Table 4.5 No Replacement
RR-PMP-05		Pages 1 and 2
5.0 Table of Abbreviations	Table 5.0	Table 5.0.

ATTACHMENT 2
SUMMARY OF CHANGES

Changes to pump and valve lists:

1. The pump and valve tables were re-formatted. Components are listed together by system and unit.

Example: 1LP-001
 2LP-001
 3LP-001

 1LP-002
 2LP-002
 3LP-002

2. The following Keowee Hydro valves were added to the IST program because they are active and meet the scope of the IST as defined in the Oconee Nuclear Station ASME Inservice Testing Program Document Section 4.0:

<u>Valve</u>	<u>DBD Number</u>	<u>Valve</u>	<u>DBD Number</u>
1AB-013	OSS-0254.00-00-1048	1GBO-003	OSS-0254.00-00-1043
1AB-014	OSS-0254.00-00-1048	2GBO-003	OSS-0254.00-00-1043
1AB-015	OSS-0254.00-00-1048	1OG-013	OSS-0254.00-00-1045
2AB-023	OSS-0254.00-00-1048	2OG-013	OSS-0254.00-00-1045
2AB-024	OSS-0254.00-00-1048	1OG-016	OSS-0254.00-00-1045
2AB-025	OSS-0254.00-00-1048	2OG-016	OSS-0254.00-00-1045
1AB-033	OSS-0254.00-00-1048	1OG-019	OSS-0254.00-00-1045
1AB-034	OSS-0254.00-00-1048	2OG-019	OSS-0254.00-00-1045
1AB-035	OSS-0254.00-00-1048	1TS-002	OSS-0254.00-00-1047
2AB-043	OSS-0254.00-00-1048	2TS-002	OSS-0254.00-00-1047
2AB-044	OSS-0254.00-00-1048	1TS-004	OSS-0254.00-00-1047
2AB-045	OSS-0254.00-00-1048	2TS-004	OSS-0254.00-00-1047
1AG-003	OSS-0254.00-00-1044	1WL-011	OSS-0254.00-00-1046
2AG-003	OSS-0254.00-00-1044	2WL-011	OSS-0254.00-00-1046
1AG-004	OSS-0254.00-00-1044	1WL-040	OSS-0254.00-00-1046
2AG-004	OSS-0254.00-00-1044	2WL-040	OSS-0254.00-00-1046
1GBO-001	OSS-0254.00-00-1043	1WL-077	OSS-0254.00-00-1046
2GBO-001	OSS-0254.00-00-1043	2WL-077	OSS-0254.00-00-1046

3. The following valves are no longer included in Oconee's ASME IST Program since they do not meet the scope of this program. These valves are not used in the mitigation of FSAR Chapter 15 Accidents. These valves are tested per Oconee's supplemental, 10 CFR50 Appendix B Testing Program.

<u>Valve</u>	<u>DBD Number</u>
1LPSW-137	OSS-0254.00-00-1039
2LPSW-137	OSS-0254.00-00-1039
3LPSW-137	OSS-0254.00-00-1039
1LPSW-138	OSS-0254.00-00-1039
2LPSW-138	OSS-0254.00-00-1039
3LPSW-138	OSS-0254.00-00-1039

<u>Valve</u>	<u>DBD Number</u>
1RC-155	OSS-0254.00-00-1033
2RC-155	OSS-0254.00-00-1033
3RC-155	OSS-0254.00-00-1033
1RC-156	OSS-0254.00-00-1033
2RC-156	OSS-0254.00-00-1033
3RC-156	OSS-0254.00-00-1033
1RC-157	OSS-0254.00-00-1033
2RC-157	OSS-0254.00-00-1033
3RC-157	OSS-0254.00-00-1033
1RC-158	OSS-0254.00-00-1033
2RC-158	OSS-0254.00-00-1033
3RC-158	OSS-0254.00-00-1033
1RC-159	OSS-0254.00-00-1033
2RC-159	OSS-0254.00-00-1033
3RC-159	OSS-0254.00-00-1033
1RC-160	OSS-0254.00-00-1033
2RC-160	OSS-0254.00-00-1033
3RC-160	OSS-0254.00-00-1033

4. Valve 1BS-005 has been cut-out and not replaced per OE-7411.
5. Valve 1BS-006 has been cut-out and not replaced per OE-7412.
6. The following valves are no longer included in Oconee's ASME IST Program since these are no longer active per OSC-3590.

