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10CFR50.55a

February 5, 2020

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

R. E. Ginna Nuclear Power Plant
Renewed Facility Operating License No. DPR-18
NRC Docket No. 50-244

Subject: Submittal of the Program Plan for the Inservice Testing (IST) Program for the Sixth 10-Year Interval

In accordance with the ASME OM Code-2012 Edition, attached for your information is a copy of the Program Plan for the Inservice Testing (IST) Program for the R. E. Ginna Nuclear Power Plant, associated with the sixth ten-year IST interval. The new interval began on January 1, 2020 and concludes on December 31, 2029.

There are no regulatory commitments contained within this submittal.

If you have any questions or require additional information, please contact David Neff (267) 533-1132.

Sincerely,

David T. Gudger
Sr. Manager - Licensing
Exelon Generation Company, LLC

Attachment: R. E. Ginna Nuclear Power Plant, Inservice Testing Program, Program Plan for the Sixth 10-Year Interval, Revision 0

cc: Regional Administrator, Region I, USNRC
NRC Senior Resident Inspector - Ginna
NRC Project Manager, NRR - Ginna
A. L. Peterson, NYSERDA

ATTACHMENT

R. E. Ginna Nuclear Power Plant
Inservice Testing (IST) Program,
Program Plan for the Sixth 10-Year Interval,
Revision 0

Exelon Nuclear Generation, LLC

300 Exelon Way
Kennett Square, PA 19348

R. E. Ginna Nuclear Power Plant
Unit 1
NRC Docket Number:50-244
1503Lake Road
Ontario, NY 14519

Commercial Service Date: September 19, 1969

Inservice Testing (IST) Program
Program Plan

SIXTH 10-YEAR INTERVAL

1/1/2020– 12/31/2029

Revision 0

01/01/2020

REVISION RECORD

Revision	Effective Date	Revision Description	Sign & Date		
			Prepared; Site IST Program Engineer	Reviewed Corporate IST Engineer	Approved; Engr. Programs Manager
0	1/1/2020	Sixth Ten Year Interval Update	[signature] 12/18/19	[signature] 12/19/19	M. McGraw 12/31/19

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SECTION

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4.0 **ATTACHMENTS**

1.0 Introduction

This document outlines the R. E. Ginna Nuclear Station Unit 1 IST Program for the next 10-year interval based on the requirements of the American Society of Mechanical Engineers (ASME) Operations and Maintenance (OM) 2012 Code Edition. This revision of the R. E. Ginna ASME Inservice Testing (IST) Program will be in effect through the end of the 120-month (10-year) interval unless changed and re-issued for reasons other than the routine update required at the start of the next interval per 10 CFR 50.55a(f). The IST interval begins on January 1, 2020, and is scheduled to end on December 31, 2029.

1.1 Purpose

The purpose of this IST Program is to verify operational readiness of those pumps and valves whose function is required for safety. It is not intended to place the R. E. Ginna Station in a degraded safety condition for the purpose of conducting system or component tests. Therefore, as normally viewed for Code compliance, testing of a safety train will not be performed when any redundant train is out of service. Instead, equipment will be positioned to provide for safe plant operation. Pumps and valves included in this program are those in systems or portions of systems which are required to perform a specific function in shutting down the reactor to a safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident, as identified within R.E. Ginna Station's licensing basis.

R. E. Ginna is licensed for a safe shutdown condition of hot shutdown. As such, OM Code required testing does not apply to those components whose only safety function relied on is for achieving and maintaining a cold shutdown condition.

1.2 Scope

ASME OM-2012 Code (hereafter referred to as 'the OM Code') requires that the owner of each nuclear power plant prepare and submit a "plan" for testing and inspection of systems and components (pumps, valves, and dynamic restraints) under the jurisdiction of the Code and in compliance with Title 10, Part 50 of the Code of Federal Regulations (Para. 50.55a).

Inservice Testing of ASME Class 1, 2, and 3, and other safety-related pumps and valves is performed in accordance with the OM Code, except as allowed by 10CFR50 or where specific written relief has been granted by the NRC pursuant to 10CFR50.55a(f)(6)(i) for examinations and tests determined to be impracticable. Provided guidance of NUREG 1482, Revision 2, is followed, the proposed alternative examinations or tests may be implemented prior to receiving written NRC approval if so stated in the guidance document.

On August 17, 2017, a revision to the Code of Federal Regulations became effective with a revision to the wording of 10CFR50.55a(f)(4). Paragraph (f)(4) now states, in part, "The inservice test requirements for pumps and valves that are within the scope of the ASME OM Code but are not classified as ASME BPV Code Class 1, Class 2, or Class 3 may be satisfied as an augmented IST program in accordance with paragraph (f)(6)(ii) of this section without requesting relief under paragraph (f)(5) of this section or alternatives under paragraph (z) of this section. This use of an augmented IST program may be acceptable provided the basis for deviations from the ASME OM Code, as incorporated by reference in this section, demonstrates an acceptable level of quality and safety, or that implementing the Code provisions would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, where documented and available for NRC review."

1.2 Scope (Cont.)

In accordance with the OM Code and 10CFR50.55a, the following are required to be included in the testing Program:

ASME Class 1, 2, and 3, and other safety-related centrifugal and positive displacement pumps that are provided with an emergency power source and are required to perform a specific function in:

a. Shutting down the reactor to the safe shutdown condition;
b. Maintaining the safe shutdown condition; or
Mitigating the consequences of an accident.

ASME Class 1, 2, and 3, and other safety-related active or passive valves (and their actuating and position indicating systems) which are required to perform a specific function in:

a. Shutting down the reactor to the safe shutdown condition;
b. Maintaining the safe shutdown condition; or
c. Mitigating the consequences of an accident.

ASME Class 1, 2, and 3, and other safety-related pressure relief devices that protect systems or portions of systems which perform a required function in:

a. Shutting down the reactor to the safe shutdown condition;
b. Maintaining the safe shutdown condition; or
c. Mitigating the consequences of an accident.

Dynamic restraints (snubbers) used in systems that perform one or more of the required functions:

a. Shutting down the reactor to the safe shutdown condition;
b. Maintaining the safe shutdown condition; or
c. Mitigating the consequences of an accident.

NOTE: Dynamic restraints (snubbers) are addressed in a separate test program.

In addition to the general OM Code requirements outlined above, there are other interpretations and positions that have come about as a result of past regulatory and licensee actions including NUREG-1482.

The term "accident" refers not only to the design basis accidents analyzed in Chapter 15 of the UFSAR, but to a broad range of possible adverse events which could affect plant safety. Additional accidents and operational transients, and the equipment required to mitigate the possible consequences thereof, are identified in the UFSAR.

The R. E. Ginna safety analysis specifically requires the plant to reach a safe-shutdown condition defined as hot shutdown and not the cold shutdown condition. Per NUREG-1482, Revision 2, pumps and valves in such plants needed only to reach cold shutdown need not be included in the IST Program. However, in some instances, R. E. Ginna has decided to include cold shutdown-related components in the Program for completeness even though compliance with Code requirements may not be required.

1.2 Scope (Cont.)

In light of the foregoing, a set of rules was established by which the scope of the R. E. Ginna ASME OM Code IST Program is determined including components that are to be included and the extent and type of testing required for each component. Based on these rules, the philosophy and assumptions used in determining the test requirements for selected pumps and valves were documented.

In addition to those pumps and valves required to be tested by the Code, other “augmented” components are administratively included in the program from a good engineering and management practice standpoint. The inclusion of components designated as “augmented” within the IST program has been discussed in NUREG-1482, Rev. 2, Section 2.2, Generic Letter 89-04, NRC Staff Position II, “Scope of IST Programs”, and Summary of Public Workshops Held in NRC Regions on Inspection Procedure 73756, Section 1, General Questions. These components are identified as “augmented” in the test tables and need not be tested to specific Code criteria.

1.3 Discussion

1.3.1 Commercial Operation Date and IST Intervals

As noted on the cover page, the R. E. Ginna Nuclear Station commercial service date was September 19, 1969. The fourth ten-year IST interval ended on December 31, 2009. The fifth ten-year interval began on January 1, 2010, and is scheduled to end on December 31, 2019. The sixth ten-year IST interval will begin on January 1, 2020, and is scheduled to end on December 31, 2029.

1.3.2 ASME Code for Operation and Maintenance of Nuclear Power Plants, 2012 Edition

For R. E. Ginna, the next 120-month interval begins on January 1, 2020. Therefore, the Code Edition of interest is the one endorsed by the NRC in 10CFR50.55a as of January 1, 2019. The Code Edition in effect on January 1, 2019 was the 2012 Edition of ASME OM Code, no addenda.

Subsections and Appendices of the ASME Code for Operation and Maintenance of Nuclear Power Plants, 2012 Edition are as follows:

a. ASME OM Code, Subsection ISTA, “*General Requirements”*

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

b. ASME OM Code, Subsection ISTB, “*Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants – Pre-2000 Plants”*

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

1.3 Discussion (Cont.)

c. ASME OM Code, Subsection ISTC, *"Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants"*

ISTC establishes the requirements for inservice testing of valves in light-water reactor nuclear power plants. The valves covered include those that are required to perform a specific function, either active or passive, in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. Valves that provide over-pressure protection to systems or portions of system that are required to perform any of these functions are also included.

d. ASME OM Code, Subsection ISTD, "Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Nuclear Power Plants"

ISTD establishes the requirements for preservice and inservice testing of dynamic restraints (snubbers) in light-water reactor nuclear power plants. The snubbers covered include those in systems that perform a specific function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigation of the consequences of an accident.

e. ASME OM Code, Division 1, Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants"

Appendix I provides the requirements for performance testing and monitoring of nuclear plant pressure relief devices. Methods, intervals, and record requirements for monitoring and testing are established, as well as requirements for the evaluation of results.

f. ASME OM Code, Division 1, Mandatory Appendix II, "Check Valve Condition Monitoring Program"

Appendix II provides an alternative to the check valve testing or examination requirements of ISTC-3510, ISTC-3520, ISTC-3530, ISTC-3550, and ISTC-5221. The purpose of this program is both to improve valve performance and to optimize testing, examination, and preventive maintenance activities in order to maintain the continued acceptable performance of a select group of check valves.

g. ASME OM Code, Division 1, Mandatory Appendix III, "Preservice and InserviceTesting of Active Electric Motor Operated Valve Assemblies in Light-Water Reactor Power Plants"

Appendix III establishes the requirements for inservice testing to assess the operational readiness of active motor-operated valves (MOVs) in light-water reactor power plants.

h. ASME OM Code, Division 1, Mandatory Appendix V, "Pump Periodic Verification Test Program"

Appendix V establishes the requirements for implementing a pump periodic verification test (PPVT). As discussed in ISTB-1400, the Owner shall establish a PPVT program for certain applicable pumps that are tested in accordance with para. ISTA-1100.

1.3 Discussion (Cont.)

1.3.3 ASME OM Code Cases

Additionally, ASME OM Code Cases (CC) that have been approved for use by the NRC per Regulatory Guide 1.192 and are adopted for use at R. E. Ginna (subject to additional NRC approval where required) are identified below. These Code Cases shall be used during the 10-Year Interval IST Program implementation with all conditions, as applicable: On August 17, 2017, a revision to the Code of Federal Regulations became effective with a new OM condition 10CFR50.55a(b)(3)(x), “ASME OM Code Case OMN-20,” to allow licensees to implement OM Code Case OMN-20, “Inservice Test Frequency,” with the OM Code, 2012 Edition.

CC OMN-20, “Inservice Test Frequency,” Revision 0.

ASME OM CC OMN-20 allows the use of “Test Frequency Grace.” The R. E. Ginna new 10-year interval IST Program will voluntarily and fully implement CC OMN-20 as written in the 2012 Edition of ASME OM Code for all applicable pumps and valves included in the IST program as follows:

> Components whose test frequencies are based on elapsed time periods shall be tested at the frequencies specified in Section IST with a specified time period between tests as shown in Table 1. The specified time period between tests may be reduced or extended as follows:
>
> (1) For periods specified as fewer than 2 years, the period may be extended by up to 25% for any given test.
>
> (2) For periods specified as greater than or equal to 2 years, the period may be extended by up to 6 months for any given test.
>
> (3) All periods specified may be reduced at the discretion of the owner (i.e., there is no minimum period requirement).
>
> Period extension is to facilitate test scheduling and considers plant operating conditions that may not be suitable for performance of the required testing (e.g., performance of the test would cause an unacceptable increase in the plant risk profile due to transient conditions or other ongoing surveillance, test, or maintenance activities). Period extensions are not intended to be used repeatedly merely as an operational convenience to extend test intervals beyond those specified.
>
> Period extensions may also be applied to accelerated test frequencies (e.g., pumps in alert range) and other fewer than 2-yr test frequencies not specified in Table 1.
>
> Period extensions may not be applied to the test frequency requirements specified in Subsection ISTD, Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Nuclear Power Plants, as Subsection ISTD contains its own rules for period extensions.

1.3 Discussion (Cont.)

1.3.3 ASME OM Code Cases (Cont.)

Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as allowed by ASME OM, Division 1, Section IST, 2009 Edition through OMa-2011 Addenda and all earlier editions and addenda.

Table 1 Specified Test Frequencies

Frequency	Specified Time Period Between Tests
Quarterly (or every 3 mo)	92 days
Semiannually (or every 6 mo)	184 days
Annually (or every year)	366 days
X years	*x* calendar years where *x* is a whole number of years greater than or equal to 2 years

1.3.4 Regulatory Issue Summaries

In Regulatory Issue Summary (RIS) 2012-10, "NRC Staff Position on Applying Surveillance Requirement 3.0.2 and 3.0.3 to Administrative Controls Program Tests," and Enforcement Guidance Memorandum (EGM) 2012-001, "Dispositioning Noncompliance with Administrative Controls Technical Specifications Programmatic Requirements that Extend Test Frequencies and Allow Performance of Missed Tests," the NRC stated that items b, c, and d of the Technical Specifications (TS) IST Program were inappropriately added to the TS and may not be applied (although the EGM allows licensees to continue to apply those paragraphs pending a generic resolution of the issue).

In RIS 2012-10 and EGM 2012-001, the NRC stated that the current TS allowance to apply SR 3.0.2 and SR 3.0.3, or equivalent, to the IST Program would no longer be permitted. In response, OMN-20, which provides allowances similar to SR 3.0.2, or equivalent, was approved and is proposed to be used as an alternative to the test periods specified in the OM code. The proposed alternative substitutes an approved Code Case for the existing TS requirements that the NRC has determined are not legally acceptable as a TS allowance. This proposed alternative provides an equivalent level of safety as the existing TS allowance, while maintaining consistency with 10 CFR 50.55a and the ASME OM Code.

For pumps and valves with test periods of two years or less, the test frequency allowed by OMN-20 and the current TS IST Program (as modified by SR 3.0.2, or equivalent, and EGM 2012-001) are the same. For pumps and valves with test frequencies greater than two years, OMN-20 allows the test frequency to be extended by six months. The current TS IST Program does not allow extension of test frequencies that are greater than two years.

1.3 Discussion (Cont.)

1.3.4 Regulatory Issue Summaries (Cont.)

As stated in EGM 2012-001, if an Inservice Test is not performed within its frequency, SR 3.0.3, or equivalent, will not be applied. The effect of a missed Inservice Test on the Operability of TS equipment will be assessed under the R. E. Ginna Operability Determination Program.

1.3.5 Generic Letter 89-04 and NUREG-1482

Generic Letter 89-04 provided mandatory guidance for several areas of IST Program Plan scoping and content that the NRC staff had determined to be an industry generic weakness. Subsequent to the Generic Letter, NUREG-1482 was issued and the Generic Letter was included as an appendix in the NUREG. The NUREG expands on the guidance provided by the Generic Letter. To keep the guidance in the NUREG current, the NRC issued Revision 2 in October 2013. Revision 2 incorporates regulatory changes up to and including the 2004 Edition including 2005 and 2006 addendas of Title 10, Part 50, of the Code of Federal Regulations. The “Code-of-Record” for this revision of the NUREG is the ASME OM Code, 2004 Edition through the 2006 Addenda.

NUREG-1482, while voluntary, incorporates the "non-voluntary" guidance in Generic Letter 89-04. In addition, NUREG-1482 provides discussion of some issues that are relevant to IST programs and their implementation.

This IST Program Plan is based on the recommendations of NUREG 1482, Revision 2. This Program Plan describes the testing requirements and R. E. Ginna Station commitments for testing those ASME Code Class 1, 2, and 3, and other safety-related active or passive components that meet the criteria for inclusion in the IST Program.

1.4 IST Program Plan

This document is the Pump and Valve Inservice Testing Program Plan for R. E. Ginna in compliance with the requirements of 10CFR50.55a(f) and Technical Specifications. This Program Plan was prepared in accordance with the rules of the ASME OM-2012 Code. Appendix I is used for safety and relief valves; Subsection ISTB and Appendix V for pump testing; and Subsection ISTC for most valve testing along with Mandatory Appendix II for check valves and Mandatory Appendix III for active motor operated valve testing.

In accordance with ASME OM Code, ISTA-1320, some systems are ASME classified as an optional upgrade. The upgrade directs that the repair, replacement, and maintenance activities will be performed to ASME rules. It does not require the owner to conduct periodic inservice, functional, or hydrostatic testing. For optionally upgraded systems, ISTA-1320 states that the application of the rules (ASME Code) is at the option of the owner and not a requirement.

A summary listing of all the pumps and valves that are tested in accordance with the IST Program is provided in the IST Pump and IST Valve Tables contained in Attachments 14 and 15. The Pump and Valve Tables also identify each test that is performed on each component, the frequency at which the test is performed, and any Relief Request or Technical Position applicable to the test. For valves, the Valve Table also identifies any Cold Shutdown Justification or Refueling Outage Justification that is applicable to the required exercise tests. Additional information is provided for both pumps and valves.

All data fields included in the IST Pump and Valve Tables are listed and described in Sections 2 and 3 of this document.

Following Sections 2 and 3 are Attachments which provide information referenced in the Pump and Valve Tables.

- Attachment 1 includes a listing of P&IDs on which a depiction of the pump or valve may be located.
- Attachment 2 provides an index of the Pump Relief Requests that apply to any of the pumps in the IST Program for this ten-year interval.
- Attachment 3 includes a copy of each of those Relief Requests.
- Attachment 4 provides an index of the Valve Relief Requests that apply to any of the valves in the IST Program for this ten-year interval.
- Attachment 5 includes a copy of each of those Relief Requests.
- Attachment 6 contains the Safety Evaluation Report(s) (SER) that document approval of the Relief Requests contained in Attachments 3 and 5. It also includes Requests for Additional Information (RAIs) received from the NRC regarding the Relief Requests and the responses provided by Exelon.
- Attachment 7 includes a list of the ASME OM Code Cases that are being invoked for this ten-year interval.
- Attachment 8 provides an index of Cold Shutdown Justifications that apply to the exercise testing of any valves in the IST Program for this ten-year interval.
- Attachment 9 includes a copy of each of those Cold Shutdown Justifications.
- Attachment 10 provides an index of Refueling Outage Justifications that apply to the exercise testing of any valves in the IST Program for this ten-year interval.
- Attachment 11 includes a copy of each of those Refueling Outage Justifications.
- Attachment 12 provides an index of Technical Positions that apply to the IST Program for this ten-year interval. Technical Positions provide detailed information regarding how Exelon satisfies certain ASME OM Code requirements, particularly when the Code requirement may be ambiguous or when multiple options for implementation may be available. Technical Positions do not take exception to or provide alternatives to Code requirements.
- Attachment 13 includes a copy of each Technical Position listed in Attachment 12.
- As described previously, Attachments 14 and 15 include the IST Pump and Valve Tables.
- Attachment 16 provides a listing of Check Valve Condition Monitoring (CVCM) Program Plans.

This IST Program Plan is a quality-related document and is controlled and maintained in accordance with approved Exelon Corporate Engineering and Records Management procedures.

1.5 References

This Program Plan was developed per the requirements and guidance provided by the following documents:

General References:

a. Title 10, Code of Federal Regulations, Part 50, Section 55a(f), Inservice Testing Requirements
b. Regulatory Guide 1.192, "Operations and Maintenance Code Case Acceptability, ASME OM Code", Revision 2, dated March 2017
c. NUREG/CR-6396, Examples, Clarifications, and Guidance on Preparing Requests for Relief from Pump and Valve Inservice Testing Requirements
d. NUREG-0800, Standard Review Plan Section 3.9.6, "Inservice Testing of Pumps and Valves"
e. NUREG-0821, Systematic Evaluation Program (SEP) topics
f. ASME OM-2012, "Code for Operation and Maintenance of Nuclear Power Plants"
g. NUREG 1482, Revision 2, "Guidelines for Inservice Testing at Nuclear Power Plants"
h. Summary of Public Workshops Held in NRC Regions on Inspection Procedure 73756, "Inservice Testing of Pumps and Valves and Answers to Panel Questions on Inservice Testing Issues," dated 7/18/97
i. NRC Regulatory Guide 1.26, "Quality Group Classification and Standards for Water-, Steam, and Radioactive-Waste-Containing Components of Nuclear Power Plants", dated March 23, 1972
j. Exelon Corporation Administrative Procedure ER-AA-321, Administrative Requirements for Inservice Testing

Unit Specific References:

k. R. E. Ginna Station Updated Final Safety Analysis Report (UFSAR)
l. R. E. Ginna Station Technical Specifications
m. Interface Procedure IP-IIT-2, Inservice Testing Program for Pumps and Valves
n. Interface Procedure IP-IIT-3, Containment Leakage Rate Testing Program

2.0 INSERVICE TESTING PROGRAM FOR PUMPS

2.1 Code Compliance

The R. E. Ginna Station IST Program for pumps meets the requirements of Subsections ISTA, ISTB, and Mandatory Appendix V of the OM Code and any applicable interpretations or clarifications of existing requirements. Paragraph and table references in this section refer to specific paragraphs and tables in the OM Code. Where these requirements have been determined to be impractical, an alternative test provides an acceptable level of quality and safety, or conformance would cause unreasonable hardship without any compensating increase in safety, relief from Code requirements is/was requested pursuant to the requirements of 10CFR 50.55a(f)(5)(iii), 10CFR50.55a(z)(1), or 10CFR50.55a(z)(2).

2.2 Allowable Ranges of Test Quantities

The allowable ranges for test parameters as specified in the OM Code, Tables ISTB-5121-1, ISTB-5221-1, and ISTB-5321-1 will be used for all measurements of pressure, flow, and vibration except as provided for in specific relief requests.

2.3 Testing Intervals

The test frequency for pumps included in the Program will be as set forth in OM Code, paragraph ISTB-3400 and related relief requests. An allowable extension, not to exceed +25 percent of the surveillance interval may be applied to a test schedule as allowed by the R. E. Ginna Technical Specifications or OM Code Case OMN-20 to provide for operational flexibility.

The frequencies used for scheduling pump tests are defined as:

a. Quarterly (Q) – 92 days
b. Biennial (2Y) – 730 days
c. Refueling – 546 days
d. Cold Shutdown – Per the applicable Relief Request consistent with the cold shutdown testing requirements for valves in the OM Code. When all cold shutdown testing will not be completed, priorities for testing will be established per approved R. E. Ginna procedures.

2.4 Instrument Accuracy

Instruments will meet the requirements specified in the OM Code, paragraph ISTB-3500, and amplified in NUREG 1482, Revision 2, Section 5, except where specific relief is granted.

2.5 Vertical Line Shaft Pumps

Paragraph ISTB-2000 of the OM Code defines a Vertical Line Shaft pump as "a vertically suspended pump where the pump driver and the pump element are connected by a line shaft within an enclosed column." In a vertical line shaft pump configuration, the pump bearings would be submerged in the pumped fluid and inaccessible.

2.6 Pump Function and Design Flow

2.6.1 Group A Pumps

The OM Code defines Group A pumps as those pumps that are operated continuously or routinely during normal operation, cold shutdown, or refueling operations. Ginna considers the following pumps as being categorized as Group A. The justification does not necessarily consider all safety related functions.

- **Component Cooling Water (CCW) Pumps, [PAC02A, 02B]** - The component cooling water pumps perform the safety-related function of providing cooling water flow to certain essential equipment during post-accident conditions. A large break loss-of-coolant accident (LOCA) in conjunction with a loss of offsite power places the most severe demands on the CCW system. Under these conditions, the CCW pumps are capable of supplying the required accident cooling flow to those safety-related components dependent upon CCW for continued operability. During normal plant operation the CCW pumps provide cooling water to various nonessential heat loads.

- **Charging Pumps, [PCH01A, 01B, 01C] -** The charging pumps together with the charging system perform the following process functions during normal plant operation; 1) control reactor coolant inventory, chemistry conditions, activity level, and boron concentrations, 2) provide seal water injection flow to the reactor coolant pumps, 3) process reactor coolant effluent for reuse of boric acid and makeup water.

  Safety significant functions of the charging pumps together with the charging system are to provide makeup and boration to the RCS via two credited flowpaths. During the safety significant function of makeup and boration the borated water supply source would be provided from the RWST. One charging pump alone can provide cold shutdown boration requirements immediately following reactor shutdown.

  The charging pumps will be included in the IST Program scope as Augmented components since their only credited function is achieving coldshutdown. Ginna Station's safe shutdown condition is the Hot Shutdown condition; therefore, they do not meet the scoping/selection criteria specified in paragraph ISTA-1100 of the OM Code. The basis for the testing requriements applied to the charging pumps is documented in Alternative Relief Evaluation, PRE-01.

- **Motor Driven Auxiliary Feedwater Pumps (MDAFW), [PAF01A, 01B]** - For worst case UFSAR Chapter 15 events the MDAFW pumps are required to be capable of supplying AFW flow to the steam generators during a loss of normal feedwater flow or a steam line break (SLB) in conjunction with a loss of offsite power. During plant operation, the MDAFW pumps are briefly utilized during startup to maintain steam generator water level.

- **Residual Heat Removal (RHR) Pumps, [PAC01A, 01B]** - The RHR pumps perform the safety-related function of providing low head safety injection and recirculation flow to the RCS, and long term shutdown cooling during post-accident conditions. During the recirculation phase of a small break LOCA, the RHR pumps have the capability of providing suction to the high head safety injection pumps via the RHR heat exchangers. During normal shutdown activities the RHR pumps, in conjunction with the RHR heat exchangers are utilized for decay heat removal from the RCS.

2.6 Pump Design Flow (Cont.)

2.6.1 Group A Pumps (Cont.)

- **Spent Fuel Pool (SFP) Recirculation Pumps, [PAC07A, 07B]** - SFP recirculation pump A performs the safety significant function of providing heat removal from the spent fuel pool by circulating fuel pool inventory through SFP heat exchanger A, allowing the residual heat to be transferred to the service water system. This function is required to limit the pool temperature during maximum normal heat load conditions associated with a refueling outage. SFP pump A is included in the IST Program scope as an Augmented component. The basis for the testing requirements applied to SFP pump A is documented in Alternative Relief Evaluation, PRE-02.

  SFP recirculation pump B performs the safety-related function of providing heat removal from the spent fuel pool by circulating fuel pool inventory through SFP heat exchanger B, allowing the residual heat to betransferred to the service water system. The maximum safety basis or abnormal heat load assumed by design is that resulting from offloading a complete core.

- **Service Water (SW) Pumps, [PSW01A, 01B, 01C, 01D]** - The SW pumps perform the safety-related function of heat removal from essential safety-related equipment during accident conditions and serve as a suction supply source for the SAFW pumps. During normal plant operation the SW pumps provide cooling water flow to numerous nonessential heat loads.

2.6.2 Group B Pumps

The OM Code defines Group B pumps as those pumps in standby systems that are not operated routinely except for testing. Ginna considers the following pumps as being categorized as Group B. The justification does not necessarily consider all safety related functions.

- **Containment Spray Pumps, [PSI02A, 02B]** - The containment spray pumps perform the safety-related function of providing a means for containment heat removal and pressure suppression in the event of a LOCA or steam line break inside containment. The CS system serves to limit peak containment pressure. This function is accomplished by spraying relatively cool borated water from the RWST to inside the containment via the spray nozzles. Suction supply to the containment spray pumps can also be provided from the RHR heat exchanger discharge when operating in the recirculation mode. The containment spray pumps also perform the safety-related function of removing fission products released into the containment atmosphere during a LOCA. This is accomplished by the addition of sodium hydroxide (NaOH) to the borated spray stream at the suction of the pumps. The pumps are not operated except during testing.

- **Diesel Generator Fuel Oil Transfer Pumps, [PDG02A, 02B]** – The diesel generator fuel oil transfer pumps perform the safety-related function of transferring fuel oil from the storage tank to the day tank. This function ensures a continuous fuel supply in support of long term operation of the engine during accident conditions. The pumps are operated only during testing.

- **Turbine Driven Auxiliary Feedwater Pump, [PAF03]** - For worst case UFSAR Chapter 15 events the TDAFW pump is required to be capable of supplying AFW flow to the affected unit. Pump controls and associated valves receive their power from the vital 125 VDC supply source to ensure short term operability independent of normal or emergency AC power satisfying beyond design basis station blackout requirements. The pump is operated only during testing.

2.6 Pump Design Flow (Cont.)

2.6.2 Group B Pumps (Cont.)

- **Standby Auxiliary Feedwater (SAFW) Pumps, [PSF01A, 01B]** - The SAFW pumps are required to be capable of supplying AFW flow to the steam generators in the event that the preferred AFW system has failed due to a high energy line break (HELB) in the intermediate building, a seismic event, or fire. The SAFW pumps have the same features as the MDAFW pumps with regard to functional capability and power supply separation. The pumps are started manually and will only start provided that the breaker for the associated MDAFW pump is open. The suction supply source is service water and the service water supply valve must be in the open position before the pumps will start. The pumps are operated only during testing.

- **Safety Injection (SI) Pumps, [PSI01A, 01B, 01C]** - The SI pumps perform the safety-related function of providing high head safety injection and recirculation flow to the RCS, and long term shutdown cooling during post-LOCA conditions. In addition, the system accomplishes the safety related function of bringing the plant to a safe shutdown condition subsequent to a steam line break. During the recirculation phase, the RHR pumps circulate containment sump inventory through the RHR heat exchangers to the SI pumps supply for return to the core. SI recirculation would be required only if RCS pressure remained above the shutdown head of the RHR pumps. The pumps operate only during testing.

2.7 Specific Pump Testing Requirements

a. Surveillance Test Procedures shall be written for testing those pumps in the IST Program. These procedures shall provide for measurement of the required parameters at the stated frequency.

b. Reference values

Reference values shall be obtained as follows:

- Established only when the pump is known to be operating acceptably.
- Established at a point(s) of operation (reference point) readily duplicated during subsequent tests.
- Established in a region(s) of relatively stable pump flow.

Reference values shall be established at the comprehensive pump test flow rate for the comprehensive test.

Reference values shall be established at the comprehensive pump test flow rate for the Group A and Group B tests, if practicable. If not practicable, the reference point flow rate shall be established at the highest practical flow rate.

2.7 Specific Pump Testing Requirements (Cont.)

c. Allowable Variance from Fixed Reference Points

The OM Code allows for variance from a fixed reference value, stating that "the resistance of the system shall be varied until the flow rate is as close as practical to the reference point with the variance not to exceed +2% or −1% of the reference point. The differential pressure shall then be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure is as close as practical to the reference point with the variance not to exceed +1% or −2% of the reference point and the flow rate determined and compared with the reference flow rate. Where it is not practical to vary system resistance, flow rate and pressure shall be determined and compared to their respective reference values."

d. Pump Monitoring, Analysis, and Evaluation

1. Applicable pump test parameters, except for fixed values, shall be trended [ISTB-6100].
2. If measured test parameter values fall within the OM Code alert range, the frequency of testing specified in paragraph ISTB-3400 shall be doubled until the cause of the deviation is determined and the condition is corrected, or an analysis of the pump is performed.
3. If the measured test parameter values fall within the required action range, the pump shall be declared inoperable until either the cause of the deviation has been determined and the condition is corrected, or an analysis of the pump is performed.
4. In cases where the pump's test parameters are within either the alert or required action ranges, an analysis may be performed that supports the pump's continued use at the changed values. This analysis shall include verification of the pump's operational readiness. The analysis shall include both a pump level and a system level evaluation of operational readiness, the cause of the change in pump performance, and an evaluation of all trends indicated by available data. The analysis shall also consider whether new reference values should be established and shall justify the adequacy of the new reference values, if applicable.

2.8 Mandatory Appendix V "Pump Periodic Verification Test Program"

This Mandatory Appendix contains requirements to augment the rules of Subsection ISTB, Inservice Testing of Pumps in Light Water Reactor Nuclear Power Plants. The Owner is not required to perform a pump periodic verification test, if the design basis accident flow rate (DBAFR) in the Owner's safety analysis is bounded by the Comprehensive Pump Test (CPT) or Group A Test.

A pump periodic verification test (PPVT) verifies a pump can meet the required (differential or discharge) pressure, as applicable, at its highest design basis accident flowrate.

2.8.1 Mandatory Appendix V General Requirements

a. Identify those certain applicable pumps with specific design basis accident flow rates in the credited safety analysis (e.g., technical specifications, technical requirements program, or updated safety analysis report) for inclusion in this program.

b. Perform the pump periodic verification test atleast once every 2 years.

2.8.1 Mandatory Appendix V General Requirements (Cont.)

c. Determine whether the pump periodic verification test is required before declaring the pump operable following replacement, repair, or maintenance on the pump.

d. Declare the pump inoperable if the pump periodic verification test flow rate and associated differential pressure (or discharge pressure for positive displacement pumps) cannot be achieved.

e. Maintain the necessary records for the pump periodic verification tests, including the applicable test parameters (e.g., flow rate and associated differential pressure, or flow rate and associated discharge pressure, and speed for variable speed pumps) and their basis.

f. Account for the pump periodic verification test instrument accuracies in the test acceptance criteria.

2.9 IST Plan Pump Table Description

The pumps included in the R. E. Ginna Station IST Program are listed inAttachment 14. The information contained in that table identifies those pumps required to be tested to the requirements of the ASME OM Code, the parameters measured, associated relief requests and comments, and other applicable information. The column headings for the Pump Table are listed below with an explanation of the content of each column.

Pump ID or Pump EIN — The unique identification number for the pump, as designated on the System P&ID or Flow Diagram

Description — The descriptive name for the pump [use PIMS, Passport, FCMS, etc. names for consistency]

Pump Type — An abbreviation used to designate the type of pump:

C	Centrifugal
PDN	Positive Displacement - Non-Reciprocating
PDR	Positive Displacement - Reciprocating
VLS	Vertical Line Shaft

P&ID — The Piping and Instrumentation Diagram or Flow Drawing on which the pump is shown

Sheet — The Sheet Number of the P&ID identified in the previous column

(Coord) — Coordinates of the P&ID where the pump is located

Code Class — The ASME Safety Class (i.e., 1, 2 or 3) of the pump. Non-ASME Safety Class pumps are designated “N/A”.

Group — A or B, as defined in Reference 1.5.f.

Test Parameters — Lists each of the test parameters which are required to be measured for the specific pump. These include:

N	Speed (for variable speed pumps, only)
dP	Differential Pressure
DIS-P	Discharge Pressure (positive displacementpumps)
Q	Flow Rate
V_d	Vibration (displacement)
V_v	Vibration (velocity)
SKID	Skid mounted

Procedure — Test Procedure which implements the testing identified in the previous column.

Freq — An abbreviation which designates the frequency at which the associated test is performed:

Q	Quarterly
Y2	Once every 2 years

NOTE: All tests are performed at the frequencies specified by Code unless specifically documented by a Relief Request.

Code Deviation — Identifies the number of the Relief Request or Technical Position identification number applicable to the pump or specified test.

Comments — Any appropriate reference or explanatory information (e.g., technical positions, etc.)

3.0 INSERVICE TESTING PROGRAM FOR VALVES

3.1 Code Compliance

The R. E. Ginna Station IST Program for valves meets the requirements of Subsections ISTA, ISTC, and Appendices I, II, and III of the OM Code and any applicable interpretations or clarifications of existing requirements provided by NUREG 1482, Revision 2. Paragraph and table references in this section refer to specific paragraphs and tables in the OM Code. Where these requirements have been determined to be impractical, an alternative test provides an acceptable level of quality and safety, or conformance would cause unreasonable hardship without any compensating increase in safety, relief from Code requirements is/was requested pursuant to the requirements of 10CFR 50.55a(f)(5)(iii), 10CFR50.55a(z)(1) or 10CFR50.55a(z)(2).

3.1.1 Exemptions

The following components are excluded from the testing requirements of this section, provided that the components are not required to perform a specific function as previously described in section 1.0:

a. valves used only for operating convenience such as vent, drain, instrument, and test valves.
b. valves used only for system control, such aspressure-regulating valves.
c. valves used only for system or component maintenance

Skid-mounted valves are excluded from Subsection ISTC, provided they are tested as part of the major component and are justified by the Owner to be adequately tested.

External control and protection systems responsible for sensing plant conditions and providing signals for valve operation are excluded from the requirements of Subsection ISTC.

Category A and Category B safety and relief valves are excluded from the requirements of paragraph ISTC-3700, Valve Position Verification and paragraph ISTC-3500, ValveTesting Requirements.

3.2 Power Operated Valves (POV) Test Requirements

3.2.1 Category A and B POVs, except motor-operated valves (MOV)

a. The exercise test shall consist of exercising the valve full open and/or full close and measuring stroke time(s) in the safety direction(s) as required.
b. When measuring valve stroke time, stroke time will commence upon movement of the valve control switch and end when the desired position indication is the only light that is illuminated (control switch to light) indicating full open/full close.
c. When a valve has no indicating lights in its designed electrical circuit, alternate acceptable means may be used to measure time from initiation of actuating signal to end of activating cycle (e.g., local timing by acoustic or visual observation).
d. For fail-safe valves, whereby placing the control switch in the OPEN position for fail-open valves, and the CLOSED position for fail-closed valves, results in a loss of actuator power; the fail-safe testing requirements are satisfied by the exercise test.

3.2.2 POV Failures and Corrective Action

Power Operated Valves (POV's) which fail to operate or exceed the limiting (maximum) stroke time acceptance criteria contained in the Surveillance Test Procedure, shall be declared inoperable. The Technical Specifications shall be reviewed for any applicable LCO Conditions. Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determinethe cause of the deviation and the valve shown to be operating acceptably. Valve operability based upon analysis shall have the results of the analysis recorded in the record of tests.

3.2.3 Stroke-Time Testing of Multiple Valves Operated From A Single Switch

Some power-operated valves are grouped together on a common control switch. Valves tested as a group will be identified in the valve test tables. When individual valve position indication is available for multiple valves stroked from a single switch, and the ability exists to measure stroke time, the time shall be recorded. Such valves shall be stroke timed using sufficient stopwatches and resources to ensure that all valves are timed on the same switch movement. This satisfies the Code requirement for stroke-timing each valve individually and prevents inadvertent pre-conditioning that could be caused by multiple switch manipulations and multiple valve strokes.

3.2.4 Reactor Coolant System Pressure Isolation Valves

Reactor Coolant System Pressure Isolation Valves (PIVs) are Category A valves. ISTC-3630(f), requires that a valve with leakage rates exceeding the value specified by the Owner per ISTC-3630(e) shall be declared inoperable and either repaired or replaced. An ASME Code Interpretation (Interpretation 95-5) states, "It is up to the Owner to define what activities constitute maintenance, replacement, or a repair." These definitions are drawn from existing definitions in ASME Section XI and from R. E. Ginna Station procedures. Activities undertaken to correct or prevent unsatisfactory or abnormal conditions shall fulfill the requirement for Corrective Action in ISTC-3630(f).

There are 12 PIVs listed in the R. E. Ginna Technical Specifications Bases.

Primary Coolant System Pressure Isolation Valves

Valve Number	Valve Type
853A	Check Valve
853B	Check Valve
867A	Check Valve
867B	Check Valve
877A	Check Valve
877B	Check Valve
878A	Motor Operated Valve
878C	Motor Operated Valve
878F	Check Valve
878G	Check Valve
878H	Check Valve
878J	Check Valve

3.2.4 Reactor Coolant System Pressure Isolation Valves (Cont.)

There are 9 additional PIVs not listed in the R. E. Ginna Technical Specifications Bases.

Primary Coolant System Pressure Isolation Valves

Valve Number	Valve Type
123	Air Operated Valve
700	Motor Operated Valve
701	Motor Operated Valve
720	Motor Operated Valve
721	Motor Operated Valve
842A	Check Valve
842B	Check Valve
852A	Motor Operated Valve
852B	Motor Operated Valve

3.3 Check Valve Testing

3.3.1 Test Methods

Check valves are full-stroke exercised in the open direction using the following methods:

a. Using system flow equal to, or greater than, the required accident flow rate (plus allowance for analytical and instrument uncertainties).
b. Non-intrusive monitoring, or other positive means, that verifies the valve disk reaches the fully-open position (recording flow rate is not necessary).
c. Mechanical exercising.
d. Other methods that satisfy the requirements of GL 89-04, Position 1 or as specified in an approved relief request.

Check valves are full-stroke exercised in the closed direction using the following methods:

a. Verifying system flow equal to, or greater than, the required accident flow rate (plus allowance for analytical and instrument uncertainties) is achievable in a parallel flow path when the check valve being tested forms a boundary for that flow path.
b. Measuring check valve gross leakage or performing a gross pressure drop test to verify the valve disk is in the closed position.
c. Non-intrusive monitoring, or other positive means, that verifies the valve disk opens and then returns to the fully-closed position (recording leakage is not necessary unless required for Category A valves).
d. Mechanical exercising.
e. Other methods that satisfy the requirements of GL 89-04, Position 1 or as specified in an approved relief request.

3.3.2 Non-Intrusive Check Valve Testing

As discussed in NUREG-1482, Revision 2, Section 4.1.2, the NRC determined that the use of non-intrusive techniques is acceptable to verify the full stroke of a check valve. The licensee may use non-intrusive techniques to verify the capability to open, close, and fully stroke in accord with quality assurance program requirements. These techniques are considered "other positive means" in accordance with paragraph ISTC-5221(a), and relief is not required except as would be necessary for the testing frequency if the test interval extends beyond each refueling outage as allowed by the OM Code.

During the initial test of each valve, non-intrusive techniques will be used to verify that the system pressures and flow conditions specified in the test procedures cause the valves to fully stroke. Initial testing of check valves using non-intrusive techniques shall only be performed when the valve is known to be operating acceptably. During subsequent testing, if the system conditions are repeatable, each valve would typically be stroked and monitored using non-intrusive techniques.

Another alternative that may be employed is radiography. The position of the disk and the general condition of the internals may be determined using the radiographic method. This methodology is normally used for verification of valve closure only.

3.3.3 Check Valves Verified Closed by Leak Testing

The OM Code requires that check valves performing a safety function in the closed position be exercised to that position. Certain of these valves cannot be verified in the closed position quarterly because they do not have remote position indication and are generally located inside reactor containment or at other inaccessible locations. These valves may lack design provisions for system testing to verify closure capability at any plant condition. The only practical means of verifying valve closure may be by performing a seat leakage test. Many of these valves are Category AC valves that are Type C leak-rate tested during each refueling outage as specified in Appendix J to 10 CFR Part 50.

If no other practical means is available, it is acceptable to verify that check valves are capable of closing by performing leak-rate testing, such as local leak rate testing in accordance with Appendix J to 10 CFR Part 50, at each reactor refueling outage. Recognizing that the setup and performance limitations may render leak testing impractical during power operation and cold shutdown outages, the NRC has determined that implementation of an extension of the test frequency for such valves is acceptable in accordance with 10 CFR 50.55a(f).

In accordance with paragraph ISTC-5222, and as discussed in NUREG-1482, Revision 2, Section 4.4.7, as an alternative to check valve closure verification by Type C seat leakage testing at refueling, the Appendix II Check Valve Condition Monitoring Program (CVCMP) could justify extending the exercise test interval to the leak test frequencies specified in Option B of Appendix J based on the valve's performance and operating condition.

3.3.4 Check Valve Disassembly and Inspection

When using check valve disassembly in a sampling plan, the IST Program may implement testing such that similar valves in the same service are grouped for testing purposes, not to exceed four valves in a single group (for valve groups of greater than four, the grouping and test schedule must be justified in the description of the testing plan). The sample examination program shall group check valves of similar design, application, and service condition and require a periodic examination of one valve from each group. Grouping of check valves shall be technically justified and shall consider, as a minimum, valve manufacturer, design, service, size, materials of construction, and orientation. Maintenance and modification history should be considered in the grouping process. The details and bases of the sampling program shall be documented and recorded. (paragraph ISTC-5221(c))

During the disassembly process, the full-stroke motion of the obturator shall be verified. Full-motion of the obturator shall be re-verified immediately prior to completing reassembly. Check valves that have their obturator disturbed before full-stroke motion is verified shall be examined to determine if a condition exists that could prevent full opening or closure of the obturator.

At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in each group shall be disassembled and examined at least once every 8 years. If problems are found with the sample valve that are determined to affect the operational readiness of the valve, all valves in the group must be tested during the same outage.

Before return to service, valves that were disassembled for examination or that received maintenance that could affect their performance; shall be exercised, full or part stroke if practicable, with flow in accordance with paragraph ISTC-3520. Those valves shall also be tested for other applicable requirements (e.g., closure verification or leak rate testing) before returning them to service.

As an alternative to the aforementioned disassembly and inspection frequency, the Appendix II CVCMP could justify extending the disassembly and inspection interval to reduce the burden of unnecessary IST based on previous disassembly and inspection results.

3.3.5 Check Valve Condition Monitoring

As an alternative to the testing or examination requirements of paragraphs ISTC-3510, ISTC-3520, ISTC-3530, ISTC-3550, and ISTC-5221, R. E. Ginna Station has established a check valve condition monitoring program per paragraph ISTC-5222 and implements the program in accordance with Appendix II "Check Valve Condition Monitoring Program" and 10CFR50.55a(b)(3)(iv), OM Condition: Check Valves (Appendix II).

The purpose of this program is to both (a) improve check valve performance and to (b) optimize testing, examination, and preventive maintenance activities in order to maintain the continued acceptable performance of a select group of check valves.

Examples of candidates for (a) improved valve performance are check valves that: (1) have an unusually high failure rate during inservice testing or operations; (2) cannot be exercised under normal operating conditions or during shutdown; (3) exhibit unusual, abnormal, or unexpected behavior during exercising or operation, or (4) R. E. Ginna elects to monitor for improved valve performance.

Examples of candidates for (b) optimization of testing, examination, and preventive maintenance activities are check valves with documented acceptable performance that: (1) have had their performance improved under the Condition Monitoring Program; (2) cannot be exercised or are not readily exercised during normal operating conditions or during shutdowns; (3) can only be disassembled and examined, or (4) R. E. Ginna elects to optimize all the associated activities of the valve or valve group in a consolidated program.

If the Appendix II Condition Monitoring Program for a valve or valve group is discontinued then the requirements of paragraphs ISTC-3510, ISTC-3520, ISTC-3530, ISTC-3550, and ISTC-5221 must be implemented.

Valves included in the CVCMP will be annotated with "CM" in the "Frequency" column of the Valve Tables. The Code testing specified in the Tables is replaced by the activities/tests identified in the specific CMP Plan.

3.3.5 Check Valve Condition Monitoring (Cont.)

Trending and evaluation shall support the determination that the valve or group of valves is capable of performing its intended function(s) over the entire interval. At least one of the Appendix II condition monitoring activities for a valve group shall be performed on each valve of the group at approximate equal intervals not to exceed the maximum interval shown in the following table and as specified in NRC condition 10CFR50.55a(b)(3)(iv).

Group size	**Maximum interval between activities of member valves in the groups (years)**	**Maximum interval between activities of each valve in the group (years)**
≥4	4.5	16
3	4.5	12
2	6	12
1	Not applicable	10

3.3.6 Check Valves Serving as Vacuum Relief Valves (Appendix I)

If a check valve is capacity-certified, then it shall be classified as a vacuum relief device and tested in accordance with Appendix I. If a check valve is not capacity-certified, it shall be classified as a check valve and tested in accordance with ISTC. (Reference: Summary of Public Workshops, dated July 18, 1997 - Questions 2.3.15 and 2.4.11)

3.4 Manual Valves

Manual valves within the scope of the IST Program that perform an active safety function shall be exercised at least once every 2 years, except where adverse conditions may require the valve to be exercised more frequently to ensure operational readiness (ISTC-3540).

3.5 Testing Intervals

The test frequency for valves included in the Program will be as set forth in the OM Code, paragraph ISTC-3510 and related relief requests. An allowable extension, not to exceed +25 percent of the surveillance interval, may be applied to the test schedule as allowed by the R. E. Ginna Station Technical Specifications or OM Code Case OMN-20 to provide for operational flexibility.

The frequencies used for scheduling valve tests are defined as:

a. Quarterly - 92 days
b. Refueling - 546days
c. 2 Year - 730 days
d. Per App. J - Leak Rate Testing frequency determined by Appendix J requirements.
e. Sampling - For safety/relief valves, set-point testing per the applicable population sampling requirements specified in OM Code, Appendix I.
f. Sampling - For check valves, disassembly and inspection per the applicable population sampling requirements specified in Subsection ISTC-5221(c).
g. Cold Shutdown - Consistent with the cold shutdown testing requirements for valves of the OM Code, paragraphs ISTC-3521(f), (g), & (h) and ISTC-3522(d), (e), & (f), and NUREG 1482, Revision 2, Sections 3.1.1, 3.1.1.1 and 3.1.1.2. When all cold shutdown testing will not be completed, priorities for testing will be established per approved Exelon/Ginna procedures.
h. CM - Valves included in the CVCMP will be annotated with "CM" in the "Frequency" column of the Valve Tables. The Code testing specified in the Tables is replaced by the activities/tests identified in the specific CMP Plan.

Per the OM Code, paragraphs ISTC-3550 and ISTC-3610, valves in regular use and valves which demonstrate functionally adequate seat tightness during normal operation are not required to be additionally tested as long as the required observations and analyses are performed and documented at the otherwise required test frequency. The frequency indicated in the valve table for such valves is the applicable required test frequency.

3.6 Deferred Valve Testing

Where quarterly testing of valves is impractical or otherwise undesirable, testing will be deferred and performed during cold shutdown or refueling periods as permitted by the OM Code and NUREG 1482, Revision 2. The valve program tables identify those valves to which deferred testing applies and the respective technical justification for each is provided in an associated cold shutdown or refueling outage justification. The criteria for determining appropriate justification is based on NUREG 1482, Revision 2, Paragraphs 2.4.5, 3.1.1, and 4.1.6 as well as OM Code, paragraphs ISTC-3521(b), (c), (d),& (e) and ISTC-3522(b) & (c). The schedule and extent of testing valves during cold shutdown periods will be based on the requirements of OM Code, paragraphs ISTC-3521(f), (g), & (h) and ISTC-3522(d), (e), & (f), and NUREG 1482, Revision 2, Sections 3.1.1.1 & 3.1.1.2. When all cold shutdown testing will not be completed, priorities for testing will be established per approved Exelon/Ginna procedures.

OM Code, paragraphs ISTC-3521(h) and ISTC-3522(f) require that for valves tested during refueling outages, all testing must be completed prior to returning the plant to operation. For those cases where valves can be tested during power ascension and where the Technical Specification requirements for the valves or system determine when the valves are required to be operable, tests may be performed during power ascension. This position conforms to that stated in NUREG 1482, Revision 2, Section 3.1.1.2.

3.6 Testing Intervals (Cont.)

The majority of R. E. Ginna'sTest Deferral Justifications have been written for cold shutdown periods, vice only refueling outages. Many of these cold shutdown tests require very specific and unique plant conditions that may not be common during an "average" cold shutdown period. This limits R. E. Ginna's ability to perform these tests. However, they are classified as cold shutdown tests, vice refueling tests, because if the appropriate plant conditions exist during a cold shutdown period and the opportunity presents itself, the appropriate tests can be performed.

3.7 Specific Valve Definitions

3.7.1 Active Valves

Per the OM Code, valves and pressure relief devices that perform a mechanical motion during the course of accomplishing a safety function are active components. If a valve is capable of being moved out of its safety position during either normal operation, and/or accident response and it must be capable of returning to that safety position, then the valve is considered to be active for that safety function.

NUREG 1482, Revision 2, Section 2.4.2, states that valves need not be considered active if they are only temporarily removed from their safety position for a short period of time and would be considered active only if the valve is routinely repositioned during power operation.

3.7.2 Passive Valves

Per the OM Code, a valve is considered passive for a given safety function if, to perform that safety function, it is not required to move or be capable of moving (i.e. not even part-stroke or fail-safe) at any time. This means the valve must remain in that position any time the safety function might be required. This includes normal operation, as well as post-accident response until the safety function would no longer be required. If a valve does not meet this general criterion, then it should be considered to be active for that safety function. Passive valves include those valves required to perform a nuclear safety function by maintaining their position.

3.7.3 Normal Position

Some valves may be moved to an alternate position during plant operations that is different from their normal position, such as to support surveillance testing. If the valve is still relied on while in its alternate position to accomplish its safety function in its normal position, then the ability to return to its normal position from its alternate position must be considered to be an active valve function that is subject to IST requirements, even if the valve is only in the alternate position for a short period of time. In this case, the alternate position is also listed in the "Normal Position" column in the Valve Tables to ensure this test requirement is captured. (The only other alternative is to consider the valve inoperable while it is out of its normal position.)

3.7.4 Valve Categories

a. Category A - Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function(s). Category A applies to valves for which a specific maximum valve leakage limit exists.

b. Category B - Valves for which seat leakage in the closed position is inconsequential for fulfillment of the required function(s). Inconsequential implies a leakage limit does not exist relative to the valve's ability to perform its safety function. However, leakage past a closed valve above some level indicates the valve may be degrading and its ability to close at all (e.g., gross closure capability) may become threatened at some point.

c. Category C - Valves which are self-actuated in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of the required function(s). If seat leakage in the closed position is consequential for a Category C valve, then it is categorized as "AC". If seat leakage in the closed position is not consequential for a Category C valve, then it may be categorized "BC". However, such valves are merely categorized as "C" and the "B" is considered to be implied. "Gross" leakage past a closed category C valve may still be used as the desired test parameter to detect when the valve may be degrading and its ability to close at all (e.g., “gross” closure capability) may become threatened, without implying the valve should be categorized AC.

d. Category D - Valves that are actuated by an energy source capable of only one operation, such as rupture disks or explosively actuated valves.

3.8 Division 1, Mandatory Appendix III

3.8.1 Exercise Requirements

ASME OM Code Mandatory Appendix III, "Preservice and Inservice Testing of Active Electric Motor Operated Valve Assemblies in Light-Water Reactor Power Plants," establishes the requirements for preservice and inservice testing to assess the operational readiness of active motor-operated valves (MOVs) in light-water reactor (LWR) power plants.

Appendix III, paragraph III-3610 “Normal Exercising Requirements” requires that all MOVs, within the scope of this Mandatory Appendix, shall be full cycle exercised at least once per refueling cycle with the maximum time between exercises to be not greater than 24 months. Full cycle operation of an MOV, as a result of normal plant operations or Code requirements, may be considered an exercise of the MOV, if documented. If full stroke exercising of an MOV is not practical during plant operation or cold shutdown, full stroke exercising shall be performed during the plant’s refueling outage.

Appendix III, paragraph III-3620 “Additional Exercising Requirements” requires that the Owner shall consider more frequent exercising requirements for MOVs in any of the following categories:

(a) MOVs with high risk significance
(b) MOVs with adverse or harsh environmental conditions
or
(c) MOVs with any abnormal characteristics

3.8 Division 1, Mandatory Appendix III (Cont.)

3.8.1 Exercise Requirements (Cont.)

Appendix III, paragraph III-3721 “HSSC MOVs” requires that HSSC MOVs shall be tested in accordance with para. III-3300 and exercised in accordance with paragraph III-3600. HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in core damage frequency (CDF) and large early release (LER) associated with a longer exercise interval is small.

Based on the aforementioned Appendix III MOV exercising requirements, R. E. Ginna Station will implement as follows:

1. IF the HSSC MOV can be exercised on-line, the valve must be exercised quarterly unless:

    (a) The site proposes an extended exercise test interval

AND

The deferral justification (CSJ / ROJ) for the exercise test has a supporting documented PRA evaluation of the deferral risk showing the risk impact of the deferral is acceptably small (See 10CFR50.55 and RG 1.192 OMN-1 conditions – “potential increase in CDF and risk associated with the extension is small and consistent with the intent of the Commission’s Safety Goal Policy Statement.”)

2. IF the HSSC MOV cannot be exercised on-line, the valve may be exercised at cold shutdown (CSJ) or refueling outages (ROJ)

    (a) A CSJ or ROJ is required; however, a supporting PRA evaluation is NOT required

Refer below for examples of when a PRA evaluation would or would not be required:

1. A HSSC MOV has a current CSJ or ROJ deferral and review of the deferral justification concludes the deferral is based on plant physical operating restrictions that prohibit exercising the valve on-line. The valve exercising is deferred to Cold Shutdown or refueling outages and a PRA evaluation is **NOT** required.

2. A HSSC MOV has a current CSJ or ROJ deferral and review of the deferral justification concludes the deferral is based on plant /personnel safety concerns that preclude exercising the valve on-line. The valve exercising is deferred to Cold Shutdown or refueling outages and a PRA evaluation is **NOT** required.

3. A HSSC MOV has a current CSJ or ROJ deferral and review of the deferral justification concludes the deferral is **NOT based on plant physical operating restrictions or plant/personnel safety concerns** that precludes exercising the valve on-line (i.e.; it’s a deferral based on convenience - man-power reduction, scheduling benefit, etc.). **The valve exercising must be done quarterly.**

3.8.1 Division 1, Mandatory Appendix III Exercise Requirements (Cont.)

(a) This testing may be deferred to a longer interval (on-line, Cold Shutdown, or refueling outages) provided a supporting PRA evaluation is performed and documented that concludes the risk impact of the deferral (the extended exercising frequency) is acceptably small as defined in 10CFR50.55 and Reg. Guide 1.174.

3.8.2 MOV Stroke Time

Effective on August 17, 2017 the NRC added a new condition as 10CFR50.55a(b)(3)(ii)(D), "MOV stroke time," to require that, when applying Paragraph III-3600, "MOV Exercising Requirements," of Appendix III to the OM Code, licensees shall verify that the stroke time of the MOVs specified in plant technical specifications satisfies the assumptions in the plant's safety analyses. This condition retains the MOV stroke time requirement for a smaller set of MOVs than was specified in previous editions and addenda of the OM Code. For these MOVs, a stroke time test is listed in Attachment 15, "Inservice Testing Valve Table."

3.9 Position Indication (PI) Verification (ISTC-3700)

Verification of proper remote position indication will normally be accomplished by locally observing the position of the valve and comparing it with the remote indication. Some valves are not equipped with a local means to verify position. Therefore, position will be verified by the observation of system parameters such as flow, pressure, temperature, or level. For valves having remote position indicators at multiple locations that include the control room, the control room remote position indicator will be verified for accuracy and the remote position indicator used for exercise testing and stroke timing the valve will also be verified for accuracy. If exercise testing and stroke timing are performed using only the control room remote position indicator, then only the control room remote position indicator needs to be verified for accuracy.

Effective on August 17, 2017 the NRC added a new condition as 10CFR50.55a(b)(3)(xi), "Valve Position Indication," to emphasize, when implementing OM Code (2012 Edition), Subsection ISTC-3700, "Position Verification Testing," licensees shall implement the OM Code provisions to verify that valve operation is accurately indicated (i.e., Supplemental Position Indication). This condition emphasizes the OM Code requirements for valve position indication and is not a change to those requirements.

Ginna evaluated all valves in the IST Program where an IST-3700 position indication test was listed in Attachment 15 to ensure the requirements of the 10CFR50.55a(b)(3)(xi) condition were met. Steps in the implementing procedures which were specifically credited by this evaluation have been identified by [IST/SPI].

3.10 Category A Containment Isolation Valve (CIV) and RCS Pressure Isolation Valve Leak Testing

a. All valves included in the Containment Leak Rate Test (CLRT) Program complying to 10 CFR 50, Appendix J, shall be included in the IST Program as Category A valves.

b. All valves designated as RCS Pressure Isolation Valves (PIVs) are considered to perform a pressure isolation function between the Reactor Coolant System (RCS) and systems of a lower design pressure and are included in the IST Program as Category A valves. The listing of designated PIVs also include isolation valves, optionally classified as PIVs, which prevent the communication of a high pressure source with the low pressure suction piping of a pump contained in a high pressure system.

3.11 IST Plan Valve Table Description

The valves included in the R. E. Ginna Station IST Program are listed in Attachment 15. The information contained in that table identifies those valves required to be tested to the requirements of the ASME OM Code, the testing methods and frequency of testing, associated Relief Requests, comments, and other applicable information. The column headings for the Valve Table are delineated below with an explanation of the content of each column.

Valve ID or Valve EIN	The unique identification number for the valve, as designated on the System P&ID or Flow Diagram.
Description	The descriptive name for the valve [use PIMS, Passport, FCMS, etc. names for consistency].
Class	The ASME Safety Class (i.e., 1, 2 or 3) of the valve. Non-ASME Safety Class valves are designated by "N/A".
Cat	The ASME Code category or categories of the valve as defined in Reference 1.5.f.
Act/Pass	"A" or "P", used to designate whether the valve is active or passive in fulfillment of its safety function. The terms "active valves" and "passive valves" are defined in Reference 1.5.f.
Size	The nominal size of the valve in inches.
Valve Type	An abbreviation used to designate the body style of the valve: 3W 3-Way 4W 4-Way BAL Ball BTF Butterfly CK Check DIA Diaphragm GA Gate GL Globe PLG Plug RPD Rupture Disk RV Relief SCK Stop-Check SHR Shear (SQUIB) TRV Thermal Relief Valve XFC Excess Flow Check
Actuator Type	An abbreviation which designates the type of actuator on the valve. Abbreviations used are: AO Air Operator HO Hydraulic Operator M Manual MO Motor Operator SA Self-Actuating SO Solenoid Operator

3.11 Valve Table Information Description (Cont.)

Drawing (P&ID) & Sheet	The Piping and Instrumentation Diagram or Flow Drawing and sheet number on which the valve is shown.
Coord	Coordinates of the P&ID where the valve is shown.
Positions Norm/Safe/Fail	Abbreviations used to identify the normal, fail, and safety-related positions for the valve. Abbreviations used are:

AI	As Is
C	Closed
D	De-energized
D/E	De-energizedorEnergized
E	Energized
LC	Locked Closed
LO	Locked Open
LT	Locked Throttled
O	Open
O/C	Open or Closed
T	Throttled

Testing Requirements

- Test — A listing of abbreviations used to designate the types of testing which are required to be performed on the valve based on its category and functional requirements. Abbreviations used are:

BDC	Bidirectional Check Valve test (non-safety related closure test)
BDO	Bidirectional Check Valve test (non-safety related open test)
CC[2]	Check Valve Exercise Test - Closed
CO[2]	Check Valve Exercise Test - Open
CP[2]	Check Valve Partial Exercise Test
DIAG	MOV “Inservice” Diagnostic Test per Appendix III
DT	Category D Test
EC	Exercise Test – Closed (manual valve)
EO	Exercise Test – Open (manual valve)
FC	Fail-Safe Exercise Test - Closed
FO	Fail-Safe Exercise Test - Open
LT[1]	Leak Rate Test
PI	Position Indication Verification Test
RT	Relief Valve Test
SC	Exercise Closed (without stroke-timing)
SO	Exercise Open (without stroke-timing)
SP	Partial Exercise (Cat. A or B)
STC	Exercise/Stroke-Time Closed
STO	Exercise/Stroke-Time Open

3.11 Valve Table Information Description (Cont.)

Testing Requirements (Continued)

[1] A third letter, following the "LT" designation for leakage rate test, may be used to differentiate between the tests. For example, Appendix J leak tests will be designated as "LTJ", low pressure (non-Appendix J) leak tests as "LTL", and high pressure leak tests as "LTH".

[2] Three letter designations should be used for check valve tests to differentiate between the various methods of exercising check valves. The letter following "CC", "CO" or "CP" should be "A" for acoustics, "D" for disassembly and inspection, "F" for flow indication, "M" for magnetics, "R" for radiography, "U" for ultrasonics, or "X" for manual exercise.

- Freq — An abbreviation which designates the frequency at which the associated test is performed. Abbreviations used are:

AJ	Per Appendix J
CM	Per Check Valve Condition Monitoring Program
CS	Cold Shutdown
M[n]	Once Every n Months
MOV	Per MOV Program
Q	Quarterly
R	Refuel Outage
R[n]	Once Every n Refuel Outages
SA	Sample Disassemble & Inspect
TS	Per Technical Specification Requirements
Y[n]	Once Every n Years

RR/CSJ/ROJ — A cross-reference to the number of the Relief Request applicable to the specified test, the applicable Cold Shutdown Justification or Refuel Outage Justification which describes the reason why reduced-frequency exercise testing is necessary for the applicable valve.

Procedure — Test Procedure which implements the testing identified in the previous column left

Comments — Any appropriate reference or explanatory information (e.g., CVCMP, Technical Positions, etc.).

4.0 Attachments

1. System and P&ID Listing
2. Pump Relief Request Index
3. Pump Relief Requests
4. Valve Relief Request Index
5. Valve Relief Requests
6. Relief Request RAIs and SER
7. Code Case Index
8. Cold Shutdown Justification Index
9. Cold Shutdown Justifications
10. Refueling Outage Justification Index
11. Refueling Outage Justifications
12. Technical Position Index
13. Technical Positions
14. Inservice Testing Pump Table
15. Inservice Testing Valve Table
16. Check Valve Condition Monitoring Plan Index

Attachment 1

System Name / Code / P&ID

SYSTEM NAME	CODE	P&ID(s)
Auxiliary Feedwater		33013-1237
Auxiliary Feedwater Lube Oil Skid		33013-2285
Auxiliary/Intermediate Bldg HVAC		33013-1870
Component Cooling Water		33013-1245
Component Cooling Water		33013-1246-1,2
Containment HVAC, Purge Exhaust		33013-1866
Containment HVAC, Purge Supply		33013-1865
Containment HVAC, Recirculation		33013-1863
Containment Spray		33013-1261
Containment Vessel Air Test		33013-1882
CVCS Charging		33013-1265-1,2
CVCS Letdown		33013-1264
Diesel Generators		33013-1239-1,2
Fire Protection Plant Systems		33013-1989
Fire Protection: Construction		
Fire Service Water		33013-1991
Hydrogen Recombiners		33013-1275-1,2
Instrument Air		33013-1887
Instrument Air		33013-1893
Main Feedwater		33013-1236-1,2
Main Steam		33013-1231
Nuclear Sampling		33013-1278-1,2
Post Accident Sampling		33013-1279
Primary Water Treatment - DI Water		33013-1908-3
RCS Overpressure Protection		33013-1263
Reactor Coolant		33013-1260
Reactor Coolant Drain Tank		33013-1272-2
Reactor Coolant Pressurizer		33013-1258
Residual Heat Removal		33013-1247
Residual Heat Removal		33013-1260
Safety Injection & Accumulators		33013-1262-1,2
Service Air		33013-1886-2
Service Water		33013-1250-1,2,3
Spent Fuel Pool Cooling		33013-1248
Standby Auxiliary Feedwater		33013-1238
Steam Generator Blowdown		33013-1277-1
Waste Disposal - Gas		33013-1273-2

Attachment 2

Pump Relief Request Index

Pump Relief Request Index

RELIEF REQUEST NUMBER	RELIEF REQUEST TITLE	APPROVAL DATE
PR-01	D/G Fuel Oil Transfer System Flow Rate	8/5/2019
PR-02	PAF01A, PAF01B, PSF01A, PSF01B	8/5/2019
PRE-01	Alternative Relief Evaluation CVCS Charging Pumps (PCH01A, PCH01B, and PCH01C)	Not Required
PRE-02	Alternative Relief Evaluation SFPC Pump A (PAC07A)	Not Required

Attachment 3

Pump Relief Requests

Proposed Alternativein Accordance with 10 CFR 50.55a(z)(2)
PR-01, Diesel Generator Fuel Oil Transfer Pumps – Flow Rate

1. **ASME Code Component(s) Affected**

Component	Description	Class	Group
PDG02A	Diesel Generator A Fuel Oil Transfer Pump	3	A
PDG02B	Diesel Generator B Fuel Oil Transfer Pump	3	A

The diesel fuel oil transfer pumps are required to transfer fuel oil from the storage tank to the day tank. This function ensures a continuous fuel supply to support long term operation of the Diesel during accident conditions.

2. **Applicable Code Edition and Addenda**

American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) 2012 Edition with no Addenda.

3. **Applicable Code Requirement**

ISTB-3550, *Flow Rate,* states, in part, "When measuring flow rate, a rate or quantity meter shall be installed in the pump test circuit. If a meter does not indicate the flow rate directly, the record shall include the method used to reduce the data."

4. **Reason for Request**

Pursuant to 10 CFR 50.55a, *Codes and standards*, paragraph (z)(2), an alternative is proposed to the pumptestingrequirements regarding pump flow rate in OM-2012 Code paragraph ISTB-3550.. The basis of the request is that compliance with the specified requirements would result in hardship or unusual difficulty withouta compensating increase in the level of quality and safety.

There are no installed instruments on the diesel fuel oil transfer system that allow a direct measurement of the flow rate when testing the diesel oil fuel transfer pumps. The pump flow rate can be calculated by measuring the change in day tank level or volume and the pump operation time required to make that change. The accuracy of this method is documented in design analysis Engineering Work Request (EWR) 4526-ME-20 (Reference 1). This method determines a flow rate for a pump that can be used to evaluate the pump's hydraulic performance.

5. **Proposed Alternative and Basis for Use**

Ginna's diesel fuel oil transfer pumps, PDG02A & PDG02B, are positive displacement pumps. The flow rate for these pumps is determined by measuring the indicated level change in the diesel generator fuel oil day tank during a timed pump run and converting this data into fuel oil transfer pump flow rate for both the Group B and comprehensive pump tests.

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2)
PR-01, Diesel Generator Fuel Oil Transfer Pumps – Flow Rate

Level gauges LG-2044 ("A" Emergency Diesel Generator) and LG-2045 ("B" Emergency Diesel Generator) are utilized to measure the change in indicated level while the fuel oil transfer pump is running and restoring fuel oil day tank level. Both LG-2044 and LG-2045 (sight glasses equipped with a reference scale in inches of level) have a range of indicated level of 9 inches (2.5 inches to 11.5 inches).