<u>Valve</u>	<u>Active Valve Calc Number</u>
1CCW-304	OSC-3590
2CCW-304	OSC-3590
3CCW-304	OSC-3590

7. The following valves were modified from a gate valve to a globe valve:

<u>Valve</u>	<u>Modification Number</u>
3CCW-269-SSF	OE-7215
1FDW-106	OE-7304
3FDW-106	OE-7135
1FDW-108	OE-7305
3FDW-108	OE-7134
3FDW-347-SSF	OE-7085
1HP-409	OE-7328
3HP-409	OE-7088
1HP-410	OE-7329
3HP-410	OE-7089

8. The following valves were upgraded from ASME Class C piping to ASME Class B piping. This was done in response to PIP 0-O94-1685.

<u>Valve</u>	<u>Modification Number</u>
1HP-055	OE-8024
2HP-055	OE-8027

<u>Valve</u>	<u>Modification Number</u>
3HP-055	OE-8028
1HP-056	OE-8024
2HP-056	OE-8027
3HP-056	OE-8028
1HP-071	OE-8024
2HP-071	OE-8027
3HP-071	OE-8028
1HP-078	OE-8024
2HP-078	OE-8027
3HP-078	OE-8028
1HP-079	OE-8024
2HP-079	OE-8027
3HP-079	OE-8028
1HP-189	OE-8024
2HP-189	OE-8027
3HP-189	OE-8028
1HP-302	OE-8024
2HP-302	OE-8027
3HP-302	OE-8028
1HP-363	OE-7244
2HP-363	OE-6076
3HP-363	OE-6054

9. The following valves are no longer active per design calculation OSC-3606, but will remain in the IST Program because they are containment isolation valves. The valves will continue to be stroked timed per Oconee's supplemental, 10 CFR50 Appendix B Testing Program.

<u>Valve</u>	<u>Calc. Number</u>	<u>Valve</u>	<u>Calc. Number</u>
1PR-001	OSC-3606	1PR-081	OSC-3606
2PR-001	OSC-3606	2PR-081	OSC-3606
3PR-001	OSC-3606	3PR-081	OSC-3606
1PR-002	OSC-3606	1PR-084	OSC-3606
2PR-002	OSC-3606	2PR-084	OSC-3606
3PR-002	OSC-3606	3PR-084	OSC-3606
1PR-005	OSC-3606	1PR-087	OSC-3606
2PR-005	OSC-3606	2PR-087	OSC-3606
3PR-005	OSC-3606	3PR-087	OSC-3606
1PR-006	OSC-3606	1PR-090	OSC-3606
2PR-006	OSC-3606	2PR-090	OSC-3606
3PR-006	OSC-3606	3PR-090	OSC-3606

10. The following valves were incorrectly listed as active and as vacuum breakers. The valve table was revised to correctly state passive and relief valve.

<u>Valve</u>	<u>DBD Number</u>
1LP-060	OSS-0254.00-00-1028
2LP-060	OSS-0254.00-00-1028
3LP-060	OSS-0254.00-00-1028

11. The following valves were incorrectly listed as passive and as relief valves. The valve table was revised to correctly state active and vacuum breaker.

<u>Valve</u>	<u>DBD Number</u>
1LP-061	OSS-0254.00-00-1028
2LP-061	OSS-0254.00-00-1028
3LP-061	OSS-0254.00-00-1028

12. The following valves were incorrectly listed as passive. The valve table was revised to correctly state active. These valves are active per OSS-0254.00-00-1036.