The respective day tank is drained to an initial indicated level of 5.0 to 5.5 inches before initiating the fuel oil pump start. This level is logged as the initial level. The pump is then started coincident with starting the stopwatch and the system allowed to stabilize. A minimum 2-minute stabilization period is observed for the comprehensive test.

Following a total minimum run time of 5 minutes (or exceeding an indicated tank level of 11 inches), the pump is stopped coincident with stopping the stopwatch and the day tank level is read in inches to the nearest 0.25 inch. This level is logged as the final level.

The change in day tank level is determined in inches and then converted to total gallons pumped using the constant conversion factor of 24.76 gallons per inch. The constant of 24.76 gallons per inch of indicated level on the day tank sight glass was established by EWR 4526-ME-20 based on the tank's geometrical dimensions. The total gallons pumped is then divided by the total pump run time to arrive at the pump test flow rate in gallons per minute (gpm). This calculation is documented in the pump test procedures.

The test circuit for each pump is a fixed flow path from the storage tank (pump suction) to the day tank (pump discharge). Pump suction pressure is nearly constant because of the very small change in storage tank level. This change in suction pressure during pump operation is considered negligible. The normal rise in day tank level is approximately 5.5 inches, which corresponds to a quantity of approximately 136 gallons pumped during the 5 minutes of pump operation, resulting in a typical flow rate of approximately 27 gpm.

The small rise in day tank level during pump operation does not affect pump discharge pressure or flow rate. This conclusion is supported by the discussion in NUREG-1482, Revision 2, Section 5.5.2, *Use of Tank Level to Calculate Flow Rate for Positive Displacement Pumps*, where the NRC states: "Pump discharge pressure will match system pressure up to the shutoff head of the positive displacement pump. Because of the characteristics of a positive displacement pump, there should be virtually no change in pump discharge flow rate as a result of the rising tank level. Therefore, rising tank level will not have an impact on test results. By having approximately the same level in the tank at the beginning of each test, licensees can achieve repeatable results."

The accuracy of level gauges, LG-2044 and LG-2045, is determined using the 9-inch indicated range of level and the constant of 24.76 gallons per inch. This yields a total volume change of 222.84 gallons. Based on a readability uncertainty of +/-0.125 inch (0.25-inch scaling), which is equivalent to 3.10 gallons, divided by the total indicated volume of 222.84 gallons, the overall accuracy of the sight glass is ± 1.39%.

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2)
PR-01, Diesel Generator Fuel Oil Transfer Pumps – Flow Rate

In addition, the stopwatch used to measure the time the pump is operating and pumping fuel oil is now accurate to within ± 3 seconds per 24 hours (formerly ±0.6% second per minute) for a calibrated accuracy of ±0.004% (formerly ±1.0%). Combining the accuracy of the stopwatch with the level gauge sight glass, using the square root of the sum of the squares method, results in an insignificant decrease with an overall indicated accuracy of ±1.39% (formerly ±1.71%). This overall accuracy has been improved from that which was provided in the alternative previously authorized for use during the fifth 10-year interval 1ST program.

Therefore, the pump flow rate can be accurately calculated by measuring the change in day tank level or volume and the pump operation time required to make that change. This method determines a flow rate for these pumps that can be used to evaluate the pump's hydraulic performance and provide reasonable assurance of pump operational readiness. Therefore, relief is requested pursuant to 10 CFR 50.55a(z)(2) based on the determination that compliance with the Code pump testing requirements regarding pump flow rate cannot be achieved without resulting in a hardship or unusual difficulty without a compensating increase in the level of quality and safety; and the proposed alternative of using the tank level change vs. time to calculate the flow rate provides reasonable assurance of operational readiness and provides an acceptable level of quality and safety.

6. Duration of Proposed Alternative

This request, upon approval, will be applied to the R. E. Ginna Nuclear Power Plant sixth 10-year IST interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

7. Precedent

This relief request was previously approved for the fifth 10-year interval at Ginna, as documented in NRC safety evaluation, "Alternative Requests for Fifth 10-Year Pump and Valve Inservice Testing Program – R. E. Ginna Nuclear Power Plant (TAC Nos. ME2232, ME2233, ME2234, ME2235, ME2236, ME2237, ME2238, and ME2239)," dated December 30, 2009 (ML093570173).

8. References

1. Engineering Work Request 4526-ME-20, Evaluation of Instrument Setpoints for EDG Fuel Oil System.

2. NUREG-1482, *Guidelines for Inservice Testing at Nuclear Power Plants*, Revision 2.

Proposed Alternativein Accordance with 10 CFR 50.55a(z)(2)
PR-02 - Auxiliary Feedwater (AFW) Pumps – Flow Rate

1. ASME Code Component(s) Affected

Component ID	Description	Code Class	Group
PAF01A	"A" Preferred Motor Driven AFW Pump	3	A
PAF01B	"B" Preferred Motor Driven AFW Pump	3	A
PSF01A	"C" Standby Motor Driven AFW Pump	3	B
PSF01B	"D" Standby Motor Driven AFW Pump	3	B

The AFW pumps are required to be capable of supplying AFW flow to the steam generators during a loss of normal feedwater flow or a steam line break in conjunction with a loss of off-site power. This function maintains steam generator water level to provide a secondary heat sink for residual heat removal of the reactor coolant system.

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) 2012 Edition with no Addenda.

3. Applicable Code Requirement

ISTB-3550, *Flow Rate,* states, in part, "When measuring flow rate, a rate or quantity meter shall be installed in the pump test circuit. If a meter does not indicate the flow rate directly, the record shall indicate the method used to reduce the data."

Table ISTB-3000-1, *Inservice Test Parameters*, specifies the parameters of Flow Rate (Q) and Differential Pressure (ΔP) for Group A pump testing and Flow Rate (Q) or Differential Pressure (ΔP) for Group B pump testing.

ISTB-5121, *Group A Test Procedure*, states, in part, "Group A tests shall be conducted with the pump operating as close as practical to a specified reference point and within the variances from the reference point as described in this paragraph. The test parameters shown in Table ISTB-3000-1 shall be determined and recorded as required by this paragraph."

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

ISTB-5122, *Group B Test Procedure*, states that "Group B tests shall be conducted with the pump operating as close as practical to a specified reference point and within the variances from the reference point as described in this paragraph. The test parameter value identified in Table ISTB-3000-1 shall be determined and recorded as required by this paragraph."

ISTB-5122*(c)* states, in part, "System resistance may be varied as necessary to achieve a point as close as practical to the reference point. If the reference point is flow rate, the variance from the reference point shall not exceed +2% or −1%."

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2)
PR-02 - Auxiliary Feedwater (AFW) Pumps – Flow Rate

4. Reason for Request

Pursuant to 10 CFR 50.55a, *Codes and standards*, paragraph (z)(2), an alternative is proposed to the pumptesting requirements regarding pump flow rate in the ASME OM-2012 Code. The basis of the request is that compliance with the specifiedrequirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The AFW pumps each have a minimum flow path that can be utilized for the respective Group A and Group B pump tests. The minimum flow lines provide a fixed resistance flow path from the pump discharge to the condensate storage or demineralized water storage tank, as applicable, then back to the suction of each pump. However, the minimum flow lines are not provided with flow instrumentation.

Compliance with the Code is an undue burden due to existing design limitations in that a flow rate measuring device is not installed in the associated pump minimum flow recirculation line being employed as the pump test circuit. Costly major hardware modifications would be required to provide a permanent flow measuring device in each affected line. It has been estimated that the cost would exceed $75,000 annually to install and maintain temporary flow measuring devices or more than $375,000 to install permanent flow measuring devices into the minimum flow recirculation lines in order to meet the ASME OM Code requirements and support the quarterly testing of the four AFW pumps. Additionally, flow is not variable since an installed flow orifice establishes a 40 gpm flow rate when the pump is operated in the recirculation mode.

The flow path to the steam generators has flow instrumentation; however, this flow path has the potential for service water intrusion and requires a reactivity change. This flow path is used for the biennial comprehensive pump test.

Therefore, the instrumented flow path which has the potential for service water intrusion into the steam generators and requires a reactivity change, and the cost of installing either temporary or permanent flow instrumentation in the minimum flow recirculation lines imposes an undue burden without a compensating increase in the level of quality or safety.

5. Proposed Alternative and Basis for Use

The performance of pump tests using a fixed resistance flow path is an acceptable alternative to the Code requirements per NUREG-1482, Revision 2, Section 5.9, *Pump Testing Using Minimum Flow Return Lines With or Without Flow Measuring Devices*. During the performance of quarterly pump testing, pump differential pressure will be measured and trended. This provides a reference value for differential pressure that can be duplicated during subsequent tests. This methodology provides for the acquisition of repeatable differential pressure, which is an adequate means of monitoring for pump degradation.

Concerns identified in NRC Bulletin 88-04, *Potential Safety-Related Pump Loss*, with regard to minimum recirculation flow line sizing were assessed and verified to not be of concern during pump testing.

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2)
PR-02 - Auxiliary Feedwater (AFW) Pumps – Flow Rate

5. Proposed Alternative and Basis for Use (Cont.)

Quarterly testing of the designated Group A AFW centrifugal pumps (PAF01A, PAF01B) will be performed on minimum flow recirculation measuring differential pressure across the pump and measuring vibration per ASME OM-2012 Code, paragraph ISTB-5121 and using NUREG-1482, Revision 2, Section 5.9 for guidance.

Quarterly testing of the designated Group B Standby AFW centrifugal pumps (PSF01A, PSF01B) will be performed on minimum flow recirculation measuring differential pressure across the pump per ASME OM-2012 Code, paragraph ISTB-5122 and using NUREG-1482, Revision 2, Section 5.9 for guidance.

Therefore, relief is requested pursuant to 10 CFR 50.55a(z)(2) based on the determination that compliance with the Code required Groups A and B centrifugal pump test requirements cannot be achieved without resulting in a hardship or unusual difficulty without a compensating increase in the level of quality and safety; and the proposed alternative testing provides reasonable assurance of the AFW pumps' operational readiness.

6. Duration of Proposed Alternative

This request, upon approval, will be applied to the R. E. Ginna Nuclear Power Plant sixth 10-year IST interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

7. Precedent

This relief request was previously approved for the fifth 10-year interval at Ginna, as documented in NRC safety evaluation, "Alternative Requests for Fifth 10-Year Pump and Valve Inservice Testing Program – R. E. Ginna Nuclear Power Plant (TAC Nos. ME2232, ME2233, ME2234, ME2235, ME2236, ME2237, ME2238, and ME2239)," dated December 30, 2009 (ML093570173).

8. References

1. NUREG-1482, *Guidelines for Inservice Testing at Nuclear Power Plants*, Revision 2.

2. NRC Bulletin 88-04, *Potential Safety-Related Pump Loss*.

Alternative Relief Evaluation Providing an Acceptable Level of Quality and Safety In Accordance with 10 CFR 50.55a(f)(4), PRE-01, Rev 0, Chemical and Volume Control System (CVCS) Pumps

1. ASME Code Component(s) Affected

The following CVCS Pumps are affected:

Component	Description	Class	Group
PCH01A	CVCS Pump A	2	A
PCH01B	CVCS Pump B	2	A
PCH01C	CVCS Pump C	2	A

The charging pumps together with the charging system perform the following process functions during normal plant operation: 1) control reactor coolant inventory, chemistry conditions, activity level, and boron concentrations, 2) provide seal water injection flow to the reactor coolant pumps, 3) process reactor coolant effluent for reuse of boric acid and makeup water.

Safety related functions of the charging pumps together with the charging system are to provide makeup and boration to the RCS. The charging pumps normally provide borated water from the boric acid storage tanks or the refueling water storage tank (RWST) via four potential flow paths. Those flow paths include; 1) normal charging lines to either the hot leg or cold leg, 2) the alternate charging line to the loop B hot leg, 3) auxiliary pressurizer spray line, or 4) reactor coolant pump seals. Of these four potential flow paths, credit is taken for makeup and boration to the RCS via the RCP seal injection flow paths that have no air operated valves (AOVs) or, as a backup method, by providing makeup and boration via the alternate charging path to the RCS loop B hot leg. The alternate charging flow path is provided with a fail-close AOV (392A) that is designed to allow charging flow to the RCS at a differential pressure set point of 250 psid. During the safety related function of makeup and boration the borated water supply source would be provided from the RWST. One charging pump alone can provide cold shutdown boration requirements immediately following reactor shutdown.

The charging pumps are included in the IST Program scope as Augmented components since their only credited function is achieving cold shutdown. Ginna Station's safe shutdown condition is the Hot Shutdown condition; therefore, they do not meet the scoping/selection criteria specified in paragraph ISTA-1100 of the OM Code.

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) 2012 Edition with no Addenda.

3. Applicable Code Requirement

ISTB-3400, Frequency of inservice Tests, states “An inservice test shall be run on each pump as specified in Table ISTB-3400-1.”

Table ISTB-3400-1, Inservice Test Frequency, requires a quarterly Group A test, a biennial Comprehensive test, and a biennial Pump Periodic Verification test (PPVT).

10CFR50.55a(f)(4), Inservice Testing Standards Requirements for Operating Plants, published July 18, 2017, requires an augmented inservice testing program be developed for pumps and valves within the scope of the ASMEOM Code that are not code class 1, 2, or 3 components.

4. Reason for Evaluation

The CVCS (Charging) pumps, PCH01A/B/C, are augmented components in the Inservice Testing (IST) Program, as they are not required to achieve the Ginna safe shutdown condition of Hot Shutdown, only cold shutdown. Therefore, while they do not meet the scope requirements to be included in the IST Program, Ginna has optionally included them and has applied the requirements of 10CFR50.55a, paragraph (f)(4), to formally document the alternative testing performed.

Pursuant to 10CFR50.55a, *Codes and Standards*¸ paragraph (f)(4), a deviation from the ASME OM Code provisions is being implemented since the testing performed at Ginna provides an acceptable level of quality and safety.

These pumps are presently tested to meet Group A pump testing requirements. The pump speed is set and the discharge pressure and pump flow are determined per ISTB-5321(c). The pump flow acceptance criterion is required to be between approximately 35 gpm and 41.8 gpm. The present test acceptance criterion includes a low alert range between approximately 35 gpm and 36 gpm in order to detect pump degradation. The acceptance criterion also ensures sufficient flow and pressure to meet the requirements of Mandatory Appendix V, for the PPVT. Since the pumps are normally in operation while at power and are routinely monitored by operations, a separate comprehensive test (CPT) is not warranted.

The testing described above provides an acceptable level of quality and safety.

5. Proposed Alternative and Basis for Use

The Charging pumps will be tested on a semi-annual frequency as an alternative to the ASME OM Code specified quarterly testing. Ginna will continue to test the pumps as Group A pumps with acceptance criterion sufficient to meet the PPVT requirements. This testing will include an alert range to detect pump degradation. This deviation from the ASME OM Code is justified as the Charging pumps are normally in operation while at power. Degraded performance of these pumps will be observed without the need for quarterly testing or a biennial CPT.

This testing provides an acceptable level of quality and safety and also ensures the pump degradation is detected and that the design requirements are met.

Therefore, the alternative relief is being implemented pursuant to 10CFR50.55a(f)(4) based on the determination that the testing at Ginna provides an acceptable level of quality and safety and that the proposed alternative provides reasonable assurance of pump operational readiness.

6. Duration of Proposed Alternative

This alternative will be applied to the Ginna sixth 10-year interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

Alternative Relief Evaluation Providing an Acceptable Level of Quality and Safety In Accordance with 10 CFR 50.55a(f)(4), PRE-02, Rev 0, Spent Fuel Pool Cooling (SFPC) A Pump – Alert Range

1. ASME Code Component(s) Affected

Component	Description	Class	Group
PAC07A	SPENT FUEL POOL RECIRCULATION PUMP A	SSC	A

The spent fuel pool recirculation pump A performs the safety significant function of providing heat removal from the spent fuel pool by circulating fuel pool inventory through SFP heat exchanger A, allowing the residual heat to be transferred to the service water system. This function is required to limit the pool temperature to less than or equal to the administrative limit of 120F during maximum normal heat load conditions associated with a refueling outage.

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) 2012 Edition with no Addenda.

3. Applicable Code Requirement

10CFR50.55a(f)(4), Inservice Testing Standards Requirements for Operating Plants, published July 18, 2017, requires an augmented inservice testing program be developed for pumps and valves within the scope of the ASME OM Code that are not code class 1, 2, or 3 components.

Table ISTB-3400-1, Inservice Test Frequency, requires a quarterly Group A test, a biennial Comprehensive pump test (CPT), and a biennial Pump Periodic Verification test (PPVT).

ISTB-5123, Comprehensive Test Procedure, states, in part, "All deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in para. ISTB-5121-1."

Table ISTB-5121-1, Centrifugal Pump Test Acceptance Criteria, provides the acceptance criteria for the CPT parameters of Flow Rate (Q)and (or) Differential Pressure (ΔP). The table specifies an Alert Range of 0.90 to <0.93 of reference differential pressure.

4. Reason for Evaluation

Pursuant to 10CFR50.55a, *Codes and Standards*¸ paragraph (f)(4) an alternative augmented test plan is being implemented to the pump testing requirements regarding pump differential pressure in the ASME OM-2012 Code. The basis for the alternative is that the alternative test plan demonstrates an acceptable level of quality and safety.

The pump is presently tested to meet quarterly Group A pump testing requirements. The acceptance criterion also ensures sufficient flow and pressure to meet the requirements of Mandatory Appendix V, for the PPVT.

5. Proposed Alternative and Basis for Use

Spent fuel pool recirculation pump PAC07A will have a Group A test performed quarterly with no CPT. This deviation from the Code is justified by the fact that the quarterly Group A test meets all of the requirements of a CPT, Group A test, and a PPVT with regards to required test flow, differential pressure, vibrations, test instrument accuracy, and Acceptance Criteria with only one exception. The exception being the required Alert Range of 0.90 to <0.93 of reference for dP required for the CPT is not applied. However, given that the test will be performed and trended by engineering on an increased quarterly frequency instead of once every 2 years as required per Code there will be added assurance that any degradation will be adequately identified and addressed in a timely manner. Per ISTB-6200(a) if a measured test parameter value falls within the alert range the frequency of the testing shall be doubled, the quarterly frequency effectively increases the CPT frequency by a factor of 8 which conservatively exceeds the Code requirement for an increased test frequency of a CPT.

Ginna will continue to test spent fuel pool recirculation pump A as a Group A pump with acceptance criterion sufficient to meet CPT and PPVT requirements, with the exceptaion of application of an alert range. This testing provides an acceptable level of quality and safety and also ensures any pump degradation is detected and that the design requirements are met.

Therefore, the alternative relief is being implemented pursuant to 10CFR50.55a(f)(4) based on the determination that the testing at Ginna provides an acceptable level of quality and safety and that the proposed alternative provides reasonable assurance of pump operational readiness.

6. Duration of Proposed Alternative

This alternative will be applied to the Ginna sixth 10-year interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

Attachment 4

Valve Relief Request Index

ValveRelief Request Index

RELIEF REQUEST NUMBER	RELIEF REQUEST TITLE	APPROVAL DATE
GR-01	RCPB Isolation Valves - Leak Testing	8/5/2019
VR-01	4324, 4325, 4326	8/5/2019
VR-02	434, 435	8/5/2019

Attachment 5

Valve Relief Requests

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2),
GR-01 - Reactor Coolant Pressure Boundary Isolation Valve – Leak Testing

1. ASME Code Component(s) Affected

Valve	System	Code Class	Category	Configuration/Type
878A	SI	2	A	MOV
878C	SI	2	A	MOV
877A	SI	1	A/C	Event V CV
877B	SI	1	A/C	Event V CV
878F	SI	1	A/C	Event V CV
878H	SI	1	A/C	Event V CV

The Reactor Coolant System (RCS) Pressure Isolation Valves (PIVs) function to provide reactor coolant system pressure boundary isolation.

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) 2012 Edition with no Addenda.

3. Applicable Code Requirement

ISTC-3630, *Leakage Rate for Other Than Containment Isolation Valves*, states, in part, that "Category A valves with a leakage requirement not based on an Owner's 10 CFR 50, Appendix J program, shall be tested to verify their seat leakages [are] within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied."

ISTC-3630(a), *Frequency*, states, "Tests shall be conducted at least once every 2 yr."

4. Reason for Request

Pursuant to 10 CFR 50.55a, *Codes and Standards*¸ paragraph (z)(2), an alternative to the requirement of ASME OM-2012 Code, paragraph ISTC-3630(a) is proposed. The basis of the request is that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Safety injection (SI) hot leg check valves 877A, 877B, 878F, and 878H and motor operated valves (MOVs) 878A and 878C are considered to be passive. During operation, the check valves are normally closed and their associated MOV is also closed and de-energized.

Leakage testing for these valves, including testing requirements, is governed by plant Technical Specification (TS) 3.4.14, *RCS Pressure Isolation Valve (PIV) Leakage*. TS Surveillance Requirement (SR) 3.4.14.2 requires that Ginna verify leakage from each SI system hot leg injection line RCS PIV at a prescribed differential pressure. The seat leakage is measured, analyzed, and compared to permissible leakage rates at a frequency prescribed by the Surveillance Frequency Control Program (SFCP), which is 40 months for SR 3.4.14.2.

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2),
GR-01 - Reactor Coolant Pressure Boundary Isolation Valve – Leak Testing

Due to the lack of test connections, each series pair of check valves (877A/878F and 877B/878H) form one of the two pressure boundaries required to be tested with the second boundary being its associated MOV. Failure of a leakage test of a tested pair would require that both check valves be declared inoperable and in need of rework. Any valve failing the acceptance criteria of TS 3.4.14 shall be declared inoperable and entered into a TS Action in TS Section 3.4.14. Testing of series pairs of check valves in this configuration is allowed by the OM Code, paragraph ISTC-5223, *Series Valves in Pairs*, and utilizes the guidance found in NUREG-1482, Revision 2, Section 4.1.1, *Closure Verification for Series Check Valves without Intermediate Test Connections*, which states that testing of the pair of valves is acceptable if the configuration does not require two valves and the safety analysis for such a configuration would credit either of the two valves.

Since the series pairs of check valves 877A/878F and 877B/878H do not have the needed test connections to individually test each valve and since testing of these valves with their adjacent MOVs is specified adequately by TS, it is an undue burden to comply with the OM Code requirements to perform separate leak rate tests. The plant TS establish the maximum permissible leakage rates, test pressure requirements, test frequency requirements, and the required action if the leak rate limit is exceeded. To make modifications to include the proper test connections and perform leak rate testing in accordance with the OM Code would be costly and increase personnel radiation exposure and would not result in a compensating increase in the level of quality and safety.

5. Proposed Alternative and Basis for Use

In lieu of the Code-required separate leak rate tests, these series pair check valves will be leak rate tested in accordance with the RCS PIV leak rate testing per TS 3.4.14. The proposed alternative testing will provide reasonable assurance of the valves' operational readiness. Therefore, this alternative to the Code required leakage rate testing of the RCS PIVs is proposed pursuant to 10 CFR 50.55a(z)(2).

6. Duration of Proposed Alternative

This request, upon approval, will be applied to the R. E. Ginna Nuclear Power Plant sixth 10-year IST interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

7. Precedent

This relief request was previously approved for the fifth 10-year interval at Ginna, as documented in NRC safety evaluation, "Alternative Request GR-01 for the Fifth 10-Year Pump and Valve Inservice Testing Program – R. E. Ginna Nuclear Power Plant (TAC No. ME2238)," dated April 14, 2010 (ML100890237).

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2),
GR-01 - Reactor Coolant Pressure Boundary Isolation Valve – Leak Testing

8. References

1. NUREG-1482, *Guidelines for Inservice Testing at Nuclear Power Plants*, Revision 2.
2. Technical Specifications 3.4.14, *RCS Pressure Isolation Valve (PIV) Leakage*, and associated TS Surveillance Requirement SR-3.4.14.2.
3. Ginna Surveillance Frequency Control Program

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2),
VR-01 - Service Water Solenoid-Operated Valves (SOVs) – Stroke Time Testing

1. ASME Code Component(s) Affected

Valve	Description	Code Class	Category
4324	TDAFW Pump SW Strainer Bypass SOV	3	B
4325	MDAFW Pump A SW Strainer Bypass SOV	3	B
4326	MDAFW Pump B SW Strainer Bypass SOV	3	B

These service water (SW) valves open upon an auxiliary feedwater (AFW) pump bearing cooling water supply high strainer differential pressure (DP) to provide cooling water to the driver's bearings.

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) 2012 Edition with no Addenda.

3. Applicable Code Requirement

ISTC-5150, *Solenoid-Operated Valves*, paragraph ISTC-5151, *Valve Stroke Testing*, states:
"(a) Active valves shall have their stroke times measured when exercised in accordance with para. ISTC-3500.
(b) The limiting value(s) of full-stroke time of each valve shall be specified by the Owner.
(c) Stroke time shall be measured to at least the nearest second.
(d) Any abnormality or erratic action shall be recorded (see para. ISTC-9120), and an evaluation shall be made regarding need for corrective action."

ISTC-5152, *Stroke Test Acceptance Criteria*, states, in part, "Test results shall be compared to reference values established in accordance with para. ISTC-3300, ISTC-3310, or ISTC-3320."

4. Reason for Request

Pursuant to 10 CFR 50.55a, *Codes and Standards*¸ paragraph (z)(2), an alternative to the requirements of ASME OM-2012 Code, paragraphs ISTC-5151 and ISTC-5152 is proposed. The basis of the request is that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

These SOVs are normally closed rapid acting valves that automatically actuate to the open position on high differential pressure across the supply strainer. Measurement of stroke times during manual actuation using conventional methods cannot be performed to produce consistent, meaningful or trendable test results. The valves are not provided with control switches to allow for conventional stroke timing methodology. Additionally, there is no remote valve position indication or other positive means to determine valve disc position. Without concise methods of initiating valve movement or determining when the stroke is completed, it is difficult to obtain repeatable stroke time data to monitor for degradation. It would be

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2),
VR-01 - Service Water Solenoid-Operated Valves (SOVs) – Stroke Time Testing

necessary to disassemble the respective differential pressure switch in order tocontrol actuation of these valves and as a result of this disassembly, stroke timing during power operation would require rendering these valves inoperable and entering a limiting condition for operation (LCO) from which prompt restoration would not be possible.

These valves are tested on a quarterly frequency during AFW pump testing. This testing includes strainer cleaning, strainer isolation, high differential pressure simulation, verification of valve operation, and flow observation. Failure of these valves to stroke in conjunction with a clogged strainer would result in a lack of pressure at the bearing cooler inlet and a high DP alarm, at which time an Operator would be dispatched to manually trip the respective valve.

This quarterly verification, while not measuring stroke time or monitoring for valve degradation, does provide an indication that each SOV is moving to its safety position by verifying disc movement and is consistent with the guidelines provided in NUREG-1482, Revision 2, Section 4.2.3, *Stroke Time for Solenoid-Operated Valves*.

Therefore, relief is requested pursuant to 10 CFR 50.55a(z)(2) based on the determination that compliance with the Code SOV testing requirements regarding stroke timing cannot be achieved without resulting in a hardship or unusual difficulty without a compensating increase in the level of quality and safety; and the proposed alternative testing including strainer cleaning, strainer isolation, high differential pressure simulation, verification of valve operation, and flow observation provides reasonable assurance of operational readiness and provides an acceptable level of quality and safety.

5. <u>Proposed Alternative and Basis for Use</u>

These valves will be stroke tested during associated AFW pump testing by closing the valve downstream of the strainer. Acceptable valve operation will be based on:

- Verifying locally that the valve has de-energized and tripped open.
- Verifying the presence of a steady stream of water from the affected floor drain funnel.
- Verifying that the associated main control board annunciator alarms.

The proposed alternative testing will accurately reflect obturator position and will provide reasonable assurance of the valves' operational readiness. Thus, this alternative to the requirements of the Code-required stroke time testing of the SW SOVs is proposed pursuant to 10 CFR 50.55a(z)(2).

6. <u>Duration of Proposed Alternative</u>

This request, upon approval, will be applied to the R. E. Ginna Nuclear Power Plant sixth 10-year interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2),
VR-01 - Service Water Solenoid-Operated Valves (SOVs) – Stroke Time Testing

7. Precedent

This relief request was previously approved for the fifth 10-year interval at Ginna, as documented in NRC safety evaluation, “Alternative Requests for Fifth 10-Year Pump and Valve Inservice Testing Program – R. E. Ginna Nuclear Power Plant (TAC Nos. ME2232, ME2233, ME2234, ME2235, ME2236, ME2237, ME2238, and ME2239),” dated December 30, 2009 (ML093570173).

8. References

1. NUREG-1482, *Guidelines for Inservice Testing at Nuclear Power Plants*, Revision 2.

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2),
VR-02 - Pressurizer Safety Relief Valves – Position Indication

1. **ASME Code Component(s) Affected**

Component ID	Description	Code Class	Category
434	Pressurizer Relief Valve	1	C
435	Pressurizer Relief Valve	1	C

The Pressurizer Safety Relief Valves provide over-pressurization protection for the Reactor Coolant System (RCS)/Pressurizer.

2. **Applicable Code Edition and Addenda**

American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) 2012 Edition with no Addenda.

3. **Applicable Code Requirement**

Mandatory Appendix I, paragraph I-7310, *Class 1 Safety Valves,* states, in part, “Tests before maintenance or set-pressure adjustment, or both, shall be performed for subparas. I-7310(a) through (c) in sequence. The remaining shall be performed after maintenance or set-pressure adjustment.”

Subparagraph I-7310(f) states, “determination of operation and electrical characteristics of position indicators.”

4. **Reason for Request**

Pursuant to 10 CFR 50.55a, *Codes and Standards*, paragraph (z)(2), an alternative to the requirement of ASME OM Code Mandatory Appendix I, subparagraph I-7310(f) is proposed. The basis of the request is that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

These valves are mechanical spring-actuated valves with an externally mounted Linear Voltage Differential Transformer (LVDT) stem position indicator. The position indicator must be removed in order to permit removal of the safety valves each refueling outage for shipment to an off-site vendor for set pressure testing. It would be necessary to intentionally challenge RCS pressure limits to actuate these safety valves in order to perform position indication testing prior to removal for set pressure testing. Also, if these safety valves were actuated for a position indication test following re-installation, they would again need to be retested to ensure the set pressure has not been adversely affected. This involves increased testing and unnecessary radiation exposure to test personnel and results in a hardship without a compensating increase in the level of quality and safety.

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(2),
VR-02 - Pressurizer Safety Relief Valves – Position Indication

5. Proposed Alternative and Basis for Use

In accordance with plant administrative procedures, channel checks for Pressurizer safety relief valve position indication are performed once per shift and validated by comparison with tailpipe temperature indication. The valves are also simulated to actuate using station calibration procedures. The procedure utilizes movement of the valve's coil (up/down) and verifies position via an alarm in the Control Room. Calibration of these position indicators is governed by plant calibration procedures and is performed on a refueling outage frequency. These procedures verify that the proper clearance is obtained to ensure obturator position is accurately represented and provide reasonable assurance of valve operational readiness. Thus, this alternative to the Code-required testing of the pressurizer safety relief valves is proposed pursuant to 10 CFR 50.55a(z)(2).

6. Duration of Proposed Alternative

This request, upon approval, will be applied to the R. E. Ginna Nuclear Power Plant sixth 10-year IST interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

7. Precedent

This relief request was previously approved for the fifth 10-year interval at Ginna, as documented in NRC safety evaluation, “Alternative Requests for Fifth 10-Year Pump and Valve Inservice Testing Program – R. E. Ginna Nuclear Power Plant (TAC Nos. ME2232, ME2233, ME2234, ME2235, ME2236, ME2237, ME2238, and ME2239),” dated December 30, 2009 (ML093570173).

Attachment 6

Relief Request RAI and SER

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 5, 2019

Mr. Bryan C. Hanson
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: R. E. GINNA NUCLEAR POWER PLANT– ISSUANCE OF RELIEF REQUEST ASSOCIATED WITH ALTERNATIVES PR-01 AND PR-02 FOR THE SIXTH 10-YEAR INSERVICE TESTING PROGRAM (EPID L-2018-LLR-0381)

Dear Mr. Hanson:

By letter dated December 13, 2018 (Agencywide Documents Access and Management System Accession No. ML18347B036), Exelon Generation Company, LLC (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) associated with pump inservice testing for the R. E. Ginna Nuclear Power Plant.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee requested to use the proposed alternatives in requests PR-01 and PR-02 on the basis that the ASME OM Code requirements present an undue hardship, without a compensating increase in the level of quality or safety.

The U.S. Nuclear Regulatory Commission (NRC) staff has determined that compliance with the specified requirements would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC staff authorizes the use of these alternative requests for the sixth 10-year inservice testing program interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 5, 2019

Mr. Bryan C. Hanson
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: R. E. GINNA NUCLEAR POWER PLANT– ISSUANCE OF RELIEF REQUEST ASSOCIATED WITH ALTERNATIVES GR-01, VR-01, AND VR-02 FOR THE SIXTH 10-YEAR INSERVICE TESTING PROGRAM (EPID L-2018-LLR-0382; EPID L-2018-LLR-0383)

Dear Mr. Hanson:

By letter dated December 13, 2018 (Agencywide Documents Access and Management System Accession No. ML18347B036), Exelon Generation Company, LLC (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), associated with valve inservice testing for the R. E. Ginna Nuclear Power Plant (Ginna).

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee requested to use the proposed alternatives in requests GR-01, VR-01, and VR-02 on the basis that the ASME OM Code requirements present an undue hardship, without a compensating increase in the level of quality or safety.

The U.S. Nuclear Regulatory Commission (NRC) staff has determined that compliance with the specified requirements would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC staff authorizes the use of these alternative requests for the sixth 10-year IST program interval, which begins on January 1, 2020, and is scheduled to end on December 31, 2029.

All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable.

Attachment 7

Code Case Index

CODE CASE NUMBER	**TITLE**
OMN-20	Inservice Test Frequency

Attachment 8

Cold Shutdown Justification Index

CSJ NUMBER	REV #	TITLE
CS-01	0	590, 591, 592, 593
CS-02	0	8616A, 8616B, 8619A, 8619B, 8620A, 8620B, 8630A, 8630B
CS-03	0	700, 701, 720, 721
CS-04	0	841, 865
CS-05	0	702
CS-06	0	710A, 710B
CS-07	0	112B, 357, LCV-112C
CS-08	0	142, 370B, 392A, 393, 295, 297, 9313, 9314, 9315
CS-09	0	200A, 200B, 202, 371
CS-10	0	270A, 270B, 304A, 304B
CS-11	0	386
CS-12	0	383A, 383B, 392B
CS-13	0	850A, 850B
CS-14	0	750A, 750B, 753A, 753B
CS-15	0	951, 953, 955, 951C, 953C, 955C
CS-16	0	3516, 3517
CS-17	0	3518, 3519
CS-18	0	3992, 3993
CS-19	0	3994, 3995, 4269, 4270, 4271, 4272
CS-20	0	3994G, 3995G
CS-21	0	856
CS-22	0	896A, 896B
CS-23	0	897, 898
CS-24	0	4083

Attachment 9

Cold Shutdown Justifications

COLD SHUTDOWN JUSTIFICATION - CS-01

Component ID	Class	Cat.	System
590	2	B	Reactor Coolant
591	2	B	Reactor Coolant
592	2	B	Reactor Coolant
593	2	B	Reactor Coolant

FUNCTION

These normally closed pilot operated solenoid valves are part of the RCS head vent system. The valves must be capable of opening to vent non-condensable gases from the reactor vessel head space during post-accident conditions. This function supports post accident recovery by allowing the removal of gases from the reactor vessel head space which could inhibit adequate core cooling during natural circulation. The valves perform a safety function in the closed position to maintain pressure boundary integrity of the RCS.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASISFOR JUSTIFICATION

Periodic full or part-stroke exercising in the open and closed directions during normal plant operation could degrade this system by repeatedly challenging the downstream valves due to a phenomenon known as "burping." This phenomenon has been previously described in ASME report "Spurious Opening of Hydraulic-Assisted, Pilot-Operated Valves - An Investigation of the Phenomenon." The phenomenon involves a rapid pressure surge buildup at the valve inlet caused by opening the upstream valve in a series double isolation arrangement or closing a valve in a parallel redundant flow path isolation arrangement. The pressure surge is sufficient enough to lift the valve plug until a corresponding pressure increase in a control chamber above the pilot and disc can create enough downward differential pressure to close the valve. Failure of any one of these valves in the open direction would reduce the pressure boundary status from double-valve protection to single-valve-protection between the Reactor Coolant System (RCS) and the Containment building atmosphere.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when RCS pressure has been reduced.

COLD SHUTDOWN JUSTIFICATION - CS-02

Component ID	Class	Cat.	System
8616A	3	B	Reactor Coolant
8616B	3	B	Reactor Coolant
8619A	3	B	Reactor Coolant
8619B	3	B	Reactor Coolant
8620A	NC	B	Reactor Coolant
8620B	NC	B	Reactor Coolant
8630A	3	C	Reactor Coolant
8630B	3	C	Reactor Coolant

FUNCTION

Solenoid-operated valves 8616A and 8616B are Overpressure Protection System (OPS) surge tank charging valves. Solenoid-operated valves 8619A, 8619B, 8620A and 8620B are nitrogen three way valves for the PORVs. Valves 8630A and 8630B are the PORV actuating line check valves. All these valves must be capable of position change to support actuation of the Pressurizer power operated relief valves (PORV).

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Full or partial exercising of these valves during power operation would actuate the power operated relief valves. Since the associated inlet block valves are not required to be Category A valves and their seat tightness is not credited in the licensing basis, actuation of the PORVs during power operation could cause unplanned pressure transients in the RCS resulting in a reactor trip.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns in conjunction with PORV exercising.

COLD SHUTDOWN JUSTIFICATION - CS-03

Component ID	Class	Cat.	System
700	1	A	Residual Heat Removal (RHR)
701	1	A	RHR
720	1	A	RHR
721	1	A	RHR

FUNCTION

These normally closed motor operated valves are located in the RHR supply line from the RCS loop A hot leg (700, 701) and the RHR pump discharge to the Loop B cold Leg (720, 721). Thevalves must open for initiation of RHR shutdown cooling. The shutdown cooling mode of RHR is not required for accident mitigation or to achieve/maintain safe shutdown and is not considered safety related since Ginna is licensed for hot shutdown being the safe shutdown condition. It is; however, considered a risk significant function and components supporting this function may be subject to testing. These valves perform a safety function in the closed position to isolate RCS pressure from the lower design pressure of the RHR system. Valves 701 and 720 also perform a safety function in the closed position to provide containment isolation for penetrations P140 and P111.

TEST REQUIREMENT

Mandatory Appendix III, paragraph III-3721, HSSC MOVs, states that HSSC MOVs shall be exercised in accordance with para. III-3600. HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in core damage frequency (CDF) and large early release (LER) associated with a longer exercise interval is small.

BASIS FOR JUSTIFICATION

For valves 700 and 721, exercising is not possible due to a high pressure interlock which prevents the valve from opening when RCS pressure is above 410 psig, thereby, preventing the inadvertent over-pressurization of the RHR system piping and components.

For valves 701 and 720, exercising during power operation is impractical. Failure of the valve in the open position would reduce the system from double to single-valve-protection between the RCS and RHR systems. Leakage of the associated inboard valve could result in over-pressurization of the RHR system piping and components or cause an inter-system LOCA.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when RCS pressure is below the valve interlock and is reduced to the point of allowing the valves to be safely opened.

COLD SHUTDOWN JUSTIFICATION - CS-04

Component ID	Class	Cat.	System
841	2	B	Safety Injection
865	2	B	Safety Injection

FUNCTION

These normally open motor operated valves, located in the outlet piping from the Safety Injection (SI) accumulators, must remain open to allow injection of the accumulator inventory to the RCS loop A/B cold leg when RCS pressure has been reduced below accumulator nitrogen pressure. During normal plant operation the valves have the control power removed to ensure the safety function of the accumulator can be accomplished. They receive a confirmatory safety injection signal to ensure that they are fully open.

The valves perform a safety significant function in the closed position. As directed by an EOP, the valves are closed after the accumulator contents have been injected to prevent nitrogen intrusion into the RCS. This function promotes natural circulation of safety injection flow by minimizing voids in the RCS.

TEST REQUIREMENT

Mandatory Appendix III, paragraph III-3721, HSSC MOVs, states that HSSC MOVs shall be exercised in accordance with para. III-3600. HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in core damage frequency (CDF) and large early release (LER) associated with a longer exercise interval is small.

BASIS FOR JUSTIFICATION

Valves 841 and 865 are SI accumulator isolation valves. The valves are closed to isolate the SI accumulators during Reactor Coolant System (RCS) cooldown. Exercising these valves during power operation is not practical because it would unnecessarily place the plant in a more risk-significant configuration (even though it is not a significant risk contributor, the isolated accumulator could not inject during a LOCA sequence) without a corresponding increase in safety. Additionally, exercising these valves during power operation would cause a loss of system function if they were to fail in a non-conservative position during the cycling test. There is also a Technical Specification requirement to maintain these valves locked open with power removed when RCS pressure is above 1600 psig. Failure of these valves in the closed position would require shutting down the reactor.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when the accumulators can be isolated without compromising plant safety.

COLD SHUTDOWN JUSTIFICATION - CS-05

Component ID	Class	Cat.	System
702	2	C	Residual Heat Removal (RHR)

FUNCTION

This normally closed check valve is located in a branch connection to CVCS letdown off the RHR low head safety injection (LHSI)/shutdown cooling header inside the primary containment. The valve must open to provide a pressure relief flow path between the LHSI/RHR piping and the letdown orifice outlet relief valve, 203. Overpressure protection is required to prevent over-pressurization of the lower pressure LHSI piping in the event of in-leakage from the high pressure RCS. Additionally, Ginna's response to GL 96-06 credits 702 with opening to prevent thermal over-pressurization of containment penetration P111 piping and components during post-LOCAconditions.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Full exercising this check valve during power operation would require isolating letdown which could cause perturbations in or result in a loss of Pressurizer level control possibly resulting in a reactor trip.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when letdown is not required to be in service.

COLD SHUTDOWN JUSTIFICATION - CS-06

Component ID	Class	Cat.	System
710A	2	C	Residual Heat Removal (RHR)
710B	2	C	RHR

FUNCTION

These check valves are located at the discharge of RHR pumps. The valves must be capable of opening during post-accident low head safety injection and during the recirculation phase of safety injection. The check valves must be capable of closure if the adjacent train is out of service to prevent diversion of the in service pump's recirculation flow or to prevent diversion if train A and B are cross-tied.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Closure testing of valves during power operation is not practical since this would require cross-tying the RHR pumps discharge headers thus rendering both trains of RHR inoperable. In accordance with NUREG 1482, Rev.2, Section 3.1.2, entry into multiple LCOs to facilitate testing is to be avoided.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when the system can be aligned to facilitate testing.

COLD SHUTDOWN JUSTIFICATION - CS-07

Component ID	Class	Cat.	System
112B	2	B	Chemical and Volume Control
112C	NC	B	Chemical and Volume Control
357	2	C	Chemical and Volume Control

FUNCTION

112B is a normally closed air operated valve located in the RWST supply line to the charging pumps suction. The valve performs a safety significant function in the open position to align the RWST inventory to the charging pumps suction. 112C is a normally open non-Code class air operated valve located in the VCT outlet line to the charging pumps suction. The valve performs a safety significant function in the closed position to isolate the VCT when the charging pumps suction is aligned to the RWST. 112C is interlocked with the RWST supply valve 112B such that 112B auto opens and 112C auto closes when the VCT level reaches 5% as indicated on LT-112 and LT-139. The RWST is designated as the emergency supply source of borated water for makeup and boration of the RCS. Likewise, 357 is a normally closed check valve located in the RWST supply line to the charging pumps suction. 357 performs a safety significant function in the open direction to provide a flow path for RWST inventory to the charging pumps suction.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising these valves during power operation would cause a sudden increase in the RCS boron inventory, and thereby cause a plant transient and possible shutdown.

ALTERNATE TESTING

Valve full stroke exercising shall be performed when transitioning to or during cold shutdowns when boron concentration is not a concern.

COLD SHUTDOWN JUSTIFICATION - CS-08

Component ID	Class	Cat.	System
142	2	B	Chemical and Volume Control
370B	2	AC	Chemical and Volume Control
392A	2	BC	Chemical and Volume Control
393	1	C	Chemical and Volume Control
9315	1	C	Chemical and Volume Control
295	1	C	Chemical and Volume Control
297	1	C	Chemical and Volume Control
9313	1	C	Chemical and Volume Control
9314	1	C	Chemical and Volume Control

FUNCTION

Normally open air operated valve (142) and check valve 370B are located in the charging header. The valves perform a safety significant function in the open position to provide a flow path for RCS makeup and boration when the charging pumps are aligned to receive suction from the RWST as the emergency makeup supply source ofborated water. Additionally, 370B performs an open safety function for penetration over pressure protection to address GL 96-06 concerns and as a designated containment isolation valve must close for containment integrity post-LOCA. 392A, 393, and 9315 are normally closed valves located in the alternate charging line from the regenerative heat exchanger to the RCS Loop B hot leg.

392A is a normally closed Class 2 air operated valve. 393 and 9315 are Class 1 check valves. They perform a safety significant function in the open direction since this flow path is designated as the safety related flow path for the purpose of providing makeup and boration to the RCS when the suction of the charging pumps is aligned to the RWST. 392A serves as an isolation valve and a relief valve. The valve performs a safety function in its relieving position. Although 392A fails to the closed position on a loss of actuating air or control power, it is designed to open at a differential pressure setpoint of 250 psid to allow sufficient charging flow to provide cold shutdown boration.

295, 297, 9313, and 9314 are Class 1 check valves in the normal charging (295, 9314) and auxiliary pressurizer spray (297, 9313) flow paths. These valves perform a reactor coolant pressure boundary function.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising these valves during power operation would isolate charging flow to the RCS which could result in loss of Pressurizer level control and a reactor trip. In addition, exercising these valves during power operation may result in excessive thermal cycles to the regenerative heat exchanger potentially resulting in premature equipment failure and reduction in its expected service life.

ALTERNATE TESTING

Valve full stroke exercising shall be performed when transitioning to or during cold shutdowns when charging flow can be secured.

COLD SHUTDOWN JUSTIFICATION - CS-09

Component ID	Class	Cat.	System
200A	1	A	Chemical and Volume Control
200B	1	A	Chemical and Volume Control
202	1	A	Chemical and Volume Control
371	2	A	Chemical and Volume Control

FUNCTION

200A, 200B, and 202 are air operated valves located downstream of the letdown orifices. 371 is an air operated valve located in the normal letdown line from the RCS loop B to the non-regenerative heat exchanger. The valves perform a safety function in the closed position to maintain containment integrity during post-LOCA conditions. The valves are designated inboard containment isolation valves for penetrations P111 and P112.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Full or partial exercising of AOV 371 during power operation would interrupt or isolate letdown flow from the RCS which would result in loss of Pressurizer level control and, potentially, a reactor trip. Full or partial exercising of AOVs-200A, 200B, or 202 during power operation could result in severe letdown flow perturbations that could potentially result in adverse Pressurizer level and RCS pressure transients.

ALTERNATE TESTING

Valve full stroke exercising shall be performed when transitioning to or during cold shutdowns when letdown flow can be secured.

COLD SHUTDOWN JUSTIFICATION - CS-10

Component ID	Class	Cat.	System
270A	2	B	Chemical and Volume Control
270B	2	B	Chemical and Volume Control
304A	1	C	Chemical and Volume Control
304B	1	C	Chemical and Volume Control

FUNCTION

270A and 270B are air operated valves located in the seal water return lines from the RCP shaft seals. The valves perform a safety significant function in the closed position. Although the valves fail open, they are the only power operated valves located in the pressure class 2501 seal leak-off piping. Should a catastrophic leak occur at the RCP seal, the valves may be required to close to isolate the pressure class 151 piping and components associated with containment penetration P108 from RCS pressure, although this piping is also protected by a relief valve. 304A and 304B are check valves located in the CVCS seal water injection lines to the RCP shaft seals. They perform a safety significant function in the open direction by allowing at least 8 gpm flow to accomplish the emergency boration function. Additionally, per response to GL 96-06, the valves must be capable of partially opening to provide a thermal over-pressure protection safety function for penetrations P106 and P110 during post-LOCA conditions if flow is terminated to the seals. They must also close to provide contatinment isolation for the associated containment penetrations.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising these valves during power operation would interrupt flow to and from RCP seals which could result in RCP seal damage and require the plant to shut down.

ALTERNATE TESTING

Valve exercising shall be performed during cold shutdowns when RCP seal water flow can be interrupted.

COLD SHUTDOWN JUSTIFICATION - CS-11

Component ID	Class	Cat.	System
386	2	B	Chemical and Volume Control

FUNCTION

386 is an air operated valve located in the seal bypass line from RCP A and B. 386 is the only power operated valve located in the pressure class 2501 seal bypass piping. Should a catastrophic leak occur at either RCP seal while the seal bypass is in service, 386 may be required to close to isolate the pressure class 151 piping and components associated with containment penetration P108 from RCS pressure.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising this valve during power operation would divert flow from the RCP seals which could result in RCP seal damage and require the plant to shut down.

ALTERNATE TESTING

Valve exercising shall be performed during cold shutdowns when RCP seal water flow can be interrupted.

COLD SHUTDOWN JUSTIFICATION - CS-12

Component ID	Class	Cat.	System
383B	2	AC	Chemical and Volume Control
392B	1	BC	Chemical and Volume Control
383A	1	C	Chemical and Volume Control

FUNCTION

These valves are located in the CVCS alternate charging line to the RCS loop A cold leg. The valves perform a safety function in both the open and closed directions. They must open for GL 96-06 concerns and 383, as a designated containment isolation valve, must be capable of closure on cessation or reversal of flow to maintain containment integrity.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Reverse flow exercising of these valves is impractical during power operation because this test would result in substantial radiation exposure to test personnel raising ALARA concerns. The valves are located inside containment and reverse exercising requires the use of temporary test equipment and an outside pressure source.

ALTERNATE TESTING

Valve exercising shall be performed during cold shutdowns.

COLD SHUTDOWN JUSTIFICATION - CS-13

Component ID	Class	Cat.	System
850A	2	B	Residual Heat Removal (RHR)
850B	2	B	RHR

FUNCTION

These normally closed motor operated valves, located in the RHR pump supply lines from the containment sumps, must open during low head safety injection, upon depletion of the usable portion of the RWST inventory (28%), to provide a flow path for sump inventory to the RHR pumps suction for continued core cooling during the recirculation phase of safety injection.

The valves perform a passive safety function in the closed position. Upon low head safety injection actuation, the normally closed position of the valves will prevent the diversion of RWST inventory to the containment sump in lieu of being directed to the core deluge nozzles. The valves are also designated containment isolation valves for penetrations P141/P142.

TEST REQUIREMENT

Mandatory Appendix III, paragraph III-3721, HSSC MOVs, states that HSSC MOVs shall be exercised in accordance with para. III-3600. HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in core damage frequency (CDF) and large early release (LER) associated with a longer exercise interval is small.

BASIS FOR JUSTIFICATION

Exercising these valves during power operation is not practical because it requires the energizing and closure of inboard suction line passive MOVs 851A/B. MOVs 851A/B are specially designed with a 20 foot reach rod connecting the motor operator actuator to the actual valve. This design creates a higher possibility of damage/separation between the actuator and valve. Lack of full closure of 851A/B would result in loss of RWST inventory to the containment sump so stroking of MOVs 851A/B online is not recommended. The lineup for exercising these valves requires entry into an LCO due to inoperability of RHR. Per NUREG 1482 Revision 2 section 3.1.2, entry into such an LCO is adequate justification for deferral of Inservice Testing.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when the Containment Sump inventory can be isolated without compromising plant safety.

COLD SHUTDOWN JUSTIFICATION - CS-14

Component ID	Class	Cat.	System
750A	2	C	Component Cooling Water (CCW)
750B	2	C	CCW
753A	2	C	CCW
753B	2	C	CCW

FUNCTION

These check valves are located inside containment in the cooling water supply lines to the RCP thermal barrier coolers. The cooling coils of the thermal barriers are part of the RCS pressure boundary. A rupture in the RCP thermal barrier cooling coils would result in the release of reactor coolant to the attached CCW piping. Closure of these valves minimizes the low pressure CCW closed system piping exposed to RCS pressure.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Reverse flow exercising of these valves during operation at power would require isolation of CCW flow to the thermal barriers. This could result in damage to an operating reactor coolant pump and a reactor trip. Additionally, reverse exercising these check valves requires entry into containment and the installation of temporary test equipment.

ALTERNATE TESTING

Valve exercising shall be performed during cold shutdowns when the RCPs can be removed from service.

COLD SHUTDOWN JUSTIFICATION - CS-15

Component ID	Class	Cat.	System
951C	1	C	Plant Sampling
953C	1	C	Plant Sampling
955C	1	C	Plant Sampling
951	1	B	Plant Sampling
953	1	B	Plant Sampling
955	1	B	Plant Sampling

FUNCTION

Check valves 951C, 953C, and 955C serve as thermal over-pressure protection devices for containment penetration piping and components. The valves were installed to satisfy GL 96-06 concerns. Air-operated valves (AOVs) 951, 953, and 955 are normally closed RCS and Pressurizer sample valves. They have no open safety function. They are non-credited inboard containment isolation valves for penetrations P205, P206a, & P207a. They receive a confirmatory containment isolation signal to enhance the isolation capabilities of the associated penetrations.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising the check valves (951C, 953C, and 955C) quarterly requires entry into Containment inside the missile barrier to connect test equipment, perform the test and disconnect test equipment. Under power operating conditions, this area is a high radiation area and not readily accessible. Since the personnel safety risks and ALARA concerns far outweigh the benefit achieved with a quarterly test, testing of these check valves will be performed during cold shutdowns. Quarterly exercising of the Primary Sample AOV’s (951, 953, and 955), also located inside containment inside the missile barrier, increases the potential risk for excessive packing leakage and an excessive packing leak may cause an unplanned reactor shutdown as was the case at LaSalle Unit 2.

ALTERNATE TESTING

Valve exercising shall be performed during cold shutdowns.

COLD SHUTDOWN JUSTIFICATION - CS-16

Component ID	Class	Cat.	System
3516	2	B	Main Steam
3517	2	B	Main Steam

FUNCTION

These air operated check valves are located in the main steam headers and serve as the main steam isolation valves (MSIV). The valves perform a safety function in the closed direction to prevent the unrestricted release of steam from the steam generator during a steam line break (SLB) and to protect the integrity of the unaffected steam generator for decay heat removal. Additionally, as designated containment isolation valves, they must also be capable of closure to maintain containment integrity.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising these valves during normal operation isolates one line of steam flow to the turbine. Isolation of a main steam header would cause a severe pressure transient in the associated main steam line possibly resulting in a plant trip. Additionally, closure of an MSIV, at power, could potentially result in challenging the set point of the main steam relief valves causing inadvertent lifting. Reducing power level to perform testing without causing a transient would significantly impact plant operations and power production.

ALTERNATE TESTING

Valve exercising shall be performed during cold shutdowns when the main steam headers can be isolated.

COLD SHUTDOWN JUSTIFICATION - CS-17

Component ID	Class	Cat.	System
3518	3	C	Main Steam
3519	3	C	Main Steam

FUNCTION

These check valves are located downstream of MSIVs. The valves perform a safety function in the closed direction. A steam line rupture downstream of the non-return valves would require valve closure to prevent unrestricted blow-down of the unaffected steam generator. This function prevents the addition of large amounts of mass and energy to containment which could compromise containment integrity and protects the integrity of the unaffected steam generator so it may be used for decay heat removal.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising of these valves to the closed position is not possible without isolating the main steam header. Isolation of a main steam header would cause a severe pressure transient in the associated main steam line possibly resulting in a plant trip. Reducing power level to perform testing without causing a transient would significantly impact plant operations and power production.

ALTERNATE TESTING

These valves will be verified to be capable of closing during normal plant shutdown to cold shutdown, following closure of the main steam isolation valves. If the plant shutdown is a result of a plant trip, these valves will be verified to be capable of closing subsequent to the plant trip.

COLD SHUTDOWN JUSTIFICATION - CS-18

Component ID	Class	Cat.	System
3992	2	C	Main Feedwater
3993	2	C	Main Feedwater

FUNCTION

These check valves are located outside containment in the normal feedwater flow path to steam generators. The valves perform a safety function in the closed direction to prevent the diversion of AFW flow from the steam generator to the non-safety-related feedwater piping. Also, subsequent to feedwater isolation during a SGTR or MSLB, closure of the check valves on reversal of flow serves to isolate the faulted steam generator. Additionally, as designated containment isolation valves, they may be required to close for containment integrity.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising the feedwater injection check valves in the reverse direction is impracticable quarterly during power operation due to the necessity of isolating normal feedwater flow to the associated steam generator. Isolation of feedwater flow during normal operation would cause a loss of steam generator level control potentially resulting in a plant trip.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when the system can be aligned to facilitate testing.

COLD SHUTDOWN JUSTIFICATION - CS-19

Component ID	Class	Cat.	System
3994	3	B	Main Feedwater
3995	3	B	Main Feedwater
4269	3	B	Main Feedwater
4270	3	B	Main Feedwater
4271	3	B	Main Feedwater
4272	3	B	Main Feedwater

FUNCTION

4269 and 4270 are located in the main feedwater supply headers to the steam generators and serve as mainfeedwater regulating valves (MFRV). 4271 and 4272 are located in the bypass lines around the MFRVs. 3994 and 3995 are located in the main feedwater headers to the steam generators and serve as the main feedwater isolation valves (MFIV). These six air operated valves perform a safety function in the closed position to isolate feedwater flow during a steam line break (SLB) or feedwater line break (FWLB). 3994 and 3995 provide redundant isolation of the feedwater header in conjunction with the upstream MFRVs and their bypass valves. Their closure capability is credited in the accident analysis for redundant isolation of feedwater.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Full or partial exercising of these valves during operation at power is impractical since closing the flow control valves or the isolation valves would isolate feedwater to the respective steam generator and opening the bypass valves would result in feedwater flow perturbations and potentially severe transients including loss of RCS heat sink, loss of steam generator level control and a reactor trip.

ALTERNATE TESTING

Valve testing will be performed during cold shutdown or in transition to hot shutdown when isolation of feedwater will not impact plant safety.

COLD SHUTDOWN JUSTIFICATION - CS-20

Component ID	Class	Cat.	System
3994G	3	C	Main Feedwater
3995G	3	C	Main Feedwater

FUNCTION

These check valves are located in the instrument air supply lines to the actuating air accumulators for main feedwater isolation valves (MFIV). The valves perform a safety function in the closed direction. Subsequent to a loss of normal instrument air, closure of the check valve maintains pressure boundary integrity of the accumulator. The accumulator provides a backup actuating air supply to the MFIV which closes upon receipt of an SI signal. Closure of the MFIV provides redundant isolation capability, in conjunction with the MFRVs and their bypass valves, of the feedwater header.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Closure testing of these check valves entails a pressure drop/decay test of the associated air accumulator. During power operation, check valve closure testing is impractical since an inadvertent loss of air pressure would result in the associated main feedwater isolation valve going closed (fails closed on loss of air pressure). Isolating feedwater to the respective steam generator would result in potentially severe transients including loss of steam generator level control, loss of RCS heat sink and a reactor trip.

ALTERNATE TESTING

Valve testing will be performed during cold shutdown or in transition to hot shutdown when main feedwater can be isolated.

COLD SHUTDOWN JUSTIFICATION - CS-21

Component ID	Class	Cat.	System
856	2	B	Residual Heat Removal (RHR)

FUNCTION

This normally open motor operated valve allows passage of flow from the RWST to RHR pump suction upon a low head safety injection actuation. The valve must close to isolate the RWST during the recirculation phase of safety injection. This closure minimizes the potential for radioactive leakage to the atmosphere via the RWST vent.

TEST REQUIREMENT

Mandatory Appendix III, paragraph III-3721, HSSC MOVs, states that HSSC MOVs shall be exercised in accordance with para. III-3600. HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in core damage frequency (CDF) and large early release (LER) associated with a longer exercise interval is small.

BASIS FOR JUSTIFICATION

Valve 856 is the RHR pump suction supply valve from the RWST. It is not practical to exercise this valve during power operation as this would isolate the RWST from the RHR system. This would render both RHR trains of low head safety injection inoperable which would require plant shutdown. In accordance with NUREG 1482, section 3.1.2, entry into multiple LCOs is to be avoided.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when system operability is not required.

COLD SHUTDOWN JUSTIFICATION - CS-22

Component ID	Class	Cat.	System
896A	2	A	Containment Spray
896B	2	A	Containment Spray

FUNCTION

These normally open motor operated valves are located at the RWST outlet to the Containment Spray (CS) and safety injection pumps suction and are installed in series. The valves must remain open to provide a suction supply flow path to the CS pumps subsequent to a LOCA or steam line break for containment heat removal and to the SI pumps for core cooling.

The valves must close to isolate the RWST during the recirculation phase of safety injection. When the RWST inventory reaches a low level during the injection phase, the CS pumps are provided suction supply from the containment sump via the RHR system. During the recirculation phase, closure of 896A and 896B prevents the release of radioactivity to the atmosphere via the RWST vent. 896A and 896B are interlocked with RHR isolation valves 857A, 857B, and 857C. This interlock prevents opening of the RHR isolation valves unless either 896A or 896B are closed and either 897 or 898, SI pump min-flow isolation valves, are closed.

TEST REQUIREMENT

Mandatory Appendix III, paragraph III-3721, HSSC MOVs, states that HSSC MOVs shall be exercised in accordance with para. III-3600. HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in core damage frequency (CDF) and large early release (LER) associated with a longer exercise interval is small.

BASIS FOR JUSTIFICATION

These valves should not be exercised during power operation as this would isolate the RWST from the Containment Spray and Safety Injection systems, rendering all trains of these engineered safeguards systems inoperable and would require initiation of a plant shutdown. In accordance with NUREG 1482, section 3.1.2, entry into multiple LCOs is to be avoided.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when system operability is not required.

COLD SHUTDOWN JUSTIFICATION - CS-23

Component ID	Class	Cat.	System
897	2	A	Containment Spray
898	2	A	Containment Spray

FUNCTION

These normally open motor operated valves, located in the Safety injection (SI) pumps minimum flow line to the RWST, are installed in series and must open to provide a flow path for SI pump minimum flow when the pumps are operating in low flow or dead-head conditions. The minimum flow path is necessary to prevent the pumps from overheating.

The valves must close to isolate the RWST during the recirculation phase of safety injection. When the RWST inventory reaches a low level during the injection phase, the SI pumps are provided suction supply from the containment sump via the RHR system. During the recirculation phase, closure of 897 and 898 prevents the release of radioactivity to the atmosphere via the RWST vent. 897 and 898 are interlocked with RHR isolation valves 857A, 857B, and 857C. This interlock prevents opening of the RHR isolation valves unless either 897 or 898 are closed and either 896A or 896B, RWST to CS pump isolation valves, are closed.

TEST REQUIREMENT

Mandatory Appendix III, paragraph III-3721, HSSC MOVs, states that HSSC MOVs shall be exercised in accordance with para. III-3600. HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in core damage frequency (CDF) and large early release (LER) associated with a longer exercise interval is small.

BASIS FOR JUSTIFICATION

During power operation, these valves are maintained open to provide minimum flow protection for the SI pumps. Closing of either of these valves renders all three SI pumps inoperable. In accordance with NUREG 1482, section 3.1.2, entry into multiple LCOs is to be avoided.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when system operability is not required.

COLD SHUTDOWN JUSTIFICATION - CS-24

Component ID	Class	Cat.	System
4083	3	C	Auxiliary Feedwater

FUNCTION

This normally closed check valve is located in the condensate pressurization supply line to the AFW pumps suction. This valve performs an ACTIVE safety function in the CLOSED direction to prevent the diversion of condensate storage tank water supply to the AFW pumps during accident conditions when the AFW system is required to operate. This check valve serves as the Class 3 to non-Code boundary barrier.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Performing the check valve exercise testing during power operations is not practical since it requires isolating the condensate pressurization line to both trains of AFW. Isolating the condensate pressurization line increases the potential for service water intrusion into both trains of AFW suction piping.

ALTERNATE TESTING

Valve full stroke exercising shall be performed during cold shutdowns when system operability is not required.

Attachment 10

Refueling Outage Justification Index

ROJ NUMBER	REV #	TITLE
ROJ-01	0	8606A, 8606B
ROJ-02	0	697A
ROJ-03	0	853A, 853B
ROJ-04	0	878G, 878J
ROJ-05	0	870A, 870B
ROJ-06	0	5392
ROJ-07	0	854
ROJ-08	0	9708A, 9708B, 9781
ROJ-09	0	302C, 302D
ROJ-10	0	624, 625

Attachment 11

Refueling Outage Justifications

REFUELING OUTAGE JUSTIFICATION - ROJ-01

Component ID	Class	Cat.	System
8606A	3	AC	Reactor Coolant
8606B	3	AC	Reactor Coolant

FUNCTION

These check valves are located in the nitrogen supply lines to the RCS over-pressure protection accumulators and serve as Class 3 to non-Code boundary barriers. The valves perform a safety function in the closed direction. Closure capability maintains pressure boundary integrity of the accumulator by providing a barrier between the Class 3 and non-Code class portions of the system.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

When these valves are in operation, there is no practical means to test valve closure. Valve closure cannot be verified due to system design. To perform a closure verification constitutes a leak test which presents a significant hardship during operation at power and cold shutdowns. Leak testing requires an extended period of time where the low temperature overpressure protection system will be out of service.

ALTERNATE TESTING

Valve closure verification will be performed in conjunction with a seat leakage test conducted during refueling outages when the over-pressure protection accumulators can be removed from service.

REFUELING OUTAGE JUSTIFICATION - ROJ-02

Component ID	Class	Cat.	System
697A	2	C	Residual Heat Removal

FUNCTION

This check valve is located in the outlet line from RHR heat exchanger "A". It performs a safety function in the open and closed directions. During post accident low head safety injection and during the recirculation phase of safety injection this valve must pass safety injection flow to reactor vessel upper plenum to maintain sufficient core inventory. The check valve isolates the Train A and Train B recirculation flow paths from each other. Additionally, during post-accident system operation, this check valve would be required to close in the event that Train A became unavailable thereby, preventing diversion of Train B flow to an out of service Train A in lieu of being directed to the core.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Full stroke exercising this valve in the forward direction quarterly during power operation is not possible since the RCS is the only available flow path for valve full flow exercising and the RHR pump has insufficient discharge head to overcome reactor pressure. Full stroke exercising this valve in the forward direction during cold shutdown is precluded by restrictions related to LTOP concerns.

ALTERNATE TESTING

Full stroke exercising in the forward direction shall be performed during refueling outages when sufficient expansion volume exists in the RCS to accommodate the required flow rate.

REFUELING OUTAGE JUSTIFICATION - ROJ-03

Component ID	Class	Cat.	System
853A	1	AC	Residual Heat Removal (RHR)
853B	1	AC	RHR

FUNCTION

These check valves are located inside containment in the low head safety injection lines to the reactor vessel. The valves are the first of two valves that serve as the Class 1 to Class 2 boundary barrier. The valves perform a safety function in the open and closed directions. They must open to provide a flow path for injection flow to the reactor vessel upon a low head safety injection actuation and as PIVs, must close to isolate the attached upstream lower pressure RHR system piping from the RCS.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Full stroke exercising these valves in the forward direction quarterly during power operation is not possible due to insufficient RHR pump discharge head to overcome reactor pressure. Full stroke exercising these valves in the forward direction during cold shutdown is precluded by restrictions related to LTOP concerns. During power operation, there is no practical means to test valve closure due to system design. To perform a closure verification constitutes a leak test, which presents significant hardships during cold shutdown, such as the use of temporary test equipment inside containment, excessive radiation exposure to test personnel, and extended outage time.

ALTERNATE TESTING

Full stroke exercising in the forward direction shall be performed during refueling outages when sufficient expansion volume exists in the RCS to accommodate the required flow rate. Reverse flow exercising shall be performed at refueling during the performance of PIV seat leakage testing per TS 3.4.14.

REFUELING OUTAGE JUSTIFICATION - ROJ-04

Component ID	Class	Cat.	System
878G	1	AC	Safety Injection
878J	1	AC	Safety Injection

FUNCTION

These check valves are located in the safety injection lines to the RCS cold legs from the SI pumps discharge. The valves perform a safety function in the open and closed directions. They must be capable of opening to providea flow path to the RCS for high head safety injection. As PIVs the valves must be capable of closure to maintain the integrity of the RCS pressure boundary and to isolate RCS pressure from the lower pressure SI piping and components.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Full stroke exercising these valves in the forward direction quarterly during power operation is not possible due to insufficient SI pump discharge head to overcome reactor pressure. Full stroke exercising these valves in the forward direction during cold shutdown is precluded by restrictions related to LTOP concerns. During power operation, there is no practical means to test valve closure due to system design. To perform a closure verification constitutes a leak test, which presents significant hardships during cold shutdown, such as the use of temporary test equipment inside containment, excessive radiation exposure to test personnel, and extended outage time.

ALTERNATE TESTING

Full stroke exercising in the forward direction shall be performed during refueling outages when sufficient expansion volume exists in the RCS to accommodate the required flow rate. Reverse exercising shall be performed at refueling during the performance of PIV seat leakage testing per TS 3.4.14.

REFUELING OUTAGE JUSTIFICATION - ROJ-05

Component ID	Class	Cat.	System
870A	2	C	Safety Injection
870B	2	C	Safety Injection

FUNCTION

These check valves are located in the C SI pump discharge lines. The valves perform a safety function in the open and closed directions. They must be capable of opening to provide a flow path to the RCS subsequent to the SI pumps starting on receipt of a safety injection actuation signal. As designated containment isolation valves, they must be capable of closure on reversal of flow to maintain containment integrity of the closed system outside containment. The valves must also be capable of closure to ensure SI pump flow is properly directed to the RCS subsequent to a failure of an SI pump to start.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Full stroke exercising these valves in the forward direction quarterly during power operation is not possible due to insufficient SI pump discharge head to overcome reactor pressure. Full stroke exercising these valves in the forward direction during cold shutdown is precluded by restrictions related to LTOP concerns. The performance of closure verification constitutes pressurizing downstream components inside containment which may impact operability caused by excessive component leakage thereby requiring containment entry at power or potentially requiring the safe shutdown of the reactor. Containment entry at power to isolate and repair leaking components could lead to excessive radiation exposure to plant personnel.