1FDW-103	1FDW-104
2FDW-103	2FDW-104
3FDW-103	3FDW-104

13. The LPSW System was modified per NSM-2972 to allow quarterly testing of LPSW-139.
14. 2FDW-372 was incorrectly listed as full stroke (FS). The valve table was changed to indicate stroke timed (ST).
15. 2HP-405-SSF is not active per OSS-0254.00-00-1004. The valve table was revised to indicate passive and no required stroke test. This valve will remain in the IST program since it is a containment isolation valve.
16. 1LP-105 was incorrectly listed as FS-Q. The valve table was revised to agree with Justification of Deferral ON-LP-08 to indicate ST-CS.
17. 1LP-048, 2HP-097, 2HP-101 and 2HP-102 were incorrectly listed as requiring a 10CFR50 Appendix J leak rate test (LJ). The valve table was revised to require a leak test (LT) per ASME Section XI.
18. 1RC-004 was listed as FS-Q. The valve table was revised to agree with Justification of Deferral ON-RC-03 to indicate ST-CS.
19. Valves 2HP-126, 127, 144, 145, 152, 153, 248, 250, 252, 286, 3HP-457 and 3HP-78 Actuator Type was listed as manual (MA). The Actuator Type was revised to Self Actuated (SA).
20. 2HP-363 was incorrectly list as FS-CS. The valve table was revised to indicate FS-Q.
21. 3HP-194 was incorrectly list as FS-Q. The valve table was revised to indicate PS-Q.
22. Deleted unit designation for shared valves 1LPSW-25, 1LPSW-28 and 1LPSW-31. Valves now appear as LPSW-25, LPSW-28 and LPSW-31.
23. Deleted unit designation for shared valves 1CCW-382 and 1CCW-384. Also added SSF suffix. Valves now appear as CCW-382-SSF and CCW-384-SSF.
24. Deleted unit designation for shared valves 1CCW-271-SSF, 1CCW-274-SSF, 1CCW-284-SSF, 1CCW-286-SSF and 1CCW-289-SSF. Valves now appear as CCW-271-SSF, CCW-274-SSF, CCW-284-SSF, CCW-286-SSF and CCW-289-SSF.

25. Added the following Keowee pumps to the IST Program:

AC Turbine Sump Pump 1 K1TSPU0088SA
AC Turbine Sump Pump 2 K2TSPU0088SA
DC Turbine Sump Pump 1 K1TSPU0088SD
DC Turbine Sump Pump 2 K2TSPU0088SD

26. 1FDW-372 was incorrectly listed with a refueling (RF) test frequency. The valve table was changed to indicate quarterly (Q).

Changes to Relief Requests and Justification for Deferrals:

1. Changes made in Section 4.2 - Valve Specific Relief Requests - as follows:

Revised RR-VLV-11 to delete valves 1BS-005 and 1BS-006.
Revised Table 4.2 to reflect changes.

2. Changes made in Section 4.3 - Valve Justification for Deferral - as follows:

Delete ON-LPSW-04, Page 1 and 2 - Nuclear Station Modification 2972 installed a bypass to allow quarterly testing of LPSW-139.
Revised ON-PR-01, Page 1 of 1 - Clarified valve stroke requirements.
Remove ON-RC-01, Page 1 of 1 - Valves removed from Program.
Revised Table 4.3 to reflect changes.

3. Changes made in Section 4.4 - Pump Generic Relief Requests - as follows:

Revised Table 4.4 to remove the applicability description for GNR-PMP-05 since this relief request was deleted 9/01/95.

4. Changes made in Section 4.5 - Pump Specific Relief Requests - as follows:

Deleted RR-PMP-02 per implementation of OE-7216, OE-7217, and OE-7218.
Added RR-PMP-05.
Revised Table 4.4 to reflect changes.

5. Changes made in Section 5.0 - Table of Abbreviations - as follows:

Revised table 5.0 to reflect updated abbreviations for Actuator Type and Test(s) Performed.

Please note that all changes to the IST Program are marked and noted by "Rev. 24."