ALTERNATE TESTING

Full stroke exercising in the forward direction shall be performed during refueling outages when sufficient expansion volume exists in the RCS to accommodate the required flow rate. These valves shall be exercised closed during refueling outages when valve closure testing will not impact operability of downstream components inside containment.

REFUELING OUTAGE JUSTIFICATION - ROJ-06

Component ID	Class	Cat.	System
5392	2	A	Instrument Air

FUNCTION

This air operated valve is located in the instrument air supply line to containment. As a designated containment isolation valve, 5392 performs a safety function in the closed position for containment isolation.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Stroking valve 5392 during operation and cold shutdown is impractical because it would interrupt instrument air to containment and be disruptive to those components inside containment that are dependent upon instrument air to accomplish a function. Loss of instrument air would cause all air-operated valves to be actuated to their fail-safe position. During power operation, this would lead to a reactor trip and, during cold shutdown, this would compromise plant operation due to the loss of various components used in maintaining the reactor in a cold shutdown condition. Additionally, the valve control circuitry does not provide for partial stroke capability.

ALTERNATE TESTING:

This valve will be full-stroke exercised during refueling outages when valve closure will not impact downstream component operability.

REFUELING OUTAGE JUSTIFICATION - ROJ-07

Component ID	Class	Cat.	System
854	2	C	Residual Heat Removal

FUNCTION

This check valve is located in the RHR pump suction supply piping from the RWST. The valve performs a safety function in the open and closed directions. It must becapable of passing flow to RHR pump suction upon a low head safety injection actuation. The valve must be capable of closure during the recirculation phase of safety injection to minimize the potential for radioactive leakage to the atmosphere via the RWST vent.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Valve exercising is not possible during power operation since RHR pump discharge pressure is insufficient to overcome RCS pressure. This valve cannot be full-stroke exercised during cold shutdown because establishing the required safety analysis flow through the valve could result in excessive RCS cooldown rates. Closure verification is not possible since this would require isolation of the vital flow path from the RWST. Valve 854 will be full stroke exercised and closure verified tested during refueling outages. Radiographic testing has been performed for valve 854 and proven to successfully demonstrate positive indication of the valve disk in the closed position. Employing radiographic testing of this valve in the closed position provides positive indication of the required change of disk position.

ALTERNATE TESTING

Full stroke exercising in the forward direction shall be performed during refueling outages. Reverse exercising shall be performed during refueling outages by utilizing non-intrusive radiographic testing.

REFUELING OUTAGE JUSTIFICATION - ROJ-08

Component ID	Class	Cat.	System
9708A	3	C	Standby Auxiliary Feedwater
9708B	3	C	Standby Auxiliary Feedwater
9781	NC	C	Standby Auxiliary Feedwater

FUNCTION

These normally closed check valves are located between the SAFW de-ionized water storage tank and SAFW A/C pump suctions. Valves 9708A/B perform a safety significant function in the open direction to allow the fire protection system to be utilized as a backup to SW as a suction supply source by connecting fire hoses subsequent to a tornado. This configuration would only be used during design basis event tornado conditions if both seismically qualified electrical trains of SW were unavailable.

The valves also perform a safety significant function in the open direction to allow the preferred source of water from the de-ionized water tank to the suction of the SAFW Pumps. The addition of the new de-ionized water tank and associated piping enhance the capability and diversity of the SAFW pumps, and is needed to mitigate the risk significance of the turbine driven auxiliary feedwater pump.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

The SAFW pumps each have a minimum flow path that is utilized for the quarterly pump tests. The flow path to the steam generators has flow instrumentation; however, this flow path has the potential for service water intrusion and requires a reactivity change. This flow path is not used for the quarterly pump tests only the biennial comprehensive pump test (CPT). The quarterly minimum flow path limits flow to 40 gpm which only provides a partial stroke of these valves.

ALTERNATE TESTING

Full stroke exercising in the forward direction shall be performed at refueling outages during the respective pump's CPT.

REFUELING OUTAGE JUSTIFICATION - ROJ-09

Component ID	Class	Cat.	System
302C	1	C	Chemical and Volume Control
302D	1	C	Chemical and Volume Control

FUNCTION

These normally open check valvesare located in the CVCS seal water injection lines to the RCP shaft seals. The valves perform an ACTIVE safety significant function in the OPEN direction. The RCP seal injection lines are one of two emergency boration flow paths when the charging pumps are aligned to the RWST. The valves must be capable of passing at least 8 gpm to accomplish their emergency boration function.

The valves have NO safety function in the CLOSED direction.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

Exercising these valves closed during power operation would interrupt flow to and from the RCP seals which could result in RCP seal damage and require the plant to shut down.

ALTERNATE TESTING

Normal operations satisfies the forward flow exercising requirements as the valves see continuous flow during power operations. Full stroke bi-directional reverse flow exercising shall be performed during refueling outages when RCP seal water flow can be interrupted and the valves are accessible for testing.

REFUELING OUTAGE JUSTIFICATION - ROJ-10

Component ID	Class	Cat.	System
624	2	B	Residual Heat Removal
625	2	B	Residual Heat Removal

FUNCTION

These normally open, air operated flow control valves are located in the discharge lines from RHR heat exchangers A and B. The valves perform a safety function in the open position and fail to the open position in the event of a loss of instrument air or electrical control power. During normal plant operation, the RHR system is maintained in the standby mode for Low Head Safety Injection (LHSI) with these valves in the administratively controlled throttled open position. They are not required to re-position during an accident. The valves are throttled during a normal cooldown to cold shutdown conditions.

TEST REQUIREMENT

OM Code paragraph ISTC-3510 requires Active Category A and B valves and Category C check valves to be exercised nominally every 3 months during operation at power to the position(s) required to fulfill its function(s), except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3570, ISTC-5221 and 5222.

BASIS FOR JUSTIFICATION

These control valves are exempted from testing per OM Code ISTC-1200(b), since they perform no specific active function in shutting down the reactor or mitigating the consequences of an accident. During normal plant operation, the RHR system is maintained in the standby mode for LHSI with 624/625 in the administratively controlled throttled open position. Therefore, the valves are not required to change position to perform their safety function when the RHR system is aligned in standby for LHSI. The valves also are not required to be repositioned when aligning the safety injection and RHR systems for the recirculation mode of operation. Ginna has chosen to observe operation of the valve as a good engineering practice. As such, system manipulations to allow exercising the valves quarterly or during cold shutdowns are deemed unnecessary.

ALTERNATE TESTING

Full stroke exercising shall be performed during refueling outages.

Attachment 12

Technical Position index

TECHNICAL POSITION NUMBER	**REV #**	**TITLE**
		Corporate
CTP-IST-001	1	Preconditioning of IST Program Components
CTP-IST-003	0	Quarterly Testing of Group B Pumps
CTP-IST-007	2	Skid-Mounted Components
CTP-IST-008	2	Position Verificaton Testing
CTP-IST-014	0	Bi-directional Testing of Check Valves to Their Safety and Non-Safety Related Positions
		Site Specific
TJ-01		Deleted
TJ-02		5933A, 5933B, 5934A, 5934B – Skid-Mounted Classification
/76++95-7J-03		5907, 5907A, 5908, 5908A – Skid-Mounted Classification
1 31320 TJ-04		Deferral Justification Test Window
TJ-05		On-Line Maintenance
TJ-06		8616A, 8616B, 8619A, 8619B, 8620A, 8620B, 8630A, 8630B – Skid-Mounted Classification
TJ-07		Component Cooling Water Total Pump Flow
TJ-08		Deleted
TJ-09		Deleted
TJ-10		LLRT Scope Reduction Valve Category

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Attachment 13

Technical Positions

Technical Position Justifications – Corporate

Number: **CTP-IST-001, Rev. 1**

Title: **Preconditioning of IST Program Components**

Applicability: All Exelon IST Programs. This issue also applies to other Technical Specification surveillance testing where preconditioning may affect the results of the test. This Technical Position may be adopted optionally by other Exelon organizations.

Background: There are no specified ASME Code requirements regarding preconditioning or the necessity to perform as-found testing, with the exception of setpoint testing of relief valves and MOV testing performed in accordance with Code Case OMN-1 or Mandatory Appendix III. Nevertheless, there has been significant concern raised by the NRC, and documented in numerous publications, over this issue. Section 3.5 of Reference 2 provides guidance on preconditioning as it relates to IST; Section 3.6 provides additional guidance on as-found testing. It is the intent of this Technical Position to provide a unified, consistent approach to the issue of preconditioning as it applies to IST Programs throughout the Exelon fleet.

The purpose of IST is to confirm the operational readiness of pumps and valves within the scope of the IST Program to perform their intended safety functions whenever called upon. This is generally accomplished by testing using quantifiable parameters which provide an indication of degradation in the performance of the component. Preconditioning can diminish or eradicate the ability to obtain any meaningful measurement of component degradation, thus defeating the purpose of the testing.

Preconditioning is defined as the alteration, variation, manipulation, or adjustment of the physical condition of a system, structure, or component before Technical Specification surveillance or ASME Code testing. Since IST is a component-level program, this Technical Position will address preconditioning on a component-level basis. Preconditioning may be acceptable or unacceptable.

- Acceptable preconditioning is defined as preconditioning which is necessary for the protection of personnel or equipment, which has been evaluated as having insufficient impact to invalidate the results of the surveillance test, or which provides performance data or information which is equivalent or superior to that which would be provided by the surveillance test.

- Unacceptable preconditioning is preconditioning that could potentially mask degradation of a component and allow it to be returned to or remain in service in a degraded condition.

In most cases, the best means to eliminate preconditioning concerns is to perform testing in the as-found condition. When this is not practical, an evaluation must be performed to determine if the preconditioning is acceptable. Appendix 1 to this Technical Position may be used to document this evaluation.

CTP-IST-001, Rev. 1 (Cont.)

The acceptability or unacceptability of preconditioning must be evaluated on a case-by-case basis due to the extensive variability in component design, operation, and performance requirements. Preconditioning of pumps may include filling and venting of pump casings, venting of discharge piping, speed adjustments, lubrication, adjustment of seals or packing, etc. Preconditioning of valves may include stem lubrication, cycling of the valve prior to the "test" stroke, charging of accumulators, attachment of electrical leads or jumpers, etc.

Factors to be considered in the evaluation of preconditioning acceptability include component size and type, actuator or driver type, design requirements, required safety functions, safety significance, the nature, benefit, and consequences of the preconditioning activity, the frequencies of the test and preconditioning activities, applicable service and environmental conditions, previous performance data and trends, etc.

Lubrication of a valve stem provides an example of the variability of whether or not a preconditioning activity is acceptable. For example, lubrication of the valve stem of an AC-powered MOV during refueling outages for a valve that is exercise tested quarterly would normally be considered acceptable, unless service or environmental conditions could cause accelerated degradation of its performance. Lubrication of a valve stem each refueling outage for an MOV that is exercise tested on a refueling outage frequency may be unacceptable if the lubrication is always performed prior to the exercise test. Lubrication of a valve stem for an AOV prior to exercise testing is likely to be unacceptable, unless it can be documented that the preconditioning (i.e., maintenance or diagnostic testing) can provide equal or better information regarding the as-found condition of the valve. Manipulation of a check valve or a vacuum breaker that uses a mechanical exerciser to measure breakaway force prior to surveillance testing would be unacceptable preconditioning. Additional information regarding preconditioning of MOVs may be found in Reference 4.

Position:

1. Preconditioning **SHALL** be avoided unless an evaluation has been performed to determine that the preconditioning is acceptable. Appendix 1 to this Technical Position may be used to document this evaluation. In cases where the same information applies to more than one component, a single acceptability evaluation may be performed and documented
2. Evaluations **SHALL** be prepared, reviewed and approved by persons with the appropriate level of knowledge and responsibility. For example, persons preparing an evaluation should hold a current certification in the area related to the activity. Reviewers should be certified in a related area.
3. The evaluation **SHALL** be approved by a Manager or designee.
4. If it is determined that an instance of preconditioning has occurred without prior evaluation, the evaluation **SHALL** be performed as soon as practicable following discovery. If the evaluation concludes that the preconditioning is unacceptable, an IR shall be written to evaluate the condition and identify corrective actions.

CTP-IST-001 APPENDIX 1
EVALUATION OF PRECONDITIONING ACCEPTABILITY

Description of activity:			
Section 1: NRC Inspection Manual Part 9900 Review:			
Answer the following questions to determine the acceptability of the preconditioning activity based on Section D.2 of Reference 3.			
Question	*Yes*	*No*	*Not Determined*
1. Does the alteration, variation, manipulation or adjustment ensure that the component will meet the surveillance test acceptance criteria?	☐	☐	☐
2. Would the component have failed the surveillance without the alteration, variation, manipulation or adjustment?	☐	☐	☐
3. Does the practice bypass or mask the as-found condition?	☐	☐	
4. Is the alteration, variation, manipulation or adjustment routinely performed just before the testing?	☐	☐	
5. Is the alteration, variation, manipulation or adjustment performed only for scheduling convenience?	☐	☐	
If all the answers to Questions 1 thru 5 are No, the activity is acceptable; go to Section 3. Otherwise, continue to Section 2.			

Section 2: Additional Evaluation		
The following questions may be used to determine if preconditioning activities that do not meet the screening criteria of Section 1 are acceptable		
Question	*Yes*	*No*
6. Is the alteration, variation, manipulation or adjustment required to prevent personnel injury or equipment damage? If yes, explain below.	☐	☐
7. Does the alteration, variation, manipulation or adjustment provide performance data or information that is equivalent or superior to that provided by the surveillance test? If yes, explain below.	☐	☐
8. Is the alteration, variation, manipulation or adjustment being performed to repair, replace, inspect or test an SSC that is inoperable or is otherwise unable to meet the surveillance test acceptance criteria? If yes, explain below.	☐	☐
9. Is there other justification to support classification of the alteration, variation, manipulation or adjustment as acceptable preconditioning? If yes, explain below and provide references.	☐	☐
Explanation / Details: (attach additional sheets as necessary)		
Conclusion: The preconditioning evaluated herein **(is / is not)** acceptable. (Circle one)		

Section 3: Review / Approve	
Prepared by:	Date:
Reviewed by:	Date:
Approved by:	Date:

Number: **CTP-IST-003, Rev. 0**

Title: **Quarterly Testing of Group B Pumps**

Applicability: ASME OM-1995 Code and Later

Background: Pumps included in IST Programs that must comply with the 1995 Edition of the ASME OM Code and later are required to be classified as either Group A or Group B pumps. The OM Code defines a Group A pump as a pump that is operated continuously or routinely during normal operation, cold shutdown, or refueling operations. A Group B pump is defined as a pump in a standby system that is not operated routinely except for testing.

Testing of pumps is performed in accordance with Group A, Group B, comprehensive or preservice test procedures. In general, a Group A test procedure is intended to satisfy quarterly testing requirements for a Group A pump, a Group B test procedure is intended to satisfy quarterly testing requirements for a Group B pump, and a comprehensive test procedure is required to be performed on a frequency of once every two years for all Group A and Group B pumps. A Group A test procedure may be substituted for a Group B procedure and a comprehensive or preservice test procedure may be substituted for a Group A or a Group B procedure at any time.

A Group A test procedure is essentially identical to the quarterly pump test that was performed in accordance with OM-6 and earlier Code requirements. Group B testing was introduced to the nuclear industry when the NRC endorsed the OM-1995 Edition with OMa-1996 Addenda in 10 CFR 50.55a(b)(3). The intent of the Group B test was to provide assurance that safety related-pumps that sit idle essentially all of the time (e.g. ECCS pumps) would be able to start on demand and achieve a pre-established reference condition. The requirements for Group B testing were significantly relaxed when compared with the Group A (traditional) pump test requirements based on the assumption that there were no mechanisms or conditions that would result in pump degradation while the pump sat idle.

Strong differences of opinion regarding the intent and requirements for Group B testing developed and have persisted since the beginning. These differences span the industry, the NRC, and even members of the OM Code Subgroup-ISTB who created them. One opinion is that the Group B test is intended to be a "bump" test in which the pump is started, brought up to reference flow or pressure, and then stopped. The opposing opinion is that the Group B test requires the pump to be brought to the reference flow or pressure followed by recording and evaluation of both the flow and pressure readings. Both opinions can be supported by the applicable OM Code verbiage. However, NRC personnel have expressed a reluctance to accept the "bump" test interpretation.

Position: Group B pump testing should be performed as follows:

1. When performing a Group B pump test, both hydraulic test parameters (i.e., flow and differential pressure OR flow and discharge pressure) shall be measured and evaluated in accordance with the applicable Code requirements for the pump type.

CTP-IST-003, Rev. 0 (Cont.)

2. Vibration measurements are not required for Group B pump tests. Vibration measurements may continue to be taken optionally. In the event that a vibration reading exceeds an alert or required action limit for the comprehensive test for the pump being tested, an IR shall be written and corrective action taken in accordance with the CAP process.

References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTB.

Number: **CTP-IST-007, Rev. 2**

Title: **Skid-Mounted Components**

Applicability: All Exelon IST Programs

Background: The term "skid-mounted component" was coined to describe support components, such as pumps and valves for the purposes of IST, that function in the operation of a supported component in such a way that their proper functioning is confirmed by the operation of the supported component. For example, the successful operation of an emergency diesel-generator set confirms that essential support equipment, such as cooling water and lube oil pumps and valves, are functioning as required. The concept of "skid-mounted" is actually irrespective of physical location.

Position: Components that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident are required to tested in accordance with the ASME Code-in-effect for the station's IST Program. It is not the intent of the skid-mounted exemption that it be used in cases where the specific testing requirements of the Code for testing of pumps and valves can be met. For example, if adequate instrumentation is provided to measure a pump's flow and differential pressure, and if required points for vibration measurement can be accessed, then invoking the skid-mounted exemption would be inappropriate.

The “skid-mounted” exclusion as stated in references 2 and 3, below, may be applied to pumps or valves classified as “skid-mounted” in the IST Program provided that they are tested as part of the major component and are justified to be adequately tested. Such components **SHALL** be listed in the Program Plan document and identified as skid-mounted. Pump or Valve Data Sheets which contain the justification regarding the adequacy of their testing **SHALL** be provided in the IST Bases Document.

References:

1. NUREG-1482 Rev. 2, Section 3.4, Skid-Mounted Components and Component Subassemblies
2. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition OMa-1996 Addenda, ISTA 1.7, ISTC 1.2.
3. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1998 Edition and later, ISTA-2000 and ISTC-1200.

Number: **CTP-IST-008, Rev. 2**

Title: Position Verification Testing

Applicability: All Exelon IST Programs

Background: Valves with remote position indicators are required to be observed locally at least once every two years to verify that valve operation is accurately indicated. This local observation should be supplemented by other indications to verify obturator position. Where local observation is not possible, other indications shall be used for verification of valve operation.

Position: All valves within the scope of the IST Program that are equipped with remote position indicators, shall be tested. The testing shall clearly demonstrate that the position indicators operate as required and are indicative of obturator position. For example, a valve that has open and closed indication shall be cycled to demonstrate that both the open and closed indicators perform as designed, including both or neither providing indication when the valve is in mid-position. Valves that have indication in one position only shall be cycled to ensure that the indicator is energized/de-energized when appropriate. These requirements apply to all IST valves, regardless of whether they are classified as active or passive.

References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition with OMa-1996 Addenda, para ISTC 4.1.
2. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1998 Edition and later, para ISTC-3700.
3. NUREG-1482, Rev. 2, Section 4.2.8

Number: **CTP-IST-014, Rev. 0**

Title: **Bi-directional Testing of Check Valves to Their Safety and Non-Safety Related Positions**

Applicability: All Exelon IST Programs

Background: This CTP addresses those cases in which inservice testing of check valves is performed in accordance with the requirements of ISTC-5221. It does not address these issues for check valves that are included in a Condition Monitoring Program. References 2 and 3 of this CTP provide additional information regarding check valve testing and Condition Monitoring.

The OM Code changed the focus of inservice testing of check valves from the ability to demonstrate that a check valve was capable of being in its safety-related position to demonstrating that the obturator was capable of free, unobstructed movement in both directions. This was accomplished by introducing a bidirectional testing requirement to inservice testing of check valves. Confirmation of this change in focus is evidenced by the fact that the Code required frequency for bi-directional testing of check valves is the lesser of the frequencies that the open direction and close direction tests can be performed. In other words, if a check valve is capable of being tested in the open direction quarterly but can only be tested closed during refueling outages, the Code required frequency for the bidirectional test is every refueling outage irrespective of the valve's safety position(s).

Condition Monitoring is the preferred method for check valve testing and inspection. For check valves that are not in a Condition Monitoring Program, the OM Code provides three options: flow/flow reversal, use of an external mechanical exerciser, and sample disassembly/examination. Of these, the flow and mechanical exerciser methods are preferred; the Code limits sample disassembly/ examination to those cases where the others are impractical. In all of these non-Condition Monitoring methods, demonstration of unobstructed obturator travel in the open and closed directions is required.

Position: The following requirements **SHALL BE MET** when implementing this CTP:

1. When using flow to demonstrate opening of a check valve with an open safety function, **OBSERVE** that the obturator has traveled to **EITHER** the full open position **OR** to the position required to perform its intended safety function(s). Travel to the position required to perform its intended safety function(s) is defined as the minimum flow required to mitigate the system's most limiting accident requirements. For example, if three different accident scenarios called for flows of 300, 600 and 1000 gpm respectively, the required test flow would be 1000 gpm.
   The full open position is defined as the point at which the obturator is restricted from further travel (e.g., hits the backstop). Methods for demonstrating travel to the full open position must be qualified if less than required accident flow is used.

Number: **CTP-IST-014, Rev. 0 (Cont.)**

2. When using flow to demonstrate that the obturator of a valve that does not have an open safety function has traveled open, the test **MUST DEMONSTRATE** that the obturator is unimpeded.
3. Tests for check valve closure **MUST DEMONSTRATE** that the check valve has travelled to the closed position, not merely that it is in the closed position.
4. Whenever design requirements are used for IST acceptance criteria, instrument accuracy **MUST BE CONSIDERED**. This can be accomplished by determining that sufficient margin was included in the design calculation or by adding a correction to the IST acceptance criteria.
5. Non-intrusive methods used to credit obturator position **SHALL BE QUALIFIED**. Documentation of the means used to qualify the test method(s) shall be documented in the IST Bases Document.
6. The Code requirement satisfied for each check valve, identification of the method used to satisfy the Code requirement, and a description of how the method satisfies the requirement **SHALL BE PROVIDED OR RERENENCED** on the Valve Data Sheet in the IST Bases Document for each check valve.

References:

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and later, Subsection ISTC.
2. ER-AA-321, Administrative Requirements for Inservice Testing
3. ER-AA-321-1005, Condition Monitoring for Inservice Testing of Check Valves

Technical Position Justifications –Site Specific

TJ-01 Deleted

TJ-02 5933A, 5933B, 5934A, 5934B – Skid-Mounted Classification

Solenoid-operated valves 5933A, 5933B, 5934A and 5934B open to provide starting air to the diesel generators. These are rapid acting solenoid valves whose design prohibits visual observance of stroking as there are no external indicators on these valves. Diesel start times are affected by valve stroke times. Measurement and evaluation of stroke times shall not be performed. Valve exercising is performed monthly in conjunction with diesel generator start testing. Per the guidance provided by NUREG 1482, Rev.2, Section 3.4, Skid-Mounted Components and Component Subassemblies, and as allowed by ISTC-1200, valve stroking parameters will be considered acceptable if the associated diesel generator start is acceptable. Additionally, diesel start and bus re-energization times are verified each refueling outage to be less than the Technical Specification acceptance criteria of 10 seconds.

TJ-03 5907, 5907A, 5908, 5908A – Skid-Mounted Classification

Solenoid-operated valves 5907, 5907A, 5908 and 5908A open and close to direct fuel oil to Diesel Generator (D/G) day tanks or back to the diesel fuel oil storage tanks. These are rapid acting solenoid valves whose design prohibits visual observation of stroking as there are no external indicators on these valves. These valves are automatically actuated as necessary based upon diesel fuel oil day tank levels. These valves do not have control switches. Diesel generators are tested monthly (per Technical Specifications), during which these valves actuate for filling the fuel oil day tanks and for diesel fuel oil recirculation. Measurement and evaluation of stroke time shall not be performed. These valves shall be exercised and fail safe tested at least quarterly during diesel generator testing. Per the guidance provided by NUREG 1482, Rev.2, Section 3.4 and as allowed by ISTC-1200, valve stroking parameters will be considered acceptable based upon satisfactory actuation as demonstrated by adequate fuel oil delivery during the D/G tests.

TJ-04 Deferral Justification Test Window

Inservice Test (IST) Program components which are required to be tested during a refueling outage (RFO) may be tested in conjunction with *plant "coast-down"* (i.e. a period where a conscious deviation from normal operating temperature and power occurs in conjunction with reactor fuel depletion) as qualified below, or a *planned load reduction* (e.g. reduction in turbine load via a selected downward ramp rate) intended to take the plant from Mode 1, power operation, to an offline condition, and ultimately to Mode 6, refueling.

The period where the load reduction is accomplished via plant coast-down potentially can encompass a period of weeks before the actual start of an RFO. The existing regulatory guidance for allowing deferral of testing to an RFO is based on the impracticality of being able to perform the test on a quarterly basis. Performing tests which have been deferred to an RFO weeks in advance of the RFO is not in

Technical Position Justifications –Site Specific (Continued)

TJ-04 (Cont.) keeping with the spirit of the deferral latitude. As such, testing being performed to satisfy various IST program deferrals, while in plant coast-down, should only take place when the *projected end of the coast down window* is 120 hours or less. Five working days affords adequate time to accomplish the anticipated limited test scope and is not considered excessive when compared to the intent of the Code deferral allowance.

All IST components required to be tested during an RFO shall have their prescribed test satisfactorily completed and demonstrated operable prior to resumption of power operation and before exceeding the associated Technical Specification Mode of applicability, unless specifically stated otherwise in the Technical Specifications.

TJ-05 On-Line Maintenance

The advent of on-line plant maintenance to perform work on safety related components and systems outside of the traditional refueling outage (RFO) time frame, is designed to maximize component/system availability while favorably impacting RFO duration and the associated corporate financial impact. The practice of doing on-line maintenance represents a departure from the norm where the bulk of the maintenance was performed while engaged in an RFO. As such, the Inservice Test Program, which is directed by the ASME Code which does not take into account on-line maintenance practices, can experience implementation issues when on-line preventative maintenance or corrective maintenance is performed.

Typically, a number of Inservice Test Program components can't meet Code based quarterly test frequency due to the practicality of performing the testing. System alignments, operating conditions (pressure, flow, temperature, etc.) and other such restrictions often render the testing impracticable. The Code allows the affected testing to be deferred to a lower plant MODE, from MODE 5, cold shutdown to MODE 6, Refueling. The understanding between the Licensee and the NRC is that such testing will take place in the highest MODE deemed practicable by the Licensee with the assumption that sufficient basis to justify the deferred MODE exists. Contrary to what occurred in the past, the NRC is no longer required to approve such deferrals. As such, along with the deferral comes the expectation that testing can and should only be performed when in the applicable deferred MODE unless extenuating circumstances exist. Performance of online maintenance and the need to demonstrate post-maintenance operability for the component/system worked on clearly is an example of an extenuating circumstance given its prevalent implementation and widespread acceptance throughout the nuclear industry.

Inservice Test Program components which have had their associated Code required tests deferred from the normal "during operation at power" time frame, either to cold shutdown (using a Cold Shutdown Justification (CSJ) or Refueling Shutdown (using a Refueling Outage Justification (ROJ)), *may revert back to the at power time frame, on a limited basis*, to accomplish post-maintenance operability testing (PMOT) following performance of on-line maintenance provided that:

Technical Position Justifications –Site Specific (Continued)

TJ-05 (Cont.) A) The testing that will occur during power operation will not expose plant personnel to unsafe working conditions nor place components or systems in alignments adverse to plant safety.

AND

B) One or more of the following maintenance scope activities are desired and serves to justify the performance of deferred testing at the normal at power time frame:

1) Corrective on-line maintenance is desired to be performed on the component to restore the component to the operable condition and testing required to demonstrate component/system post-maintenance operability is contained in the surveillance test(s) used to satisfy the associated IST Program Code requirements.

2) Preventative on-line maintenance is desired to be performed on the component to lessen or eliminate RFO time frame system/component unavailability (e.g. performing the maintenance in a plant MODE that poses a lesser or no adverse risk probability to plant safety) and the testing required to demonstrate component/system post-maintenance operability is contained in the surveillance test(s) used to satisfy the associated IST Program Code requirements.

The relaxation of the associated CSJ or ROJ is only to be exercised on a limited basis. Limited is defined as not more than once per 18 months (All Ginna Technical Specification surveillance requirements which tie performance to a *fuel cycle frequency,* utilize an 18 month fuel cycle duration) unless additional documented justification is provided in advance of the proposed maintenance. The IST Program Owner and Site Implementer must review and concur with such justification before the proposed maintenance can proceed.

TJ-06 8616A, 8616B, 8619A, 8619B, 8620A, 8620B, 8630A, 8630B – Skid-Mounted Classification

Solenoid-operated valves 8616A, 8616B, 8619A, 8619B, 8620A and 8620B open (8620A/B close) to provide nitrogen to cycle the power operated relief valves (PORVs) which provide RCS overpressure protection. These solenoid valves are totally enclosed and have no externally visible indication of valve position. Since these valves function to admit nitrogen to the Pressurizer PORVs to open, it can be indirectly verified that each valve has actuated by monitoring the operation of the PORVs. Measuring the stroke times of a PORV provides indication of solenoid-operated valve degradation since any significant increase in solenoid valve stroke time would result in longer PORV stroke times and may result in the PORV exceeding its stroke time limit. Per the guidance provided by NUREG 1482, Rev.2, Section 3.4, Skid-Mounted Components and Component Subassemblies, and as allowed by ISTC-1200, valve stroking parameters will be considered acceptable if the associated PORV cycling is acceptable.

TJ-07 Component Cooling Water Total Pump Flow

Testing of the Component Cooling Water (CCW) pumps does not monitor total pump flow. Flow through the branch line to the sample system heat exchangers is not included in the determination of pump reference value flow. This branch connection is upstream of main header flow indicator FI-619 used for pump testing.

Technical Position Justifications –Site Specific (Continued)

TJ-07 (Cont.) A surveillance test procedure prerequisite requires that flow through this line, as indicated on FI-603, be validated and recorded as being greater than 75 gpm. Actual pump flow is determined from a test point (TP) connection feed from FT-619 but the sample branch line flow is not included in this determination. The flow through this branch line is approximately 3% of the pump reference flow (2500 gpm).

A CAUTION appears prior to that procedural prerequisite step where the sample heat exchanger total return flow is measured and verified to be greater than 75 gpm. The CAUTION step reads: "IF any condition is NOT met, THEN performance of either CCW Pump test may NOT proceed. These CCW system alignments SHALL exist in order to obtain valid repeatable test conditions for present OR future pump degradation assessments."

The CAUTION ensures that the test of either CCW pump would not occur in the event that sample heat exchanger total flow was less than 75 gpm. This in turn assures that pump flow, as measured at the TP of FT-619 combined with the flow recorded on FI-603, would not be less than 2575 gpm on a repeatable basis. This ensures repeatability of the pump test and acts to provide reasonable assurance that pump degradation monitoring remains effective and the intent of the ASME OM Code is met.

In the event that sample heat exchanger total flow were to rise above the nominal and expected value of ~75-100 gpm, that would constitute a conservative effect on the resultant pump test differential pressure value. Higher sample heat exchanger total flow would mean that pump total flow would in turn be higher making the differential pressure value lower. This would be construed as evidence of potential pump degradation and could either be detected during data trend analysis or on a more extreme level if the higher flow resulted in the differential pressure value entering the Alert or Required Action range. Subsequent test verification/validation efforts would identify the higher than anticipated sample heat exchanger total flow contribution and impact, and facilitate root cause determination and resolution in a timely matter. This scenario has not occurred in the previous 3rd, 4th, or 5th 10-Year IST intervals and there is no reason to expect it will in the current 6th interval.

ASME CODE 2012 Edition, Subsection ISTB, paragraph ISTB-3550 Flow Rate, considerations:

> "External recirculated flow is not required to be measured if it is not practical to isolate, has a fixed resistance, and has been evaluated by the Owner to not have a substantial effect on the results of the test."

CONSIDERATION 1 – Practicality of Isolation:

While isolation of the five (5) associated heat exchangers serviced by CCW would eliminate the unmeasured flow condition, it would require quarterly entry into a highly contaminated and space limited area (Sample Shed) area. This area poses a high potential for personnel contamination and adverse safety conditions due to the need to gain access to the associated CCW isolation valves in a very congested and limited mobility-location.

Technical Position Justifications –Site Specific (Continued)

TJ-07 (Cont.) Isolation of flow to these sample heat exchangers could result in system process temperature and sampling perturbations when cooling water is interrupted for up to 2-3 hours during conduct of pump testing.

CONSIDERATION 2 – Has a Fixed Resistance:

Although not fitting the classic description of a "fixed resistance" (i.e. contains an in-lineflow orifice or a means of setting a desired flow and preventing that flow from changing,the variation in the individual sample heat exchanger cooling water load is very slightmaking the overall combined flow rate of 75-100 gpm very consistent. Each heat exchanger's manual outlet CCW valve is maintained full-open and once aligned remains that way. There are no significant fluctuations in flow as there are no temperature or pressure control valves present in any of the sample heat exchangers. Short of locking open the main branch line supply and return isolation valves, this portion of the CCW system functions as a "fixed resistance".

CONSIDERATION 3 - Evaluated to not have a substantial effect on the results of the test:

As stated previously, the proceduralized requirement to ensure sample heat exchanger total flow is greater than 75 gpm as a prerequisite to beginning the test of either CCW pump, ensures that a repeatable IST pump test will occur. The slight variations in total Flow, as observed over the past two IST program 10-year intervals, has not been shown to be a significant factor in Ginna's ability to track and trend pump performance nor effectively monitor for pump degradation. Likewise, the overall impact of ~3% of total pump flow not being monitored has not been an inhibiting force to maintaining consistent test results. In fact if flow were to increase substantially above the 75-100 gpm flow rate typically recorded, the resultant pump differential pressure would be lower acting to provide a conservative test result and triggering Code mandated corrective action earlier.

The CCW flow meter (FI-619) used to assess initial flow rate being greater than 75 gpm has an accuracy tolerance of 2% of span. Being a 0-700 gpm span device, this translates into a potential flow variation of +/- 14.0 gpm. The 14.0 gpm value represents a potential variance in external recirculated flow of 0.56%, a value so insignificant as to essentially comprise an unmeasurable impact upon pump differential pressure.

CONCLUSION:

Ginna will continue to ensure sample heat exchanger total flow is greater than 75 gpm during CCW pump testing. Based on the conservative approach this practice presents, there is no adverse impact upon the ability to effectively monitor for and identify pump degradation as per the IST program.

TJ-08 Deleted

TJ-09 Deleted

Technical Position Justifications –Site Specific (Continued)

TJ-10 LLRT Scope Reduction Valve Category

As per DA-ME-17-007 (ECP-17-000450), the following CIV's listed in Table-1 below, are no longer credited as post-LOCA leakage limiting barriers in accordance with 10CFR Part100 criteria. However, Ginna Station has elected to retain their prior IST Program Category A classification based on compensatory leakage determination testing performed following valve maintenance, repair, modification, or adjustment activities which could affect the valves leak tightness since last being quantified. Such testing is being conducted as required, and intended to ensure a known capability should the subject valve be required to provide a back-up leakage barrier role. The associated maximum seat leakage allowed for such compensatory testing is established by the site via administrative controls. These valves do not have any other IST program function for which seat leakage is limited to a specific maximum amount in the closed position to ensure fulfillment of their required function as specified in ISTA-1100.

Technical Position Justifications – Site Specific (Continued)

TABLE 1					
Penetration	**Valve**	**System**	**Type**	**Actuator**	**Valve Category**
100	370B	CVCS	Check	SAV	AC
102	383B	CVCS	Check	SAV	AC
105	869A	CS	Globe	MAN	A
105	2856	CS	Gate	MAN	A
105	2825	CS	Gate	MAN	A
105	2825A	CS	Ball	MAN	A
105	868C	CS	Globe	MAN	A
105	868E	CS	Globe	MAN	A
105	869E	CS	Relief	SAV	AC
108	313	CVCS	Gate	MOV	A
109	869B	CS	Globe	MAN	A
109	2858	CS	Gate	MAN	A
109	2826	CS	Gate	MAN	A
109	2826A	CS	Ball	MAN	A
109	868D	CS	Globe	MAN	A
109	868E	CS	Globe	MAN	A
109	869E	CS	Relief	SAV	AC
112	200A	CVCS	Globe	AOV	A
112	200B	CVCS	Globe	AOV	A
112	202	CVCS	Globe	AOV	A
112	203	CVCS	Relief	SAV	AC
112	371	CVCS	Globe	AOV	AC
124c	745	CCW	Globe	AOV	A
125	759B	CCW	Gate	MOV	A
126	759A	CCW	Gate	MOV	A
127	749A	CCW	Gate	MOV	A
128	749B	CCW	Gate	MOV	A
130	814	CCW	Gate	MOV	A
131	813	CCW	Gate	MOV	A
201b	4636	SW	Butterfly	MAN	A
201b	4658	SW	Relief	SAV	AC
206b	5735	SGS	Gate	AOV	A
207b	5736	SGS	Gate	AOV	A
209b	4758	SW	Butterfly	MAN	A
209b	4759	SW	Relief	SAV	AC
308	4629	SW	Butterfly	MAN	A
308	4655	SW	Relief	SAV	AC
311	4630	SW	Butterfly	MAN	A
311	4656	SW	Relief	SAV	AC
315	4643	SW	Butterfly	MAN	A
315	4659	SW	Relief	SAV	AC
321	5738	SGBD	Gate	AOV	A
322	5737	SGBD	Gate	AOV	A
323	4644	SW	Butterfly	MAN	A
323	4660	SW	Relief	SAV	AC

Attachment 14

Inservice Testing Pump Table

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

AFW - AUXILIARY FEEDWATER

Component	PID(Coord)	Code Class	Group	Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PAF01A AUXILIARY FEEDWATER PUMP A Centrifugal	1237 (B-5)	3	A	No	Yes	Yes	Yes	No	STP-O-16-COMP-A	2Y		
				No	Yes	No	Yes	No	STP-O-16QA	Q	PR - 02	Relief is for flow rate measurement
PAF01B AUXILIARY FEEDWATER PUMP B Centrifugal	1237 (E-5)	3	A	No	Yes	Yes	Yes	No	STP-O-16-COMP-B	2Y		
				No	Yes	No	Yes	No	STP-O-16QB	Q	PR - 02	Relief is for flow rate measurement
PAF03 TURBINE DRIVEN AUXILIARY FEEDWATER PUMP Centrifugal	1237 (I-5)	3	B	No	Yes	Yes	No	Yes	STP-O-16QT	Q		
				No	Yes	Yes	Yes	Yes	STP-O-16-COMP-T	2Y		

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

CCW - COMPONENT COOLING WATER

Component	PID(Coord)	Code Class	Group	Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
				----------------Test Parameters-----------								
PAC02A COMPONENT COOLING WATER PUMP A Centrifugal	1245 (D-5)	3	A	No	Yes	Yes	Yes	No	STP-O-2.8Q	Q		See TJ-07 on Total Pump Flow
				No	Yes	Yes	Yes	No	STP-O-2.8-COMP-A	2Y		See TJ-07 on Total Pump Flow
PAC02B COMPONENT COOLING WATER PUMP B Centrifugal	1245 (E-5)	3	A	No	Yes	Yes	Yes	No	STP-O-2.8Q	Q		See TJ-07 on Total Pump Flow
				No	Yes	Yes	Yes	No	STP-O-2.8-COMP-B	2Y		See TJ-07 on Total Pump Flow

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

CS - CONTAINMENT SPRAY

Component	PID(Coord)	Code Class	Group	Test Parameters: Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PSI02A CONTAINMENT SPRAY PUMP A Centrifugal	1261 (E-3)	2	B	No No	Yes Yes	Yes Yes	Yes No	No No	STP-O-3-COMP-A STP-O-3QA	2Y Q		
PSI02B CONTAINMENT SPRAY PUMP B Centrifugal	1261 (I-3)	2	B	No No	Yes Yes	Yes Yes	Yes No	No No	STP-O-3-COMP-B STP-O-3QB	2Y Q		

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

CVCS - CVCS CHARGING

Component	PID(Coord)	Code Class	Group	----------------Test Parameters----------- Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PCH01A CHARGING PUMP A Positive Displacement	1265-2 (E-5)	2	A	Yes	No	Yes	Yes	Yes	STP-O-31A	6M	PRE - 01	Augmented Component
PCH01B CHARGING PUMP B Positive Displacement	1265-2 (G-5)	2	A	Yes	No	Yes	Yes	Yes	STP-O-31B	6M	PRE - 01	Augmented Component
PCH01C CHARGING PUMP C Positive Displacement	1265-2 (H-5)	2	A	Yes	No	Yes	Yes	Yes	STP-O-31C	6M	PRE - 01	Augmented Component

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

EDG - EMERGENCY DIESEL GENERATOR

Component	PID(Coord)	Code Class	Group	Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PDG02A DIESEL GENERATOR A FUEL OIL TRANSFER PUMP Positive Displacement	1239-1 (I-3)	3	B	Yes	No	Yes	No	No	STP-O-12.6A	Q	PR - 01	Relief is for flow rate measurement
				Yes	No	Yes	Yes	No	STP-O-12.6-COMP-A	2Y		
PDG02B DIESEL GENERATOR B FUEL OIL TRANSFER PUMP Positive Displacement	1239-2 (I-9)	3	B	Yes	No	Yes	Yes	No	STP-O-12.6-COMP-B	2Y		
				Yes	No	Yes	No	No	STP-O-12.6B	Q	PR - 01	Relief is for flow rate measurement

RHR - RESIDUAL HEAT REMOVAL

Component	PID(Coord)	Code Class	Group	Test Parameters: Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PAC01A RESIDUAL HEAT REMOVAL PUMP A Centrifugal	1247 (F-5)	2	A	No	Yes	Yes	Yes	No	STP-O-2.2QA	Q		
				No	Yes	Yes	Yes	No	STP-O-2.2-COMP-A	2Y		
PAC01B RESIDUAL HEAT REMOVAL PUMP B Centrifugal	1247 (B-5)	2	A	No	Yes	Yes	Yes	No	STP-O-2.2QB	Q		
				No	Yes	Yes	Yes	No	STP-O-2.2-COMP-B	2Y		

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

SAFW - STANDBY AUXILIARY FEEDWATER

Component	PID(Coord)	Code Class	Group	Test Parameters: Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PSF01A STANDBY AUXILIARY FEEDWATER PUMP C Centrifugal	1238 (B-5)	3	B	No	Yes	No	No	No	STP-O-36QC	Q	PR - 02	Relief is for flow rate measurement
				No	Yes	Yes	Yes	No	STP-O-36-COMP-C	2Y		
PSF01B STANDBY AUXILIARY FEEDWATER PUMP D Centrifugal	1238 (I-5)	3	B	No	Yes	No	No	No	STP-O-36Q-D	Q	PR - 02	Relief is for flow rate measurement
				No	Yes	Yes	Yes	No	STP-O-36-COMP-D	2Y		

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

SFPC - SPENT FUEL POOL COOLING

Component	PID(Coord)	Code Class	Group	Test Parameters: Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PAC07A SPENT FUEL POOL RECIRCULATION PUMP A Centrifugal	1248 (H-3)	SSC	A	No	Yes	Yes	Yes	No	STP-O-33A	Q	PRE - 02	Augmented Component
PAC07B SPENT FUEL POOL RECIRCULATION PUMP B Centrifugal	1248 (I-3)	3	A	No No	Yes Yes	Yes Yes	Yes Yes	No No	STP-O-33B STP-O-33-COMP-B	Q 2Y		

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

SI - SAFETY INJECTION AND ACCUMULATORS

Component	PID(Coord)	Code Class	Group	Test Parameters: Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PSI01A SAFETY INJECTION PUMP A Centrifugal	1262-1 (C-4)	2	B	No	Yes	Yes	Yes	No	STP-O-2.1-COMP-A	2Y		
				No	Yes	Yes	No	No	STP-O-2.1QA	Q		
PSI01B SAFETY INJECTION PUMP B Centrifugal	1262-1 (F-4)	2	B	No	Yes	Yes	No	No	STP-O-2.1QB	Q		
				No	Yes	Yes	Yes	No	STP-O-2.1-COMP-B	2Y		
PSI01C SAFETY INJECTION PUMP C Centrifugal	1262-1 (D-4)	2	B	No	Yes	Yes	Yes	No	STP-O-2.1-COMP-C	2Y		
				No	Yes	Yes	No	No	STP-O-2.1QC	Q		

Exelon Generation (R. E. Ginna Nuclear Power Plant)
Pump Table

SW - SERVICE WATER

Component	PID(Coord)	Code Class	Group	Disch. Press	DP	Flow	VIB	Speed	Procedure	Freq	Code Dev.	Comments
PSW01A SERVICE WATER PUMP A Vertical Centrifugal Line-Shaft	1250-1 (D-2)	3	A	No	Yes	Yes	Yes	No	STP-O-2.7.1-COMP-A	2Y		
				No	Yes	Yes	Yes	No	STP-O-2.7.1A	Q		
PSW01B SERVICE WATER PUMP B Vertical Centrifugal Line-Shaft	1250-1 (E-2)	3	A	No	Yes	Yes	Yes	No	STP-O-2.7.1-COMP-B	2Y		
				No	Yes	Yes	Yes	No	STP-O-2.7.1B	Q		
PSW01C SERVICE WATER PUMP C Vertical Centrifugal Line-Shaft	1250-1 (F-2)	3	A	No	Yes	Yes	Yes	No	STP-O-2.7.1-COMP-C	2Y		
				No	Yes	Yes	Yes	No	STP-O-2.7.1C	Q		
PSW01D SERVICE WATER PUMP D Vertical Centrifugal Line-Shaft	1250-1 (G-2)	3	A	No	Yes	Yes	Yes	No	STP-O-2.7.1-COMP-D	2Y		
				No	Yes	Yes	Yes	No	STP-O-2.7.1D	Q		

(Disch. Press, DP, Flow, VIB and Speed are grouped under the header "Test Parameters".)

Attachment 15

Inservice Testing Valve Table

Valve Table

23 - BDB

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
9080C Alt RCS Inj RLF VLV	2	N	C	A	0.25	RV	SA	33013-1230 (G-3)	C	C	NA	RT	10Y		P312241	

Valve Table

89 - Water Treatment System

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
9786 DI WATER TANK SUPPLY HOSE CONN ISOL VOV	SSC	Y	B	A	4	BAL	M	1238 (F-1)	C	O	NA	EC/EO	2Y		STP-O-36R	

Valve Table

AFW - AUXILIARY FEEDWATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
3996	3	N	BC	A	5	SCK	MO	1237 (I-6)	C	O/C	AI	BDC	CM		STP-O-5	CVCMP
												CO	Q		STP-O-16QT	
TDAFW PUMP DISCHARGE VLV MOV-3996												CO	Q		STP-O-16-COMP-T	
												D&I	CM		GMP-37-08-3996	
												DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
												SC/SO	2Y		STP-O-16-COMP-T	
3998	3	N	C	A	5	CK	SA	1237 (I-8)	C	O/C	NA	CC	CM		STP-O-16-COMP-T	CVCMP
												CO	CM		STP-O-16-COMP-T	
TURBINE DRIVEN AUX FW PUMP DISCHARGE CHECK VLV												D&I	CM		CMP-37-05-3998	
4000A	3	N	B	A	3	GL	MO	1237 (D-7)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
AUXILIARY FEEDWATER CROSSOVER MOTOR OPERATED STOP CHECK VALVE												SC/SO	Q		STP-O-16QA	
												SC/SO	Q		STP-O-16-COMP-A	
4000B	3	N	B	A	3	GL	MO	1237 (D-8)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
AUXILIARY FEEDWATER CROSSOVER MOTOR OPERATED STOP CHECK VALVE												SC/SO	Q		STP-O-16QB	
												SC/SO	Q		STP-O-16-COMP-B	
4000C	2	N	C	A	3	CK	SA	1237 (B-10)	C	O/C	NA	CC	CM		STP-O-16-COMP-A	CVCMP
												CO	2Y		STP-O-16-COMP-A	
AUX FW PUMP A DISCHARGE CHECK VALVE																
4000D	2	N	C	A	3	CK	SA	1237 (E-10)	C	O/C	NA	CC	CM		STP-O-16-COMP-B	CVCMP
												CO	2Y		STP-O-16-COMP-B	
AUX FW PUMP B DISCHARGE CHECK VALVE																
4003	2	N	C	A	3	CK	SA	1237 (I-11)	C	O/C	NA	CC	CM		STP-O-5	CVCMP
												CO	CM		STP-O-16-COMP-T	
TURBINE DRIVEN AUX FW PUMP DISCHARGE CHECH VLV TO STEAM GENERATOR A												D&I	CM		GMP-37-09-900/3/CV	
4004	2	N	C	A	3	CK	SA	1237 (J-10)	C	O/C	NA	CC	CM		STP-O-5	CVCMP
												CO	CM		STP-O-16-COMP-T	
TURBINE DRIVEN AUX FW PUMP DISCHARGE CHECH VLV TO STEAM GENERATOR B												D&I	CM		GMP-37-09-900/3/CV	
4007	3	N	B	A	3	GL	MO	1237 (B-8)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
MDAFW PUMP A DISCHARGE VALVE MOV-4007												SC/SO	Q		STP-O-16QA	
												SC/SO	Q		STP-O-16-COMP-A	
4008	3	N	B	A	3	GL	MO	1237 (E-8)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
MDAFW PUMP B DISCHARGE VLV MOV-4008												SC/SO	Q		STP-O-16QB	
												SC/SO	Q		STP-O-16-COMP-B	

Valve Table

AFW - AUXILIARY FEEDWATER

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4009	3	N	C	A	3	CK	SA	1237 (B-5)	O	O/C	NA	CC	CM		STP-O-5	CVCMP
												CO	2Y		STP-O-16-COMP-A	
AUX FW PUMP A DISCHARGE CHECK VLV												D&I	CM		GMP-37-02-900/3/TD	
4010	3	N	C	A	3	CK	SA	1237 (E-5)	O	O/C	NA	CC	CM		STP-O-5	CVCMP
												CO	2Y		STP-O-16-COMP-B	
AUX FW PUMP B DISCHARGE CHECK VLV												D&I	CM		GMP-37-05-900/3/TD	
4013	3	N	B	A	4	GA	MO	1237 (I-2)	C	O	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
TURBINE DRIVEN AUX FW PUMP SW SUCTION VLV MOV-4013												SC/SO	R		STP-O-2.4	
4014	3	N	C	A	4	CK	SA	1237 (H-2)	C	O/C	NA	CC	CM		STP-O-16-COMP-T	CVCMP
												CO	CM		STP-O-16-COMP-T	
SUCTION CHECK VLV TO TURBINE DRIVEN AUX FW PUMP																
4016	3	N	C	A	4	CK	SA	1237 (E-2)	C	O/C	NA	CC	2Y		STP-O-16-COMP-B	CVCMP
												CO	2Y		STP-O-16-COMP-B	
SUCTION CHECK VLV TO AUX FW PUMP B																
4017	3	N	C	A	4	CK	SA	1237 (B-2)	C	O/C	NA	CC	2Y		STP-O-16-COMP-A	CVCMP
												CO	2Y		STP-O-16-COMP-A	
SUCTION CHECK VLV TO AUX FW PUMP A																
4020	3	N	C	A	.75	RV	SA	1237 (I-3)	C	O/C	NA	RT	10Y		GMP-37-06-150-RV4	
TURBINE DRIVEN AUX FW PUMP SUCTION RELIEF VLV																
4021	3	N	C	A	.75	RV	SA	1237 (B-2)	C	O/C	NA	RT	10Y		GMP-37-06-150-RV4	
AUX FW PUMP A SUCTION RELIEF VLV																
4022	3	N	C	A	.75	RV	SA	1237 (E-3)	C	O/C	NA	RT	10Y		GMP-37-06-150-RV4	
AUX FW PUMP B SUCTION RELIEF VLV																
4023	3	N	C	A	1.5	CK	SA	1237 (I-5)	C	O	NA	CC	Q		STP-O-16QA or B	
												CO	Q		STP-O-16QT	
TURBINE DRIVEN AUX FW PUMP RECIRCULATION CHECK VLV												CO	Q		STP-O-16-COMP-T	
4027	3	N	B	A	4	GA	MO	1237 (C-3)	C	O	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
SW SUCTION MOV FOR PAF01A (MDAFW PUMP A)												SC/SO	R		STP-O-2.4	
4028	3	N	B	A	4	GA	MO	1237 (D-3)	C	O	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
SW SUCTION MOV FOR PAF01B (MDAFW PUMP B)												SC/SO	R		STP-O-2.4	
4083	3	N	C	A	1	CK	SA	1237 (H-3)	O/C	C		BDO	CS	CS - 24	STP-O-2.9	
												CC	CS	CS - 24	STP-O-2.9	
CONDENSATE PUMP INLET CHECK VLV TO AUX FW PUMPS																

Valve Table

AFW - AUXILIARY FEEDWATER

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4098	3	N	B	A	4	GA	M	1237 (I-2)	C	O	NA	EC/EO	2Y		STP-O-2.4	
SW INLET ISOL VLV TO TURBINE DRIVEN AUX FW PUMP																
4291	3	N	B	A	1.5	GA	AO	1237 (H-5)	O	O/C	O	FO	Q		STP-O-16QT	
												FO	Q		STP-O-16-COMP-T	
TURBINE DRIVEN AUXILIARY FEEDWATER PUMP RECIRCULATION AIR OPERATED VAL VE												PI	2Y		STP-O-16-COMP-T	
												SC/SO	Q		STP-O-16QT	
												SC/SO	Q		STP-O-16-COMP-T	
												STO	Q		STP-O-16QT	
												STO	Q		STP-O-16-COMP-T	
4297	3	N	B	A	3	GL	AO	1237 (I-10)	O	O	O	FO	Q		STP-O-16QT	
												FO	Q		STP-O-16-COMP-T	
CONTROL VALVE ON PAF03 (TDAFW PUMP) DISCHARGE TO EMS01B (SG A)												PI	2Y		STP-O-16-COMP-T	
												SC/SO	Q		STP-O-16QT	
												SC/SO	Q		STP-O-16-COMP-T	
4298	3	N	B	A	3	GL	AO	1237 (J-8)	O	O	O	FO	Q		STP-O-16QT	
												FO	Q		STP-O-16-COMP-T	
CONTROL VALVE ON PAF03 (TDAFW PUMP) DISCHARGE TO EMS01B (SG B)												PI	2Y		STP-O-16-COMP-T	
												SC/SO	Q		STP-O-16QT	
												SC/SO	Q		STP-O-16-COMP-T	
4304	3	N	B	A	1	GA	AO	1237 (C-6)	C	O/C	O	FO	Q		STP-O-16QA	
												FO	Q		STP-O-16-COMP-A	
MDAFW PUMP A RECIRC VLV AOV-4304												PI	2Y		STP-O-16-COMP-A	
												SC/SO	Q		STP-O-16QA	
												SC/SO	Q		STP-O-16-COMP-A	
												STO	Q		STP-O-16QA	
												STO	Q		STP-O-16-COMP-A	
4304A	3	N	C	A	1	CK	SA	1237 (C-6)	C	O	NA	BDC	CM		STP-O-5	CVCMP
												CP	CM		STP-O-16QA	
MDAFW PUMP A RECIRC CHECK												CP	CM		STP-O-16-COMP-A	
												D&I	CM		GMP-37-08-600/CV1	
4310	3	N	B	A	1	GA	AO	1237 (E-6)	C	O/C	O	FO	Q		STP-O-16QB	
												FO	Q		STP-O-16-COMP-B	
MDAFW PUMP B RECIRC VLV AOV-4310												PI	2Y		STP-O-16-COMP-B	
												SC/SO	Q		STP-O-16QB	
												SC/SO	Q		STP-O-16-COMP-B	
												STO	Q		STP-O-16QB	
												STO	Q		STP-O-16-COMP-B	
4310A	3	N	C	A	1	CK	SA	1237 (E-6)	C	O	NA	BDC	CM		STP-O-5	CVCMP
												CP	CM		STP-O-16QB	
MDAFW PUMP B RECIRC CHECK												CP	CM		STP-O-16-COMP-B	
												D&I	CM		GMP-37-08-600/CV1	

Valve Table

AFW - AUXILIARY FEEDWATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4324	3	N	B	A	.75	GA	SO	1237 (J-3)	C	O	O	FO	Q		STP-O-16QT	
												FO	Q		STP-O-16-COMP-T	
TURBINE DRIVEN AUX FW PUMP SW STRAINER BYPASS SOV												SC/SO	Q		STP-O-16QT	
												SC/SO	Q		STP-O-16-COMP-T	
												STO	Q	VR - 01	STP-O-16QT	
												STO	Q		STP-O-16-COMP-T	
4325	3	N	B	A	.5	DIA	SO	1237 (C-4)	C	O	O	FO	Q		STP-O-16QA	
												FO	Q		STP-O-16-COMP-A	
AUX FW PUMP A SW STRAINER BYPASS SOV												SC/SO	Q		STP-O-16QA	
												SC/SO	Q		STP-O-16-COMP-A	
												STO		VR - 01		
4326	3	N	B	A	.5	DIA	SO	1237 (F-3)	C	O	O	FO	Q		STP-O-16QB	
												FO	Q		STP-O-16-COMP-B	
AUX FW PUMP B SW STRAINER BYPASS SOV												SC/SO	Q		STP-O-16QB	
												SC/SO	Q		STP-O-16-COMP-B	
												STO		VR - 01		
4344	3	N	B	A	4	GA	M	1237 (E-3)	C	O	NA	EC/EO	2Y		STP-O-2.4	
SW INLET ISOL VLV TO AUX FW PUMP B																
4345	3	N	B	A	4	GA	M	1237 (C-3)	C	O		EC/EO	2Y		STP-O-2.4	
SW INLET ISOL VLV TO AUX FW PUMP A																
4480	3	N	A	A	1.5	GA	AO	1237 (B-6)	C	C	C	FC	Q		STP-O-16QA	
												FC	Q		STP-O-16-COMP-A	
BYPASS VALVE ON AUXILIARY FEEDWATER TO EMS01A (STEAM GENERATOR A)												LT-X	2Y		STP-O-16.4A	
												PI	2Y		STP-O-16-COMP-A	
												SC/SO	Q		STP-O-16QA	
												SC/SO	Q		STP-O-16-COMP-A	
												STC	Q		STP-O-16QA	
												STC	Q		STP-O-16-COMP-A	
4481	3	N	A	A	1.5	GA	AO	1237 (F-6)	C	C	C	FC	Q		STP-O-16QB	
												FC	Q		STP-O-16-COMP-B	
BYPASS VALVE ON AUXILIARY FEEDWATER TO EMS01B (STEAM GENERATOR B)												LT-X	2Y		STP-O-16.4B	
												PI	2Y		STP-O-16-COMP-B	
												SC/SO	Q		STP-O-16QB	
												SC/SO	Q		STP-O-16-COMP-B	
												STC	Q		STP-O-16QB	
												STC	Q		STP-O-16-COMP-B	

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
17	3	N	B	A	1	GL	AO	1245 (A-3)	O	C	C	FC	Q		STP-O-2.5	
												PI	2Y		STP-O-2.5	
CCW SURGE TANK VENT RCV-017												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
651	3	N	C	A	2	RV	SA	1245 (A-3)	C	O/C	NA	RT	2Y		STP-M-R-13	
VACUUM BREAKER FOR TAC01 (CCW SURGE TANK)RELIEF V.																
723A	3	N	C	A	8	NCV	SA	1245 (D-6)	O/C	O/C	NA	CC	Q		STP-O-2.8Q	
												CC	2Y		STP-O-2.8-COMP-B	
NOZZLE CHECK VALVE FOR COMPONENT COOLING WATER PUMP A DISCHARGE												CO	Q		STP-O-2.8Q	
												CO	2Y		STP-O-2.8-COMP-A	
723B	3	N	C	A	8	NCV	SA	1245 (E-6)	O/C	O/C	NA	CC	Q		STP-O-2.8Q	
												CC	2Y		STP-O-2.8-COMP-A	
NOZZLE CHECK VALVE FOR COMPONENT COOLING WATER PUMP B DISCHARGE												CO	Q		STP-O-2.8Q	
												CO	2Y		STP-O-2.8-COMP-B	
732	3	N	C	A	3	RV	SA	1245 (A-3)	C	O/C	NA	RT	10Y		CMP-37-06-732	
CCW SURGE TANK RELIEF VLV TO WASTE HOLDUP TANK																
738A	3	N	B	A	10	GA	MO	1245 (F-3)	C	O	NA	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
MOTOR OPERATED BLOCK VALVE FOR COMPONENT COOLING WATER SUPPLY TO EAC02A (RESIDUAL HEAT REMOVAL HEAT EXCHANGER A)												SC/SO	2Y		STP-O-2.8-COMP-A	
738B	3	N	B	A	10	GA	MO	1245 (H-4)	C	O	NA	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
MOTOR OPERATED BLOCK VALVE FOR COMPONENT COOLING WATER SUPPLY TO EAC02B (RESIDUAL HEAT REMOVAL HEAT EXCHANGERB)												SC/SO	2Y		STP-O-2.8-COMP-B	
740A	3	N	C	A	1	TRV	SA	1245 (G-3)	C	O	NA	RT	10Y		CMP-37-06-275/RV1	
RHR HX A CCW OUTLET RELIEF VLV																
740B	3	N	C	A	1	TRV	SA	1245 (I-3)	C	O	NA	RT	10Y		CMP-37-06-275/RV1	
RHR HX B CCW OUTLET RELIEF VLV																
743	2	N	C	A	2	CK	SA	1246-1 (C-6)	O	C	NA	BDO	OP		STP-O-2.5	
												CC	Q		STP-O-2.5	
CCW INLET INNER CHECK VLV TO EXCESS LETDOWN HX (IN CNMT)																
744	2	N	C	A	.75	TRV	SA	1246-1 (C-7)	C	O/C	NA	RT	10Y		GMP-37-06-150/RV1	
CCW OUTLET RELIEF VALVE FOR ECH03 (EXCESS LETDOWN HEAT EXCHANGER)																

Valve Table

CCW - COMPONENT COOLING WATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
745	2	N	A	A	2	GL	AO	1246-1 (B-6)	O	C	C	FC	Q		STP-O-2.5	
												LT-X	2Y		STP-O-8.13	
EXCESS LETDOWN HX CCW OUTLET CNMT ISOL AOV-745												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
749A	2	N	A	A	3	GA	MO	1246-1 (B-5)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.13	
CCW TO RCP A ISOL VLV MOV-749A												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.4	
749B	2	N	A	A	3	GA	MO	1246-1 (B-4)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.13	
CCW TO RCP B ISOL VLV MOV-749B												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.4	
750A	2	N	C	A	4	CK	SA	1246-1 (C-5)	O	C	NA	BDO	OP		Normal Ops	
												CC	CS	CS - 14	STP-O-2.10	
RCP A CCW INLET CHECK VLV (IN CNMT)																
750B	2	N	C	A	4	CK	SA	1246-1 (C-3)	O	C	NA	BDO	OP		Normal Ops	
												CC	CS	CS - 14	STP-O-2.10	
RCP B CCW INLET CHECK VLV (IN CNMT)																
753A	2	N	C	A	1.5	CK	SA	1246-1 (F-5)	O	C	NA	BDO	OP		Normal Ops	
												CC	CS	CS - 14	STP-O-2.10	
CCW SUPPLY CHECK VALVE TO RCP "A" THERMAL BARRIER																
753B	2	N	C	A	1.5	CK	SA	1246-1 (F-2)	O	C	NA	BDO	OP		Normal Ops	
												CC	CS	CS - 14	STP-O-2.10	
CCW SUPPLY CHECK VALVE TO RCP "B" THERMAL BARRIER																
755A	2	N	C	A	.75	RV	SA	1246-1 (G-6)	C	O/C	NA	RT	10Y		GMP-37-06-2500/RV	
RCP A THERMAL BARRIER CCW OUTLET RELIEF VLV (IN CNMT)																
755B	2	N	C	A	.75	RV	SA	1246-1 (G-3)	C	O/C	NA	RT	10Y		GMP-37-06-2500/RV	
RCP B THERMAL BARRIER CCW OUTLET RELIEF VLV (IN CNMT)																
758A	2	N	C	A	2	RV	SA	1246-1 (H-5)	C	O/C	NA	RT	10Y		GMP-37-06-150/RV2	
RCP A CCW OUTLET RELIEF VLV (IN CNMT)																
758B	2	N	C	A	2	RV	SA	1246-1 (H-2)	C	O/C	NA	RT	10Y		GMP-37-06-150/RV2	
RCP B CCW OUTLET RELIEF VLV (IN CNMT)																

Valve Table

CCW - COMPONENT COOLING WATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
759A	2	N	A	A	3	GA	MO	1246-1 (I-5)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.13	
CCW FROM RCP A ISOL VLV MOV-759A												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.4	
759B	2	N	A	A	3	GA	MO	1246-1 (I-2)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.13	
CCW FROM RCP B ISOL VLV MOV-759B												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.4	
766	3	N	C	A	.75	TRV	SA	1246-2 (G-8)	C	O	NA	RT	10Y		GMP-37-06-150/RV	
CCW OUTLET RELIEF VALVE FOR ECH04 (SEAL WATER HEAT EXCHANGER)																
770	3	N	C	A	.75	TRV	SA	1245 (F-7)	C	O	NA	RT	10Y		GMP-37-06-150/RV	
CCW INLET RELIEF VALVE FOR SAMPLE HEAT EXCHANGERS																
774A	3	N	C	A	.75	TRV	SA	1246-2 (D-5)	C	O	NA	RT	10Y		GMP-37-06-150/RV	
CCW OUTLET RELIEF VALVE FOR EWD01B (WASTE GAS COMP RESSOR B SEAL WATER HEAT EXCHANGER)																
774B	3	N	C	A	.75	TRV	SA	1246-2 (C-3)	C	O	NA	RT	10Y		GMP-37-06-150/RV	
CCW OUTLET RELIEF VALVE FOR ECH07 (BORIC ACID EVAPORATOR CONDENSER)																
774C	3	N	C	A	.75	TRV	SA	1246-2 (B-4)	C	O	NA	RT	10Y		GMP-37-06-150/RV	
CCW OUTLET RELIEF VALVE FOR ECH01 (BORIC ACID EVAPORATOR DISTILLATE COOLER)																
774D	3	N	C	A	.75	TRV	SA	1246-2 (C-8)	C	O	NA	RT	10Y		GMP-37-06-150/RV	
CCW OUTLET RELIEF VALVE FOR EWD01A (WASTE GAS COMP RESSOR A SEAL WATER HEAT EXCHANGER)																
776	3	N	C	A	.75	TRV	SA	1246-2 (H-9)	C	O	NA	RT	10Y		GMP-37-06-150/RV	
CCW OUTLET RELIEF VALVE FOR NON REGENERATIVE HEAT EXCHANGER																
813	2	N	A	A	6	GA	MO	1246-1 (B-8)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.13	
CCW TO Rx SUPPORT COOLERS ISOL VLV MOV-813												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	

Valve Table

CCW - COMPONENT COOLING WATER

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
814	2	N	A	A	6	GA	MO	1246-1 (I-8)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.13	
CCW FROM Rx SUPPORT CLRS ISOL VLV MOV-814												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	
817	3	Y	B	NA	8	GA	MO	1246-1 (A-4)	O	NA	AI	PI	2Y		STP-O-2.4	
												SC/SO	R		STP-O-2.4	
CCW TO CNMT ISOL VLV MOV-817												STC	R		STP-O-2.4	
818	2	N	C	A	.75	TRV	SA	1246-1 (H-8)	C	O/C	NA	RT	10Y		GMP-37-06-150/RV1	
CCW OUTLET RELIEF VALVE FOR REACTOR SUPPORT COOLERS																
823	3	N	B	P	2	GA	MO	1245 (D-2)	C	C	AI	PI	2Y		STP-O-2.4	
RMW TO CCW SURGE TANK MOV-823																

Valve Table

CFSW - CONSTRUCTION FIRE SERV WATER

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
5129	2	N	A	P	2	GA	M	1991 (D-7)	C	C	NA	LJ-C	AJ		STP-O-23.49	
FIREWATER/SW SUPPLY TO CMNT DURING CONSTRUCTION ONLY																

Valve Table

CHPE - CONTAINMENT HVAC PURGE EXHAUST

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
1596	2	N	A	A	1	GL	M	1866 (I-10)	O	C	NA	EC/EO	2Y		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.15	
INLET BLOCK VLV TO AOV 1597 (CNMT AIR SAMPLE INLET)																
1597	2	N	A	A	1	DIA	AO	1866 (I-9)	O	C	C	FC	Q		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.15	
CNMT AIR SAMPLE ISOL VLV AOV-1597												PI	2Y		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
1598	2	N	A	A	1	DIA	AO	1866 (G-10)	O	C	C	FC	Q		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.14	
CONTAINMENT AIR SAMPLE ISOL VLV AOV-1598												PI	2Y		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
1599	2	N	A	A	1	DIA	AO	1866 (G-10)	O	C	C	FC	Q		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.14	
CONTAINMENT AIR SAMPLE ISOL VLV AOV-1599												PI	2Y		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
5879	2	N	B	A	48	BTF	AO	1866 (I-2)	C	C	C	FC	R		STP-O-2.5.2	OOS - flange installed
												PI	2Y		STP-O-2.5.2	
CONTAINMENT PURGE EXHAUST VLV AOV-5879												SC/SO	R		STP-O-2.5.2	
												STC	R		STP-O-2.5.2	
7970	2	N	A	A	6	BTF	AO	1870 (G-2)	O/C	C	C	FC	Q		STP-O-2.5.1	
												LJ-C	AJ		STP-O-23.34	
CONTAINMENT MINI PURGE EXHAUST VALVE INSIDE												PI	2Y		STP-O-2.5.1	
												SC/SO	Q		STP-O-2.5.1	
												STC	Q		STP-O-2.5.1	
7971	2	N	A	A	6	BTF	AO	1870 (G-4)	O/C	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.34	
CONTAINMENT MINI PURGE EXHAUST VALVE OUTSIDE												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	

Valve Table

CHPS - CONTAINMENT HVAC PURGE SUPPLY

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
5869	SSC	N	B	A	48	BTF	AO	1865 (F-10)	C	C	C	FC	R		STP-O-2.5.2	OOS - flange installed
CONTAINMENT PURGE SUPPLY AIR OPERATED VALVE												PI	2Y		STP-O-2.5.2	
												SC/SO	R		STP-O-2.5.2	
												STC	R		STP-O-2.5.2	
7445	2	N	A	A	6	BTF	AO	1865 (H-7)	O/C	C	C	FC	Q		STP-O-2.5.5	
CNMT MINI PURGE SUPPLY VLV OUTSIDE AOV-7445												LJ-C	AJ		STP-O-23.44	
												PI	2Y		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
7478	2	N	A	A	6	BTF	AO	1865 (H-8)	O/C	C	C	FC	Q		STP-O-2.5.1	
CNMT MINI PURGE SUPPLY VLV OUTSIDE AOV-7478												LJ-C	AJ		STP-O-23.44	
												PI	2Y		STP-O-2.5.1	
												SC/SO	Q		STP-O-2.5.1	
												STC	Q		STP-O-2.5.1	

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
1557 A RECIRC FAN AIR SAMPLE LINE PRI ISOL, PENET-305	2	N	A	P	.75	DIA	M	1863 (C-5)	C	C	NA	LJ-C	AJ		STP-O-23.50A	
1558 A RECIRC FAN AIR SAMPLE LINE VENT, PENET-305	2	N	A	P	.5	GA	M	1863 (C-5)	C	C	NA	LJ-C	AJ		STP-O-23.50A	
1559 A REIRC FAN AIR SAMPLE LINE SEC ISOL, PENET-305	2	N	A	P	.75	DIA	M	1863 (C-4)	C	C	NA	LJ-C	AJ		STP-O-23.50A	
1560 A & B RECIRC FAN AIR SAMPLE RETURN LINE PRI ISOL, PENET-305	2	N	A	P	.75	DIA	M	1863 (D-5)	C	C	NA	LJ-C	AJ		STP-O-23.50A	
1561 A & B RECIRC FAN AIR SAMPLE RETURN LINE VENT, PENET-305	2	N	A	P	.5	GA	M	1863 (D-5)	C	C	NA	LJ-C	AJ		STP-O-23.50A	
1562 A & B RECIRC FAN AIR SAMPLE RETURN LINE SEC ISOL, PENET-305	2	N	A	P	.75	DIA	M	1863 (D-5)	C	C	NA	LJ-C	AJ		STP-O-23.50A	
1572 C RECIRC FAN AIR SAMPLE RETURN LINE PRI ISOL, PENET-124	2	N	A	P	.75	DIA	M	1863 (B-12)	C	C	NA	LJ-C	AJ		STP-O-23.50C	
1573 C RECIRC FAN AIR SAMPLE RETURN LINE VENT, PENET-124	2	N	A	P	.5	GA	M	1863 (B-12)	C	C	NA	LJ-C	AJ		STP-O-23.50C	
1574 C RECIRC FAN AIR SAMPLE RETURN SEC ISOL, PENET-124	2	N	A	P	.75	DIA	M	1863 (B-12)	C	C	NA	LJ-C	AJ		STP-O-23.50C	

Valve Table

CS - CONTAINMENT SPRAY

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
1802 SPRAY ADDITIVE TANK RELIEF VLV TO ATMOSPHERE	2	N	C	A	.75	RV	SA	1261 (F-3)	C	O	NA	RT	10Y		GMP-37-06-275/RV3	
1819A INSTR ISOL VLV TO PT-945 (CNMT PRESS)	2	N	A	A	.75	GL	M	1261 (A-10)	O	O/C	NA	EC/EO LJ-C	2Y AJ		PTT-23.17A STP-O-23.17A	
1819B INSTR ISOL VLV TO PT-946 (CNMT PRESS)	2	N	A	A	.75	GL	M	1261 (A-9)	O	O/C	NA	EC/EO LJ-C	2Y AJ		PTT-23.17A STP-O-23.17A	
1819C INSTR ISOL VLV TO PT-947 (CNMT PRESS)	2	N	A	A	.75	GL	M	1261 (B-10)	O	O/C	NA	EC/EO LJ-C	2Y AJ		PTT-23.17B STP-O-23.17B	
1819D INSTR ISOL VLV TO PT-948 (CNMT PRESS)	2	N	A	A	.75	GL	M	1261 (B-9)	O	O/C	NA	EC/EO LJ-C	2Y AJ		PTT-23.17B STP-O-23.17B	
1819E INSTR ISOL VLV TO PT-949 (CNMT PRESS)	2	N	A	A	.75	GL	M	1261 (C-10)	O	O/C	NA	EC/EO LJ-C	2Y AJ		PTT-23.17C STP-O-23.17C	
1819F INSTR ISOL VLV TO PT-950 (CNMT PRESS)	2	N	A	A	.75	GL	M	1261 (C-9)	O	O/C	NA	EC/EO LJ-C	2Y AJ		PTT-23.17C STP-O-23.17C	
1819G INSTR ISOL VLV TO PT-944 (CNMT PRESS)	2	N	A	A	.75	GL	M	1261 (C-10)	O	O/C	NA	EC/EO LJ-C	2Y AJ		PTT-23.17C STP-O-23.17C	
2825 CONTAINMENT SPRAY PUMP A DISCHARGE INNER DRAIN VLV	2	N	A	P	.75	GA	M	1261 (E-8)	C	C	NA	LJ-C	AJ		STP-O-23.18A	
2825A CONTAINMENT SPRAY PUMP A DISCHARGE OUTER DRAIN VLV	2	N	A	P	.5	BAL	M	1261 (F-8)	C	C	NA	LJ-C	AJ		STP-O-23.18A	
2826 CONTAINMENT SPRAY PUMP B DISCHARGE INNER DRAIN VLV	2	N	A	P	.75	GA	M	1261 (I-8)	C	C	NA	LJ-C	AJ		STP-O-23.18B	
2826A CONTAINMENT SPRAY PUMP B DISCHARGE OUTER DRAIN VLV	2	N	A	P	.5	BAL	M	1261 (J-8)	C	C	NA	LJ-C	AJ		STP-O-23.18B	
2856 INSTR ISOL VLV TO PI-933A & 2780 (CNMT SPRAY PMP A DISCH)	2	N	A	P	.75	GA	M	1261 (D-9)	C	C	NA	LJ-C	AJ		STP-O-23.18A	

Valve Table

CS - CONTAINMENT SPRAY

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
2858	2	N	A	P	.75	GA	M	1261 (I-9)	C	C	NA	LJ-C	AJ		STP-O-23.18B	
INSTR ISOL VLV TO PI-933B & 2779 (CNMT SPRAY PMP B DISCH)																
2863R	2	N	C	A	.75	TRV	SA	1261 (H-10)	C	C	NA	RT	10Y		GMP-37-49-50X350/RV	Added per NRC GL 96-06
CHARCOAL FILTER DOUSING HEADER RELIEF VALVE																
836A	2	N	B	A	2	GL	AO	1261 (H-3)	C	O	O	FO	Q		STP-O-3QA	
												FO	2Y		STP-O-3-COMP-A	
CNMT SPRAY NAOH ADDITION AOV-836A												SC/SO	Q		STP-O-3QA	
												SC/SO	2Y		STP-O-3-COMP-A	
												STO	Q		STP-O-3QA	
												STO	2Y		STP-O-3-COMP-A	
836B	2	N	B	A	2	GL	AO	1261 (H-3)	C	O	O	FO	Q		STP-O-3QB	
												FO	2Y		STP-O-3-COMP-B	
CNMT SPRAY NAOH ADDITION AOV-836B												SC/SO	Q		STP-O-3QB	
												SC/SO	2Y		STP-O-3-COMP-B	
												STO	Q		STP-O-3QB	
												STO	2Y		STP-O-3-COMP-B	
845C	3	N	C	A	2	RV	SA	1261 (F-4)	C	O	NA	RT	2Y		STP-M-R-13	
CONTAINMENT SPRAY ADDITIVE TANK VACUUM BREAKER-RELIEF VALVE																
845D	3	N	C	A	2	RV	SA	1261 (F-4)	C	O	NA	RT	2Y		STP-M-R-13	
CONTAINMENT SPRAY ADDITIVE TANK VACUUM BREAKER-RELIEF VALVE																
847A	2	N	C	A	2	CK	SA	1261 (G-5)	C	O/C	NA	CC	Q		STP-O-3QB	
												CC	2Y		STP-O-3-COMP-B	
SPRAY ADDITIVE TANK OUTLET CHECK VLV TO CNMT SPRAY EDUCTOR A												CO	Q		STP-O-3QA	
												CO	2Y		STP-O-3-COMP-A	
847B	2	N	C	A	2	CK	SA	1261 (H-5)	C	O/C	NA	CC	Q		STP-O-3QA	
												CC	2Y		STP-O-3-COMP-A	
SPRAY ADDITIVE TANK OUTLET CHECK VLV TO CNMT SPRAY EDUCTOR B												CO	Q		STP-O-3QB	
												CO	2Y		STP-O-3-COMP-B	
860A	2	N	A	A	6	GA	MO	1261 (E-7)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.11	
CONTAINMENT SPRAY PUMP A MOTOR OPERATED DISCHARGE VALVE												PI	MOV		MA-AA-723-300-1006	
												SC/SO	2Y		STP-O-3-COMP-A	
												STO	2Y		STP-O-3-COMP-A	

Valve Table

CS - CONTAINMENT SPRAY

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
860B	2	N	A	A	6	GA	MO	1261 (E-7)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.11	
CONTAINMENT SPRAY PUMP A DISCHARGE ISOLATION MOTOR OPERATED VALVE												PI	MOV		MA-AA-723-300-1006	
												SC/SO	2Y		STP-O-3-COMP-A	
												STO	2Y		STP-O-3-COMP-A	
860C	2	N	A	A	6	GA	MO	1261 (I-7)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.11	
CONTAINMENT SPRAY PUMP B DISCHARGE ISOLATION MOTOR OPERATED VALVE												PI	MOV		MA-AA-723-300-1006	
												SC/SO	2Y		STP-O-3-COMP-B	
												STO	2Y		STP-O-3-COMP-B	
860D	2	N	A	A	6	GA	MO	1261 (I-7)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.11	
CONTAINMENT SPRAY PUMP B MOTOR OPERATED DISCHARGE ISOLATION VALVE												PI	MOV		MA-AA-723-300-1006	
												SC/SO	2Y		STP-O-3-COMP-B	
												STO	2Y		STP-O-3-COMP-B	
861	2	N	C	A	.75	RV	SA	1261 (J-2)	C	O/C	NA	RT	10Y		GMP-37-06-255/RV	
CONTAINMENT SPRAY PUMPS SUCTION RELIEF VLV																
862A	2	N	C	A	6	CK	SA	1261 (E-8)	C	O/C	NA	CC	18M		STP-O-3-COMP-A	CVCMP
												CO	18M		STP-O-3-COMP-A	
CONTAINMENT SPRAY PUMP A DISCHARGE CHECK VLV																
862B	2	N	C	A	6	CK	SA	1261 (I-8)	C	O/C	NA	CC	18M		STP-O-3-COMP-B	CVCMP
												CO	18M		STP-O-3-COMP-B	
CONTAINMENT SPRAY PUMP B DISCHARGE CHECK VLV																
868C	2	N	A	P	6	GL	M	1261 (F-8)	C	C	NA	LJ-C	AJ		STP-O-23.18A	
CS PUMP A RECIRC LINE ISOL VALVE																
868D	2	N	A	P	6	GL	M	1261 (G-8)	C	C	NA	LJ-C	AJ		STP-O-23.18B	
CS PUMP B RECIRC LINE ISOL VALVE																
868E	2	N	A	P	6	GL	M	1261 (F-8)	C	C	NA	LJ-C	AJ		STP-O-23.18A	
CS PUMP RECIRC LINE ISOL VALVE																
869A	2	N	A	P	.75	GL	M	1261 (E-9)	C	C	NA	LJ-C	AJ		STP-O-23.18A	
INSTR ROOT VLV TO PI-933A & 2780 (CNMT SPRAY PMP A DISCH)																
869B	2	N	A	P	.75	GL	M	1261 (I-9)	C	C	NA	LJ-C	AJ		STP-O-23.18B	
INSTR ROOT VLV TO PI-933B & 2779 (CNMT SPRAY PMP B DISCH)																

Valve Table

CS - CONTAINMENT SPRAY

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
869E	2	N	AC	A	0.5	TRV	SA	1261 (G-8)	C	O/C	NA	LJ-C	AJ		STP-O-23.18A	
												RT	10Y		GMP-37-55-450/RV	
CS TEST LINE RV																
875A	2	N	B	P	2	GL	MO	1261 (F-9)	C	C	AI	PI	2Y		STP-O-2.4	
UPPER CNMT SPRAY CHARCOAL FILTER DOUSING MOTOR OPERATED VALVE																
875B	2	N	B	P	2	GL	MO	1261 (G-9)	C	C	AI	PI	2Y		STP-O-2.4	
UPPER CNMT SPRAY CHARCOAL FILTER DOUSING MOV-875B																
876A	2	N	B	P	2	GL	MO	1261 (H-9)	C	C	AI	PI	2Y		STP-O-2.4	
LOWER CONTAINMENT SPRAY CHARCOAL FILTER DOUSING MOTOR OPERATED VALVE																
876B	2	N	B	P	2	GL	MO	1261 (G-9)	C	C	AI	PI	2Y		STP-O-2.4	
LOWER CNMT SPRAY CHARCOAL FILTER DOUSING MOV-876B																
896A	2	N	A	A	10	GA	MO	1261 (C-2)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	High Risk MOV
												LT-X	2Y		STP-O-8.12	
RWST OUTLET TO CNMT SPRAY & SAFETY INJECTION PUMPS MOV-896A												PI	MOV		MA-AA-723-300-1006	
												SC/SO	CS	CS - 22	STP-O-2.4	
896B	2	N	A	A	10	GA	MO	1261 (D-2)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	High Risk MOV
												LT-X	2Y		STP-O-8.12	
RWST OUTLET TO CNMT SPRAY & SAFETY INJECTION PUMPS MOV-896B												PI	MOV		MA-AA-723-300-1006	
												SC/SO	CS	CS - 22	STP-O-2.4	
897	2	N	A	A	2	GL	MO	1261 (C-7)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	Treat as High Risk MOV
												LT-X	2Y		STP-O-8.12	
SAFETY INJECTION RECIRC TO RWST MOV-897												PI	MOV		MA-AA-723-300-1006	
												SC/SO	CS	CS - 23	STP-O-2.4	
898	2	N	A	A	2	GL	MO	1261 (C-7)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	Treat as High Risk MOV
												LT-X	2Y		STP-O-8.12	
SAFETY INJECTION RECIRC TO RWST MOV-898												PI	MOV		MA-AA-723-300-1006	
												SC/SO	CS	CS - 23	STP-O-2.4	

Valve Table

CVAT - CONTAINMENT VESSEL AIR TEST

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
7443 CONTAINMENT LEAK TEST ISOL VLV MOV-7443	2	N	A	P	6	BTF	M	1882 (E-10)	C	C	NA	LJ-C	AJ		STP-O-23.43	
7443A CONTAINMENT LEAK TEST ISOL VLV MOV-7443A	2	N	AC	A	6	CK	SA	1882 (E-10)	C	C	NA	LJ-C	AJ		STP-O-23.43	Drawing #33013-1262
7444 CONTAINMENT LEAK TEST MOTOR OPERATED VALVE	2	N	A	P	6	BTF	M	1882 (I-5)	C	C	NA	LJ-C	AJ		STP-O-23.42	

Valve Table

CVCS - CVCS CHARGING

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
112B	2	Y	B	A	4	BTF	AO	1265-2 (F-3)	C	O	C	PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 07	STP-O-2.5.2	
EMERG MAKEUP RWST TO CHARGING PUMP LCV-112B												STO	CS	CS - 07	STP-O-2.5.2	
112C	SSC	Y	B	A	4	BTF	AO	1265-2 (D-3)	O	C	O	PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 07	STP-O-2.5.2	
VCT OUTLET VLV LCV-112C												STC	CS	CS - 07	STP-O-2.5.2	
142	2	Y	B	A	2	GL	AO	1265-2 (E-10)	O	O	O	FO	CS	CS - 08	STP-O-2.5.2	
												PI	2Y		STP-O-2.5.2	
CHARGING FLOW TO REGEN HX HCV-142												SC/SO	CS	CS - 08	STP-O-2.5.2	
												STO	CS	CS - 08	STP-O-2.5.2	
257	SSC	N	C	A	2	RV	SA	1265-2 (A-4)	C	O/C	NA	RT	10Y		CMP-37-06-257	
VCT RELIEF VALVE TO HOLDUP TANKS																
268	SSC	Y	B	A	4	BTF	M	1265-2 (F-3)	O	O/C	NA	EC/EO	2Y		STP-O-2.6.4	
VCT SUCTION ISOL VLV TO CHARGING PUMP B & C																
270A	2	Y	B	A	2	GL	AO	1265-1 (F-3)	O	C	O	PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 10	STP-O-2.5.2	
RCP A SEAL OUTLET VLV AOV-270A												STC	CS	CS - 10	STP-O-2.5.2	
270B	2	Y	B	A	2	GL	AO	1265-1 (F-6)	O	C	O	PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 10	STP-O-2.5.2	
RCP B SEAL OUTLET VLV AOV 270B												STC	CS	CS - 10	STP-O-2.5.2	
283	2	N	C	A	.75	RV	SA	1265-2 (H-6)	C	O/C	NA	RT	10Y		GMP-37-06-2687RV	
CHARGING PUMP C DISCHARGE RELIEF VLV TO VCT																
284	2	N	C	A	.75	RV	SA	1265-2 (F-6)	C	O/C	NA	RT	10Y		GMP-37-06-2687RV	
CHARGING PUMP B DISCHARGE RELIEF VLV TO VCT																
285	2	N	C	A	.75	RV	SA	1265-2 (E-6)	C	O/C	NA	RT	10Y		GMP-37-06-2687RV	
CHARGING PUMP A DISCHARGE RELIEF VLV TO VCT																
295	1	N	C	A	2	CK	SA	1265-1 (B-10)	O	C	NA	BDO	CS	CS - 08	STP-O-2.9	
												CC	CS	CS - 08	STP-O-2.9	
CHARGING LINE INLET CHECK VLV TO LOOP B COLD LEG (RCS,IMB)																
297	1	N	C	A	2	CK	SA	1265-1 (C-10)	C	C	NA	BDO	CS	CS - 08	STP-O-2.9	
												CC	CS	CS - 08	STP-O-2.9	
CHARGING LINE AUX SPRAY INLET CHECK VLV TO PRESSURIZER (IMB)																

Valve Table

CVCS - CVCS CHARGING

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
302C	1	Y	C	A	2	CK	SA	1265-1 (G-6)	O	O	NA	BDC	R	ROJ - 09	STP-O-2.9	
												CO	OP		Normal Ops	
RCP B SEAL INJECTION INLET CHECK VLV																
302D	1	Y	C	A	2	CK	SA	1265-1 (G-3)	O	O	NA	BDC	R	ROJ - 09	STP-O-2.9	
												CO	OP		Normal Ops	
RCP A SEAL INJECTION INLET CHECK VLV																
304A	1	N	C	A	2	CK	SA	1265-1 (H-3)	O	O/C	NA	CC	CS	CS - 10	STP-O-2.9	
												CO	Q		STP-O-31A	
RCP A SEAL INJECTION INLET CHECK VALVE												CO	Q		STP-O-31B	
												CO	Q		STP-O-31C	
304B	1	N	C	A	2	CK	SA	1265-1 (H-6)	O	O/C	NA	CC	CS	CS - 10	STP-O-2.9	
												CO	Q		STP-O-31A	
RCP B SEAL INJECTION INLET CHECK VLV												CO	Q		STP-O-31B	
												CO	Q		STP-O-31C	
313	2	N	A	A	3	GA	MO	1265-2 (D-8)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LJ-C	AJ		STP-O-23.11	
SEAL OR EXCESS LETDOWN RETURN ISOLATION MOTOR OPERATED VALVE TEST												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.4	
												STC	18M		STP-O-2.4	
314	2	N	C	A	2	RV	SA	1265-1 (B-4)	C	O	NA	RT	10Y		CMP-37-06-314	
SEAL WATER RETURN RELIEF VLV TO PRT																
357	2	Y	C	A	4	CK	SA	1261 (B-3)	C	O	NA	BDC	CS	CS - 07	STP-O-2.9	
												CO	CS	CS - 07	STP-O-2.6.4	
RWST SUCTION CHECK VLV TO CHARGING PUMPS																
358	2	Y	B	A	4	BTF	M	1265-2 (F-3)	C	O/C	NA	EC/EO	2Y		STP-O-2.6.4	
RWST MAKEUP AOV BYPASS VLV TO CHARGING PUMPS SUCTION																
370B	2	N	AC	A	2	CK	SA	1265-1 (B-2)	O	O/C	NA	CC	CS	CS - 08	STP-O-2.10	
												CO	CS	CS - 08	STP-O-2.6.4	
CHARGING PUMP DISCH CHECK VLV TO REGEN HX'S												LJ-C	AJ		STP-O-23.8	
												LT-X	2Y		STP-O-8.4	
383A	1	N	C	A	2	CK	SA	1265-1 (F-2)	C	O	NA	BDC	CS	CS - 12	STP-O-2.6.4	
												CO	CS	CS - 12	STP-O-2.6.4	
ALTERNATE CHARGING LINE INLET CHECK VLV TO LOOP A COLD LEG																
383B	2	N	AC	A	2	CK	SA	1265-1 (H-2)	C	O/C	NA	CC	CS	CS - 12	STP-O-2.10	
												CO	CS	CS - 12	STP-O-2.10	
ALTERNATE CHARGING LINE INLET CHECK VLV TO LOOP A COLD LEG												LJ-C	AJ		STP-O-23.10	
												LT-X	2Y		STP-O-8.7	

Valve Table

CVCS - CVCS CHARGING

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
386	2	N	B	A	1	GA	AO	1265-1 (C-4)	C	C	C	FC	CS	CS - 11	STP-O-2.5.2	
												PI	2Y		STP-O-2.5.2	
RCP A & B SEAL BYPASS AOV-386												SC/SO	CS	CS - 11	STP-O-2.5.2	
												STC	CS	CS - 11	STP-O-2.5.2	
392A	2	N	BC	A	2	GL	AO	1265-1 (A-9)	C	O	C	PI	2Y		STP-O-2.6.4	
												RT	10Y		STP-O-2.6.4	
CHARGING VLV RHX TO LOOP B HOT AOV-392A												SC/SO	CS	CS - 08	STP-O-2.6.4	
												STO	CS	CS - 08	STP-O-2.6.4	
392B	1	N	B	A	2	GL	AO	1265-1 (F-2)	C	O	C	PI	2Y		STP-O-2.6.4	
												RT	10Y		STP-O-2.6.4	
ALT CHARGING VLV CHG PUMP TO LOOP A COLD AOV-392B												SC/SO	CS	CS - 12	STP-O-2.6.4	
												STO	CS	CS - 12	STP-O-2.6.4	
393	1	N	C	A	2	CK	SA	1265-1 (A-10)	C	O/C	NA	CC	CS		STP-O-2.9	
												CO	CS	CS - 08	STP-O-2.6.4	
CHARGING LINE INLET CHECK VLV TO LOOP B HOT LEG (IMB)																
9313	1	N	C	A	2	CK	SA	1265-1 (C-9)	C	C	NA	BDO	CS	CS - 08	STP-O-2.9	
												CC	CS	CS - 08	STP-O-2.9	
CHARGING LINE AUX SPRAY INLET CHECK VLV TO PRESSURIZER (IMB)																
9314	1	N	C	A	2	CK	SA	1265-1 (B-9)	O	C	NA	BDO	CS	CS - 08	STP-O-2.9	
												CC	CS	CS - 08	STP-O-2.9	
CHARGING LINE INLET CHECK VLV TO LOOP B COLD LEG (RCS,IMB)																
9315	1	N	C	A	2	CK	SA	1265-1 (A-9)	C	O/C	NA	CC	CS	CS - 08	STP-O-2.9	
												CO	CS	CS - 08	STP-O-2.6.4	
CHARGING LINE INLET CHECK VLV TO LOOP B HOT LEG (RCS,IMB)																

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
123	1	N	A	P	.75	GL	AO	1264 (E-9)	C	C	C	LT-X	2Y		STP-O-8.5	
EXCESS LETDOWN HX FLOW CONTROL HCV-123																
200A	1	N	A	A	2	GL	AO	1264 (B-11)	O/C	C	C	FC	CS	CS - 09	STP-O-2.5.2	
												LJ-C	AJ		STP-O-23.6	
LTDN ORIFICE AOV-200A												LT-X	2Y		STP-O-8.1	
												PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 09	STP-O-2.5.2	
												STC	CS	CS - 09	STP-O-2.5.2	
200B	1	N	A	A	2	GL	AO	1264 (B-10)	O/C	C	C	FC	CS	CS - 09	STP-O-2.5.2	
												LJ-C	AJ		STP-O-23.6	
LTDN ORIFICE AOV-200B												LT-X	2Y		STP-O-8.1	
												PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 09	STP-O-2.5.2	
												STC	CS	CS - 09	STP-O-2.5.2	
202	1	N	A	A	2	GL	AO	1264 (B-10)	C	C	C	FC	CS	CS - 09	STP-O-2.5.2	
												LJ-C	AJ		STP-O-23.6	
LTDN ORIFICE AOV-202												LT-X	2Y		STP-O-8.1	
												PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 09	STP-O-2.5.2	
												STC	CS	CS - 09	STP-O-2.5.2	
203	2	N	AC	A	2	RV	SA	1264 (A-8)	C	O/C	NA	LJ-C	AJ		STP-O-23.6	
												RT	10Y		CMP-37-06-203	
LOOP B LETDOWN TO NON-REGENERATIVE HEAT EXCHANGER RELIEF VALVE TO PRESSURIZER RELIEF TANK																
310	1	N	B	P	.75	GL	AO	1264 (C-9)	C	C	C	PI	2Y		STP-O-2.5.2	
EXCESS LTDN LOOP A COLD TO HX AOV-310																
371	2	N	A	A	2	GL	AO	1264 (B-7)	O	C	C	FC	CS	CS - 09	STP-O-2.5.2	
												LJ-C	AJ		STP-O-23.6	
LETDOWN ISOL VLV RHR TO NRHX AOV-371												PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 09	STP-O-2.5.2	
												STC	CS	CS - 09	STP-O-2.5.2	
702	2	N	C	A	.75	CK	SA	1264 (A-10)	C	O	NA	BDC	OP		Normal Ops	
												CO	CS	CS - 05	STP-O-2.10.12	
RHR LETDOWN INLET CHECK VLV TO NRHX (OVER PRESS PROTECTION)																

Valve Table

EDG - EMERGENCY DIESEL GENERATOR

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
12398G	3	N	B	A	1	GA	M	1239-1 (E-3)	O	O/C	NA	EC/EO	2Y		STP-O-12.6-COMP-A	
A D/G FUEL OIL SOLENOID RECIRC ISOLATION VALVE																
12399G	3	N	B	A	1	GA	M	1239-2 (E-8)	O	O/C	NA	EC/EO	2Y		STP-O-12.6-COMP-B	
B-D/G FUEL OIL SOLENOID RECIRC ISOL VLV																
5907	3	N	B	A	1	GA	SO	1239-1 (E-3)	O	O/C	C	FC	Q		STP-O-12.1	
												SC/SO	Q		STP-O-12.1	TJ-03
D/G A FUEL OIL SOV TO DAY TANK												STC	Q		STP-O-12.1	
												STO	Q		STP-O-12.1	
5907A	3	N	B	A	.75	GA	SO	1239-1 (E-3)	C	O/C	O	FO	Q		STP-O-12.1	
												SC/SO	Q		STP-O-12.1	TJ-03
D/G A FUEL OIL TRANSFER PUMP SOLENOID OPERATED RECIRC VLV												STC	Q		STP-O-12.1	
												STO	Q		STP-O-12.1	
5908	3	N	B	A	1	GA	SO	1239-2 (E-9)	O	O/C	C	FC	Q		STP-O-12.2	
												SC/SO	Q		STP-O-12.2	TJ-03
D/G B FUEL OIL SOLENOID VLV TO DAY TANK												STC	Q		STP-O-12.2	
												STO	Q		STP-O-12.2	
5908A	3	N	B	A	.75	GA	SO	1239-2 (E-9)	C	O/C	O	FO	Q		STP-O-12.2	
												SC/SO	Q		STP-O-12.2	TJ-03
D/G B FUEL OIL TRANSFER PUMP RECIRCULATION SOV												STC	Q		STP-O-12.2	
												STO	Q		STP-O-12.2	
5933A	3	N	B	A	1.5	GA	SO	1239-1 (G-11)	C	O	AI	SC/SO	Q		STP-O-12.1	
												STO	Q		STP-O-12.1	TJ-02
D/G A STARTING AIR SOV																
5933B	3	N	B	A	1.5	GA	SO	1239-1 (F-11)	C	O	AI	SC/SO	Q		STP-O-12.1	
												STO	Q		STP-O-12.1	TJ-02
D/G A STARTING AIR SOV																
5934A	3	N	B	A	1.5	GA	SO	1239-2 (C-2)	C	O	AI	SC/SO	Q		STP-O-12.2	
												STO	Q		STP-O-12.2	TJ-02
D/G B STARTING AIR SOV																
5934B	3	N	B	A	1.5	GA	SO	1239-2 (B-2)	C	O	AI	SC/SO	Q		STP-O-12.2	
												STO	Q		STP-O-12.2	TJ-02
D/G B STARTING AIR SOV																
5937	3	N	B	A	1	GL	M	1239-1 (E-3)	C	O/C	NA	EC/EO	2Y		STP-O-12.6-COMP-A	
D/G A FUEL OIL SOV BYPASS VLV (TO DAY TK)																
5938	3	N	B	A	1	GL	M	1239-2 (E-8)	C	O/C	NA	EC/EO	2Y		STP-O-12.6-COMP-B	
D/G B FUEL OIL SOLENOID VLV 5908 BYPASS VLV (TO DAY TK)																

Valve Table

EDG - EMERGENCY DIESEL GENERATOR

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
5941A	3	N	C	A	.75	CK	SA	1239-1 (F-1)	C	C	NA	BDO CC	Q Q		Normal Ops STP-O-12.7A	
DISCHARGE CHECK VALVE FOR CDG01A (D/G A STARTING AIR COMPRESSOR)																
5942A	3	N	C	A	.75	CK	SA	1239-2 (F-11)	C	C	NA	BDO CC	Q Q		Normal Ops STP-O-12.7B	
D/G B STARTING AIR COMPRESSOR DISCHARGE CHECK VLV																
5943A	3	N	C	A	.75	RV	SA	1239-1 (F-1)	C	O/C	NA	RT	10Y		GMP-37-06-275/RV2	
DISCHARGE RELIEF VALVE FOR CDG01A (D/G A STARTING AIR COMPRESSOR)																
5944A	3	N	C	A	.75	RV	SA	1239-2 (F-11)	C	O/C	NA	RT	10Y		GMP-37-06-275/RV2	
D/G B STARTING AIR COMPRESSOR DISCHARGE RELIEF VLV																
5947B	3	N	C	A	.75	RV	SA	1239-1 (F-1)	C	O/C	NA	RT	10Y		GMP-37-06-275/RV2	
RELIEF VALVE FOR TDG03A (D/G A STARTING AIR RECEIVER A1)																
5947C	3	N	C	A	.75	RV	SA	1239-1 (G-1)	C	O/C	NA	RT	10Y		GMP-37-06-275/RV2	
RELIEF VALVE FOR TDG03B (D/G A STARTING AIR RECEIVER A2)																
5948B	3	N	C	A	.75	RV	SA	1239-2 (G-10)	C	O/C	NA	RT	10Y		GMP-37-06-275/RV2	
D/G B STARTING AIR RECEIVER B2 RELIEF VLV																
5948C	3	N	C	A	.75	RV	SA	1239-2 (F-10)	C	O/C	NA	RT	10Y		GMP-37-06-275/RV2	
D/G B STARTING AIR RECIEVER B1 RELIEF VLV																
5955	3	N	C	A	3	CK	SA	1239-1 (I-1)	C	O/C	NA	CC CC CO CO	Q 2Y Q 2Y		STP-O-12.6A STP-O-12.6-COMP-A STP-O-12.6A STP-O-12.6-COMP-A	
D/G A FUEL OIL TRANSFER PUMP SUCTION CHECK VLV																
5956	3	N	C	A	3	CK	SA	1239-2 (I-10)	C	O/C	NA	CC CC CO CO	Q 2Y Q 2Y		STP-O-12.6B STP-O-12.6-COMP-B STP-O-12.6B STP-O-12.6-COMP-B	
D/G B FUEL OIL TRANSFER PUMP SUCTION CHECK VLV																
5959	3	N	C	A	1.5	RV	SA	1239-1 (G-3)	C	O/C	NA	RT	10Y		GMP-37-06-275/RV	
D/G A FUEL OIL TRANSFER PUMP DISCHARGE RELIEF VLV																
5960	3	N	C	A	1.5	RV	SA	1239-2 (G-8)	C	O/C	NA	RT	10Y		GMP-37-06-275/RV	
D/G B FUEL OIL TRANSFER PUMP DISCHARGE RELIEF VLV																

Valve Table

EDG - EMERGENCY DIESEL GENERATOR

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
5960A D/G A FUEL OIL DAY TANK CHECK VLV TO STORAGE TANK A	3	N	C	A	1.5	CK	SA	1239-1 (C-1)	C	O/C	NA	D&I	CM		GMP-37-40-250/1.5/CV	CVCMP
5960B D/G B FUEL OIL DAY TANK CHECK VLV TO STORAGE TANK B	3	N	C	A	1.5	CK	SA	1239-2 (C-11)	C	O/C	NA	D&I	CM		GMP-37-40-250/1.5/CV	CVCMP

Valve Table

FP - FIRE PROTECTION

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
9227 CONTAINMENT FIRE HOSE SUPPLY AIR OPERATED VALVE	2	N	A	P	4	BAL	M	1991 (B-5)	C	C	NA	LJ-C	AJ		STP-O-23.52	
9229 CNMT HOSE REEL SUPPLY CHECK VLV (IN CNMT)	2	N	AC	A	4	CK	SA	1991 (C-5)	C	O/C	NA	CC CO LJ-C	AJ R AJ		STP-O-23.52 FPS-14 STP-O-23.52	CVCMP
9230R CONTAINMENT FIRE HEADER THERMAL RELIEF VALVE	2	N	C	A	.75	TRV	SA	1991 (C-5)	C	O	NA	RT	10Y		GMP-37-49-50X350/RV	Added per NRC GL 96-06

Valve Table

HREC - H2 RECOMBINERS

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
10205S1	2	N	A	P	1	GA	SO	1275-1 (B-7)	C	C	NA	LJ-C	AJ		STP-O-23.51A	
H2 PILOT LINE SOLENOID OPERATED ISOL VLV TO RECOMBINER A																
10209S1	2	N	A	P	1	GA	SO	1275-1 (D-7)	C	C	NA	LJ-C	AJ		STP-O-23.51A	
H2 MAIN FUEL LINE SOLENOID OPERATED ISOL VLV TO RECOMBINER A																
10211S1	2	N	A	P	1	GA	SO	1275-1 (E-8)	C	C	NA	LJ-C	AJ		STP-O-23.51B	
H2 PILOT LINE SOLENOID OPERATED ISOL VLV TO RECOMBINER B																
10213S1	2	N	A	P	1	GA	SO	1275-1 (G-8)	C	C	NA	LJ-C	AJ		STP-O-23.51B	
HYDROGEN MAIN FUEL LINE TO RECOMBINER B ISOLATION SOLENOID OPERATED VALVE																
10214S1	2	N	A	P	1	GA	SO	1275-1 (C-1)	C	C	NA	LJ-C	AJ		STP-O-23.51C	
O2 LINE A SOL OPERATED ISOL VLV TO CNMT VENT DUCT (CNMT ISOL)																
10215S1	2	N	A	P	1	GA	SO	1275-1 (E-1)	C	C	NA	LJ-C	AJ		STP-O-23.51C	
O2 LINE B SOL OPERATED ISOL VLV TO CNMT VENT DUCT (CNMT ISOL)																
1076A	2	N	A	P	1	DIA	M	1275-1 (B-7)	C	C	NA	LJ-C	AJ		STP-O-23.51A	
HYDROGEN RECOMBINER A PILOT BURNER ISOL VLV (MANUAL CNMT ISOL)																
1076B	2	N	A	P	1	DIA	M	1275-1 (E-8)	C	C	NA	LJ-C	AJ		STP-O-23.51B	
HYDROGEN RECOMBINER B PILOT BURNER ISOL VLV (MANUAL CNMT ISOL)																
1080A	2	N	A	P	1	GA	M	1275-1 (E-1)	C	C	NA	LJ-C	AJ		STP-O-23.51C	
O2 ISOL VLV TO CNMT VENT DUCT																
1084A	2	N	A	P	1	DIA	M	1275-1 (D-7)	C	C	NA	LJ-C	AJ		STP-O-23.51A	
HYDROGEN RECOMBINER A MAIN FUEL ISOL VLV (MANUAL CNMT ISOL)																
1084B	2	N	A	P	1	DIA	M	1275-1 (G-8)	C	C	NA	LJ-C	AJ		STP-O-23.51B	
HYDROGEN RECOMBINER B MAIN FUEL ISOL VLV (MANUAL CNMT ISOL)																

Valve Table

IA - INSTRUMENT AIR

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
5392	2	N	A	A	2	GA	AO	1893 (A-11)	O	C	C	FC	R	ROJ - 06	STP-O-2.5.2	
												LJ-C	AJ		STP-O-23.32	
INSTR AIR TO CONTAINMENT ISOL AOV-5392												PI	2Y		STP-O-2.5.2	
												SC/SO	R	ROJ - 06	STP-O-2.5.2	
												STC	R	ROJ - 06	STP-O-2.5.2	
5393	2	N	AC	A	2	CK	SA	1887 (D-4)	O	C	NA	BDO	OP		Normal Ops	CVCMP
												CC	AJ		PTT-23.32	
IA INLET CHECK VLV TO CONTAINMENT (IN CNMT)												LJ-C	AJ		STP-O-23.32	
7034A2	3	N	C	A	3/8	CK	SA	33013-1892 (C-11)	C	C	NA	BDO	OP		Normal OPS	
												CC	Q		STP-O-36QC	
IA SECONDARY CHECK VALVE TO AOV-9632A												CC	Q		STP-O-36-COMP-C	
7034B2	3	N	C	A	3/8	CK	SA	44013-1892 (C-11)	C	C	NA	BDO	OP		Normal OPS	
												CC	Q		STP-O-36Q-D	
IA SECONDARY CHECK VALVE TO AOV-9632B												CC	Q		STP-O-36-COMP-D	

Valve Table

MFW - MAIN FEEDWATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
3992	2	N	C	A	14	CK	SA	1236-2 (J-3)	O	C	NA	BDO	OP		Normal Ops	
												CC	CS	CS - 18	STP-O-2.10.9	
S/G B FW INLET CHECK VLV																
3993	2	N	C	A	14	CK	SA	1236-2 (A-3)	O	C	NA	BDO	OP		Normal Ops	
												CC	CS	CS - 18	STP-O-2.10.9	
S/G A FW INLET CHECK VLV																
3994	3	N	B	A	14	GL	AO	1236-2 (J-3)	O	C	C	PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 19	STP-O-2.5.2	
MAIN FW INLET BLOCK VLV TO S/G B												STC	CS	CS - 19	STP-O-2.5.2	
3994G	3	N	C	A	.75	CK	SA	1236-3 (I-7)	C	C	NA	BDO	CS		STP-O-2.10	
												CC	CS	CS - 20	STP-O-2.10	
MFIV ACCUMULATOR CHECK VALVE																
3994K	3	N	C	A	.75	RV	SA	1236-3 (G-8)	C	O/C	NA	RT	10Y		GMP-37-06-395/RV	
MFIV ACCUMULATOR RELIEF VALVE																
3995	3	N	B	A	14	GL	AO	1236-2 (A-3)	O	C	C	PI	2Y		STP-O-2.5.2	
												SC/SO	CS	CS - 19	STP-O-2.5.2	
MAIN FW INLET BLOCK VLV TO S/G A												STC	CS	CS - 19	STP-O-2.5.2	
3995G	3	N	C	A	.75	CK	SA	1236-3 (E-7)	C	C	NA	BDO	CS		STP-O-2.10	
												CC	CS	CS - 20	STP-O-2.10	
MFIV ACCUMULATOR CHECK VALVE																
3995K	3	N	C	A	.75	RV	SA	1236-3 (C-8)	C	O/C	NA	RT	10Y		GMP-37-06-395/RV	
MFIV ACCUMULATOR RELIEF VALVE																
4269	3	N	B	A	12	GL	AO	1236-2 (D-3)	O	C	C	FC	CS	CS - 19	STP-O-R-1.5	
												PI	2Y		STP-O-R-1.5	
MAIN FW CONTROL AOV TO S/G A												SC/SO	CS	CS - 19	STP-O-R-1.5	
												STC	CS	CS - 19	STP-O-R-1.5	
4270	3	N	B	A	12	GL	AO	1236-2 (G-3)	O	C	C	FC	CS	CS - 19	STP-O-R-1.5	
												PI	2Y		STP-O-R-1.5	
MAIN FW CONTROL AOV TO S/G B												SC/SO	CS	CS - 19	STP-O-R-1.5	
												STC	CS	CS - 19	STP-O-R-1.5	
4271	3	N	B	A	4	GL	AO	1236-2 (D-3)	C	C	C	FC	CS	CS - 19	STP-O-R-1.5	
												PI	2Y		STP-O-R-1.5	
FW BYPASS CONTROL AOV 4271 TO S/G A AOV												SC/SO	CS	CS - 19	STP-O-R-1.5	
												STC	CS	CS - 19	STP-O-R-1.5	
4272	3	N	B	A	4	GL	AO	1236-2 (H-3)	C	C	C	FC	CS	CS - 19	STP-O-R-1.5	
												PI	2Y		STP-O-R-1.5	
FW BYPASS CONTROL AOV 4272 TO S/G B AOV												SC/SO	CS	CS - 19	STP-O-R-1.5	
												STC	CS	CS - 19	STP-O-R-1.5	

Valve Table

MS - MAIN STEAM

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
3410 STEAM GENERATOR B ATMOSPHERIC RELIEF VALVE	2	N	B	A	6	GA	AO	1231 (I-5)	C	O/C	C	FC PI SC/SO	CS 2Y CS		STP-O-2.6.1 STP-O-2.6.1 STP-O-2.6.1	
3411 STEAM GENERATOR B ATMOSPHERIC RELIEF VALVE	2	N	B	A	6	GA	AO	1231 (C-5)	C	O/C	C	FC PI SC/SO	CS 2Y CS		STP-O-2.6.1 STP-O-2.6.1 STP-O-2.6.1	
3412A S/G B MS LOOP HEADER INNER SAMPLE ISOL VLV	2	N	B	A	.5	GL	M	1231 (G-6)	O	C	NA	EC/EO	2Y		STP-O-2.9	
3413A S/G A MS LOOP HEADER INNER SAMPLE ISOL VLV	2	N	B	A	.5	GL	M	1231 (B-6)	O	C	NA	EC/EO	2Y		STP-O-2.9	
3504A MOV FOR SG B MAIN STEAM SUPPLY TO PAF03 (TURBINE DRIVEN AFW PUMP)	2	N	B	A	6	GA	MO	1231 (F-4)	C	O/C	AI	DIAG PI SC/SO	MOV MOV 2Y		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-16-COMP-T	
3504B CHECK VALVE FOR SG B MAIN STEAM TO PAF03 (TURBINE DRIVEN AFW PUMP)	3	N	C	A	6	CK	SA	1231 (E-4)	C	O/C	NA	CC CP	CM 2Y		STP-O-16-MSCV-T STP-O-16-COMP-T	CVCMP, 3504B
3505A MOV FOR SG A MAIN STEAM SUPPLY TO PAF03 (TURBINE DRIVEN AFW PUMP)	2	N	B	A	6	GA	MO	1231 (B-4)	C	O/C	AI	DIAG PI SC/SO	MOV MOV 2Y		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-16-COMP-T	
3505B CHECK VALVE FOR SG A MAIN STEAM TO PAF03 (TURBINE DRIVEN AFW PUMP)	3	N	C	A	6	CK	SA	1231 (D-4)	C	O/C	NA	CC CP	CM 2Y		STP-O-16-MSCV-T STP-O-16-COMP-T	CVCMP, 3505B
3506 S/G B MS INLET BLOCK VLV TO ARV 3410	2	N	B	A	6	GA	M	1231 (H-4)	O	O/C	NA	EC/EO	2Y		PLIS036	Radiography
3507 S/G A MS INLET BLOCK VLV TO ARV 3411	2	N	B	A	6	GA	M	1231 (C-4)	O	O/C	NA	EC/EO	2Y		PLIS036	Radiography
3508 S/G B MS SAFETY VLV	2	N	C	A	6	RV	SA	1231 (G-5)	C	O/C	NA	RT	5Y		STP-O-R-10.3	
3509 S/G A MS SAFETY VLV	2	N	C	A	6	RV	SA	1231 (A-5)	C	O/C	NA	RT	5Y		STP-O-R-10.3	
3510 S/G B MS SAFETY VLV	2	N	C	A	6	RV	SA	1231 (G-6)	C	O/C	NA	RT	5Y		STP-O-R-10.3	

Valve Table

MS - MAIN STEAM

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
3511 S/G A MS SAFETY VLV	2	N	C	A	6	RV	SA	1231 (A-6)	C	O/C	NA	RT	5Y		STP-O-R-10.3	
3512 S/G B MS SAFETY VLV	2	N	C	A	6	RV	SA	1231 (G-7)	C	O/C	NA	RT	5Y		STP-O-R-10.3	
3513 S/G A MS SAFETY VLV	2	N	C	A	6	RV	SA	1231 (A-7)	C	O/C	NA	RT	5Y		STP-O-R-10.3	
3514 S/G B MS SAFETY VLV	2	N	C	A	6	RV	SA	1231 (G-8)	C	O/C	NA	RT	5Y		STP-O-R-10.3	
3515 S/G A MS SAFETY VLV	2	N	C	A	6	RV	SA	1231 (A-7)	C	O/C	NA	RT	5Y		STP-O-R-10.3	
3516 MSIV B AOV-3516	2	N	B	A	30	CK	AO	1231 (G-10)	O	C	C	BDO FC PI SC/SO STC	OP CS 2Y CS CS	 CS - 16 CS - 16 CS - 16	Normal Ops STP-O-2.10.5 STP-O-2.10.5 STP-O-2.10.5 STP-O-2.10.5	
3517 MSIV A AOV-3517	2	N	B	A	30	CK	AO	1231 (A-11)	O	C	C	BDO FC PI SC/SO STC	OP CS 2Y CS CS	 CS - 16 CS - 16 CS - 16	Normal Ops STP-O-2.10.5 STP-O-2.10.5 STP-O-2.10.5 STP-O-2.10.5	
3518 S/G B MAIN STEAM CHECK VLV	3	N	C	A	30	CK	SA	1231 (G-10)	O	C	NA	BDO CC	OP CS	 CS - 17	Normal Ops STP-O-2.10.15	
3519 S/G A MAIN STEAM CHECK VLV	3	N	C	A	30	CK	SA	1231 (A-11)	O	C	NA	BDO CC	OP CS	 CS - 17	Normal Ops STP-O-2.10.15	
3520 INLET ISOL VLV TO S/G B DRAIN/TRAPS	2	N	B	A	2	GL	M	1231 (F-10)	O	C	NA	EC/EO	2Y		STP-O-2.9	
3521 INLET ISOL VLV TO S/G A DRAIN/TRAPS	2	N	B	A	2	GL	M	1231 (B-11)	O	C	NA	EC/EO	2Y		STP-O-2.9	
3652 TURBINE DRIVEN AUX FW PUMP TRIP THROTTLE VALVE	3	N	B	A	3	GA	HO	1231 (D-2)	O	O/C	AI	SC/SO SC/SO	Q Q		STP-O-16QT STP-O-16-COMP-T	skid-mounted

Valve Table

MS - MAIN STEAM

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
3668	2	N	B	A	1	GL	M	1231 (G-9)	O	C	NA	EC/EO	2Y		STP-O-2.9	
S/G B MS INLET BLOCK VLV TO TEMPERATURE COMPENSATED SUPPORTS																
3669	2	N	B	A	1	GL	M	1231 (B-9)	O	C	NA	EC/EO	2Y		STP-O-2.9	
S/G A MS INLET BLOCK VLV TO TEMPERATURE COMPENSATED SUPPORTS																

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
7448	2	N	A	P	.375	GA	M	1278-1 (G-1)	C	C	NA	LJ-C	AJ		STP-O-23.45	
CONTAINMENT H2 MONITOR A SAMPLE INLET LINE TEST CONN ISOL VLV																
7452	2	N	A	P	.375	GA	M	1278-1 (H-2)	C	C	NA	LJ-C	AJ		STP-O-23.45	
CONTAINMENT H2 MONITORS SAMPLE RETURN LINE TEST CONN ISOL VLV																
7456	2	N	A	P	.375	GA	M	1278-1 (I-1)	C	C	NA	LJ-C	AJ		STP-O-23.45	
CONTAINMENT H2 MONITOR B SAMPLE INLET LINE TEST CONN ISOL VLV																
921	2	N	A	A	.375	GA	SO	1278-1 (G-1)	C	C	C	FC	Q		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.45	
H2 MONITOR A INLET ISOLATION VLV SOV-921												PI	2Y		PTT-23.45/PT-2.5.5.1	
												PI	24M		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
												STO	Q		STP-O-2.5.5	
922	2	N	A	A	.375	GA	SO	1278-1 (H-2)	C	C	C	FC	Q		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.45	
H2 MONITOR A RETURN ISOL VLV SOV-922												PI	2Y		PTT-23.45/PT-2.5.5.1	
												PI	24M		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
												STO	Q		STP-O-2.5.5	
923	2	N	A	A	.375	GA	SO	1278-1 (J-1)	C	C	C	FC	Q		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.45	
H2 MONITOR B INLET ISOLATION VLV SOV-923												PI	2Y		PTT-23.45/PT-2.5.5.1	
												PI	24M		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
												STO	Q		STP-O-2.5.5	
924	2	N	A	A	.375	GA	SO	1278-1 (I-2)	C	C	C	FC	Q		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.45	
H2 MONITOR B RETURN ISOL VLV SOV-924												PI	2Y		PTT-23.45/PT-2.5.5.1	
												PI	24M		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
												STO	Q		STP-O-2.5.5	
951	1	Y	B	NA	.375	GL	AO	1278-1 (E-8)	C	NA	C	FC	CS		STP-O-2.5.2	
												PI	2Y		STP-O-2.5.2	
PRESSURIZER STEAM SPACE SAMPLE ISOL AOV												SC/SO	CS	CS - 15	STP-O-2.5.2	
												STC	CS		STP-O-2.5.2	

Valve Table

NS - NUCLEAR SAMPLING

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
951C	1	N	C	A	.375	CK	SA	1278-1 (E-8)	C	O	NA	BDC	CS		STP-O-2.10.16	Added per NRC GL 96-06
												CO	CS	CS - 15	STP-O-2.10.16	
AOV-951 BYPASS CHECK VALVE																
953	1	Y	B	NA	.375	GL	AO	1278-1 (D-8)	C	NA	C	FC	CS		STP-O-2.5.2	
												PI	2Y		STP-O-2.5.2	
PRESSURIZER LIQUID SPACE SAMPLE ISOL AOV												SC/SO	CS	CS - 15	STP-O-2.5.2	
												STC	CS		STP-O-2.5.2	
953C	1	N	C	A	.375	CK	SA	1278-1 (D-8)	C	O	NA	BDC	CS		STP-O-2.10.16	Added per NRC GL 96-06
												CO	CS	CS - 15	STP-O-2.10.16	
AOV-953 BYPASS CHECK VALVE																
955	1	Y	B	NA	.5	GL	AO	1278-1 (B-8)	C	NA	C	FC	CS		STP-O-2.5.2	
												PI	2Y		STP-O-2.5.2	
LOOP B HOT LEG SAMPLE ISOL AOV												SC/SO	CS	CS - 15	STP-O-2.5.2	
												STC	CS		STP-O-2.5.2	
955C	1	N	C	A	.375	CK	SA	1278-1 (B-8)	C	O	NA	BDC	CS		STP-O-2.10.16	Added per NRC GL 96-06
												CO	CS	CS - 15	STP-O-2.10.16	
AOV-955 BYPASS CHECK VALVE																
956D	2	N	A	A	.375	GL	M	1278-1 (B-9)	O	C	NA	EC/EO	2Y		STP-O-2.9	
												LJ-C	AJ		STP-O-23.12C	
INLET BLOCK VLV TO AOV 966C (LOOP B HOT LEG SAMPLE CNMT ISOL)																
956E	2	N	A	A	.375	GL	M	1278-1 (D-9)	O	C	NA	EC/EO	2Y		STP-O-2.9	
												LJ-C	AJ		STP-O-23.12B	
INLET BLOCK VLV TO AOV 966B (PRZR LIQUID SAMPLE CNMT ISOL)																
956F	2	N	A	A	.375	GL	M	1278-1 (E-9)	O	C	NA	EC/EO	2Y		STP-O-2.9	
												LJ-C	AJ		STP-O-23.12A	
INLET BLOCK VLV TO AOV 966A (PRZR STEAM SAMPLE CNMT ISOL)																
966A	2	N	A	A	.375	GL	AO	1278-1 (E-9)	C	C	C	FC	Q		STP-O-2.5.1	
												LJ-C	AJ		STP-O-23.12A	
PRESSURIZER STEAM SPACE SAMPLE CONTAINMENT ISOLATION AIR OPERATED VALVE												PI	2Y		STP-O-2.5.1	
												SC/SO	Q		STP-O-2.5.1	
												STC	Q		STP-O-2.5.1	
966B	2	N	A	A	.375	GL	AO	1278-1 (D-9)	C	C	C	FC	Q		STP-O-2.5.1	
												LJ-C	AJ		STP-O-23.12B	
PRESSURIZER LIQUID SPACE SAMPLE CONTAINMENT ISOL AOV												PI	2Y		STP-O-2.5.1	
												SC/SO	Q		STP-O-2.5.1	
												STC	Q		STP-O-2.5.1	

Valve Table

NS - NUCLEAR SAMPLING

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
966C	2	N	A	A	.375	GA	AO	1278-1 (B-9)	C	C	C	FC	Q		STP-O-2.5.1	
												LJ-C	AJ		STP-O-23.12C	
LOOP B HOT LEG SAMPLE CONTAINMENT ISOL AOV												PI	2Y		STP-O-2.5.1	
												SC/SO	Q		STP-O-2.5.1	
												STC	Q		STP-O-2.5.1	

Valve Table

PAS - POST ACC SAMP

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
1723	2	N	B	A	3	DIA	AO	1279 (E-2)	O	C	C	FC	Q		STP-O-2.5	
												PI	2Y		STP-O-2.5	
CONTAINMENT SUMP A SAMPLE PUMP DISCHARGE ISOL VLV TO PASS WHUT												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
1728	2	N	B	A	3	DIA	AO	1279 (F-2)	O	C	C	FC	Q		STP-O-2.5	
												PI	2Y		STP-O-2.5	
CONTAINMENT SUMP A SAMPLE PUMP DISCHARGE ISOL VLV TO PASS WHUT												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	

Valve Table

PWT - PRIMARY WATER TREATMENT

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
8418	2	N	A	A	2	GL	AO	1908-3 (A-4)	C	C	C	FC	Q		STP-O-2.5.5	
												LJ-C	AJ		STP-O-23.39	
CONTAINMENT DEMIN WATER ISOL VLV AOV-8418												PI	2Y		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
												STC	Q		STP-O-2.5.5	
8419	2	N	AC	A	2	CK	SA	1908-3 (A-5)	C	O/C	NA	CC	AJ		STP-O-23.39	CVCMP
												CO	CM		STP-O-2.9.1	
CONDENSATE OR DI WATER INLET CHECK VLV TO CONTAINMENT (IN CNMT)												LJ-C	AJ		STP-O-23.39	
8421R	2	N	C	A	.25	TRV	SA	1908-3 (A-5)	C	O	NA	RT	10Y		GMP-37-49-50X350/RV	Added per NRC GL 96-06
PENETRATION P324 THERMAL RELIEF																

Valve Table

RCDT - REACTOR COOLANT DRAIN TANK

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
1003A	2	N	A	A	3	DIA	AO	1272-2 (D-4)	O/C	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.22	
RCDT OUTLET ISOL VALVE AOV-1003A												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
1003B	2	N	A	A	3	DIA	AO	1272-2 (E-4)	O/C	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.22	
RCDT OUTLET ISOL VALVE AOV-1003B												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
1655	2	N	A	A	.375	GL	M	1272-2 (B-2)	O	C	C	EC/EO	2Y		STP-O-2.9	
												LJ-C	AJ		STP-O-23.21	
RCDT OUTLET ISOL VLV TO GAS ANALYZER																
1709G	2	N	A	P	.75	GA	M	1272-2 (E-3)	C	C	NA	LJ-C	AJ		STP-O-23.22	
RCDT OUTLET LINE DRAIN VLV																
1713	2	N	AC	P	1	CK	SA	1272-2 (A-3)	C	C	NA	LJ-C	AJ		STP-O-23.20	
N2 INLET CHECK VLV TO RCDT																
1721	2	N	A	A	3	DIA	AO	1272-2 (D-3)	O	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.22	
RCDT OUTLET ISOL VALVE AOV-1721												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
1722	2	N	A	P	4	DIA	M	1272-2 (D-3)	C	C	NA	LJ-C	AJ		STP-O-23.22	
REFUELING CANAL DRAIN ISOL VLV TO RCDT PMP																
1786	2	N	A	A	1	DIA	AO	1272-2 (B-5)	O	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.20	
PRT RCDT ISOL TO VENT HEADER ISOL VALVE AOV-1786												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
1787	2	N	A	A	1	DIA	AO	1272-2 (B-5)	O	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.20	
PRT RCDT ISOL TO VENT HEADER ISOL VALVE AOV-1787												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	

Valve Table

RCDT - REACTOR COOLANT DRAIN TANK

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
1789	2	N	A	A	.75	DIA	AO	1272-2 (B-5)	O/C	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.21	
RCDT OUTLET ISOL AOV TO GAS ANALYZER												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
1793	2	N	A	P	1	DIA	M	1272-2 (A-3)	C	C	NA	LJ-C	AJ		STP-O-23.20	
N2 INLET ISOL VLV TO RCDT																

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
430	1	N	B	A	3	GL	AO	1258 (B-8)	C	O/C	C	FC	CS		STP-O-2.6.5	
												FC	CS		STP-O-2.6.5SD	
PRESSURIZER POWER OPERATED RELIEF VALVE												PI	2Y		STP-O-R-16.1	
												SC/SO	CS		STP-O-2.6.5	
												SC/SO	CS		STP-O-2.6.5SD	
												STC	CS		STP-O-2.6.5	
												STC	CS		STP-O-2.6.5SD	
												STO	CS		STP-O-2.6.5	
												STO	CS		STP-O-2.6.5SD	
431C	1	N	B	A	3	GL	AO	1258 (C-8)	C	O/C	C	FC	CS		STP-O-2.6.5	
												FC	CS		STP-O-2.6.5SD	
PRESSURIZER POWER OPERATED RELIEF VALVE												PI	2Y		STP-O-R-16.1	
												SC/SO	CS		STP-O-2.6.5	
												SC/SO	CS		STP-O-2.6.5SD	
												STC	CS		STP-O-2.6.5	
												STC	CS		STP-O-2.6.5SD	
												STO	CS		STP-O-2.6.5	
												STO	CS		STP-O-2.6.5SD	
434	1	N	C	A	4	RV	SA	1258 (A-9)	C	O/C	NA	PI	2Y	VR - 02	CPI-LVDT-434	
												RT	R		MET-049	
PRESSURIZER RELIEF VLV TO PRESSURIZER RELIEF TANK																
435	1	N	C	A	4	RV	SA	1258 (C-9)	C	O/C	NA	PI	2Y	VR - 02	CPI-LVDT-435	
												RT	R		MET-049	
PRESSURIZER RELIEF VLV TO PRESSURIZER RELIEF TANK																
508	2	N	A	A	2	DIA	AO	1258 (F-7)	C	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.3	
RMW TO CNMT ISOL VLV AOV-508												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
515	1	N	B	A	3	GA	MO	1258 (C-8)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
PRZR PORV BLOCK VLV MOV-515												SC/SO	18M		STP-O-R-16.1	
516	1	N	B	A	3	GA	MO	1258 (B-8)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
PRZR PORV BLOCK VLV MOV-516												SC/SO	18M		STP-O-R-16.1	
528	2	N	AC	A	2	CK	SA	1258 (E-9)	C	C	NA	BDO	CM		S-2.3A	CVCMP
												CC	AJ		STP-O-23.2	
N2 INLET CHECK VLV TO PRESSURIZER RELIEF TANK												LJ-C	AJ		STP-O-23.2	
529	2	N	AC	A	2	CK	SA	1258 (F-9)	C	O/C	NA	CC	AJ		STP-O-23.3	CVCMP
												CO	CM		STP-O-2.9.1	
RMW PUMP DISCHARGE CHECK VLV TO PRT (IN CNMT)												LJ-C	AJ		STP-O-23.3	

Valve Table

RCP - REACTOR COOLANT PRZR

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
539	2	N	A	A	.375	GL	AO	1258 (E-7)	C	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.1	
PRT SAMPLE ISOL AOV TO GAS ANALYZER (CNMT ISOL)												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
546	2	N	A	A	.375	GL	M	1258 (E-8)	O	C	NA	EC/EO	2Y		STP-O-2.9	
												LJ-C	AJ		STP-O-23.1	
PRT SAMPLE ISOL VLV TO GAS ANALYZER (OUTSIDE CNMT)																
547	2	N	A	P	.75	GL	M	1258 (E-8)	LC	C	NA	LJ-C	AJ		STP-O-23.2	
N2 INLET ISOL VLV TO PRESSURIZER RELIEF TANK (OUTSIDE CNMT)																
568R	2	N	C	A	.75	TRV	SA	1258 (F-9)	C	O	NA	RT	10Y		GMP-37-49-50X350/RV	Added per NRC GL 96-06
THERMAL RELIEF FOR PIPING BETWEEN RMW DISCH V-508 AND PRT V-548																

Valve Table

RCS - REACTOR COOLANT SYSTEM

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
590	2	N	B	A	1	GL	SO	1260 (J-5)	C	O/C	C	FC	CS	CS - 01	STP-O-R-16	
												PI	2Y		STP-O-R-16	
REACTOR HEAD VENT OUTER SOLENOID OPERATED VALVE												SC/SO	CS	CS - 01	STP-O-R-16	
												STC	CS	CS - 01	STP-O-R-16	
												STO	CS	CS - 01	STP-O-R-16	
591	2	N	B	A	1	GL	SO	1260 (J-5)	C	O/C	C	FC	CS	CS - 01	STP-O-R-16	
												PI	2Y		STP-O-R-16	
REACTOR HEAD VENT OUTER SOLENOID OPERATED VALVE												SC/SO	CS	CS - 01	STP-O-R-16	
												STC	CS	CS - 01	STP-O-R-16	
												STO	CS	CS - 01	STP-O-R-16	
592	2	N	B	A	1	GL	SO	1260 (J-5)	C	O/C	C	FC	CS	CS - 01	STP-O-R-16	
												PI	2Y		STP-O-R-16	
REACTOR HEAD VENT INNER SOLENOID OPERATED VALVE												SC/SO	CS	CS - 01	STP-O-R-16	
												STC	CS	CS - 01	STP-O-R-16	
												STO	CS	CS - 01	STP-O-R-16	
593	2	N	B	A	1	GL	SO	1260 (J-5)	C	O/C	C	FC	CS	CS - 01	STP-O-R-16	
												PI	2Y		STP-O-R-16	
REACTOR HEAD VENT INNER SOLENOID OPERATED VALVE												SC/SO	CS	CS - 01	STP-O-R-16	
												STC	CS	CS - 01	STP-O-R-16	
												STO	CS	CS - 01	STP-O-R-16	

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
8606A	3	N	AC	A	1	CK	SA	1263 (B-4)	C	C	NA	BDO	Q		S-29.2	
												CC	R	ROJ - 01	STP-O-8.2	
NITROGEN ACCUMULATOR A INLET CHECK VLV												LT-X	2Y		STP-O-8.2	
8606B	3	N	AC	A	1	CK	SA	1263 (G-4)	C	C	NA	BDO	Q		S-29.2	
												CC	R	ROJ - 01	STP-O-8.2	
NITROGEN ACCUMULATOR B INLET CHECK VLV												LT-X	2Y		STP-O-8.2	
8608A	3	N	C	A	.75	RV	SA	1263 (C-4)	C	O/C	NA	RT	10Y		GMP-37-15-824/RV	
NITROGEN ACCUMULATOR A RELIEF VLV																
8608B	3	N	C	A	.75	RV	SA	1263 (G-4)	C	O/C	NA	RT	10Y		GMP-37-15-824/RV	
NITROGEN ACCUMULATOR B RELIEF VLV																
8615A	3	N	C	A	1	RV	SA	1263 (B-6)	C	O/C	NA	RT	10Y		GMP-37-15-125/RV	
N2 INLET TO N2 SURGE TANK A RELIEF VLV (A TRAIN)																
8615B	3	N	C	A	1	RV	SA	1263 (F-6)	C	O/C	NA	RT	10Y		GMP-37-15-125/RV	
N2 INLET TO N2 SURGE TANK B RELIEF VLV (B TRAIN)																
8616A	3	N	B	A	.75	3W	SO	1263 (B-7)	C	O	AI	SC/SO	CS	CS - 02	STP-O-2.6.5SD	
												SC/SO	CS		STP-O-2.6.5	TJ-06 - Satisfied by
ACCUM TO SURGE TANK VLV SOV-8616A												STO	CS		STP-O-2.6.5SD	
												STO	CS		STP-O-2.6.5	
8616B	3	N	B	A	.75	3W	SO	1263 (G-7)	C	O	AI	SC/SO	CS	CS - 02	STP-O-2.6.5SD	
												SC/SO	CS		STP-O-2.6.5	TJ-06 - Satisfied by
ACCUM TO SURGE TANK VLV SOV-8616B												STO	CS		STP-O-2.6.5SD	
												STO	CS		STP-O-2.6.5	
8619A	3	N	B	A	1	3W	SO	1263 (C-9)	C	O/C	AI	SC/SO	CS	CS - 02	STP-O-2.6.5SD	
												SC/SO	CS		STP-O-2.6.5	TJ-06 - Satisfied by
N2 ARMING VLV SOV-8619A												STC	CS		STP-O-2.6.5SD	
												STC	CS		STP-O-2.6.5	
												STO	CS		STP-O-2.6.5SD	
												STO	CS		STP-O-2.6.5	
8619B	3	N	B	A	1	3W	SO	1263 (G-9)	C	O/C	AI	SC/SO	CS	CS - 02	STP-O-2.6.5SD	
												SC/SO	CS		STP-O-2.6.5	TJ-06 - Satisfied by
N2 ARMING VLV SOV-8619B												STC	CS		STP-O-2.6.5SD	
												STC	CS		STP-O-2.6.5	
												STO	CS		STP-O-2.6.5SD	
												STO	CS		STP-O-2.6.5	

Valve Table

RCSOP - RCS OVERPRESSURE PROTECTION

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
8620A	NC	N	B	A	.75	3W	SO	1263 (C-10)	O	C	AI	SC/SO	CS	CS - 02	STP-O-2.6.5SD	
												SC/SO	CS		STP-O-2.6.5	TJ-06 - Satisfied by
IA SOV TO PCV 430 (PORV ACTUATION A TRAIN)												STC	CS		STP-O-2.6.5SD	
												STC	CS		STP-O-2.6.5	
8620B	NC	N	B	A	.75	3W	SO	1263 (H-10)	O	C	AI	SC/SO	CS	CS - 02	STP-O-2.6.5SD	
												SC/SO	CS		STP-O-2.6.5	TJ-06 - Satisfied by
IA SOV TO PCV 431C (PORV ACTUATION B TRAIN)												STC	CS		STP-O-2.6.5SD	
												STC	CS		STP-O-2.6.5	
8630A	3	N	C	A	1	CK	SA	1263 (C-9)	O	O/C	NA	CC	CS	CS - 02	STP-O-2.6.5	
												CO	CS	CS - 02	STP-O-2.6.5	TJ-06 - Satisfied by
NITROGEN INLET CHECK VLV TO PVC 430 (A TRAIN)																
8630B	3	N	C	A	1	CK	SA	1263 (G-9)	O	O/C	NA	CC	CS	CS - 02	STP-O-2.6.5	
												CO	CS	CS - 02	STP-O-2.6.5	TJ-06 - Satisfied by
NITROGEN INLET CHECK VLV TO PCV 431C (B TRAIN)																

Valve Table

RHR - RESIDUAL HEAT REMOVAL

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
1813A	2	N	A	P	6	GA	MO	1247 (E-3)	C	C	AI	LJ-C PI	AJ 2Y		STP-O-23.5A STP-O-2.4	
REACTOR COOLANT DRAIN TANK PUMP SUCTION FROM CONTAINMENT SUMP B MOTOR OPERATED VALVE																
1813B	2	N	A	P	6	GA	MO	1247 (B-4)	C	C	AI	LJ-C PI	AJ 2Y		STP-O-23.5B STP-O-2.4	
REACTOR COOLANT DRAIN TANK PUMP SUCTION FROM CONTAINMENT SUMP B MOTOR OPERATED VALVE																
624	2	Y	B	P	8	BTF	AO	1247 (J-7)	O	O	O	SC/SO	R	ROJ - 10	CPI-CV-624	
RHR HEAT EXCHANGER B FLOW CONTROL																
625	2	Y	B	P	8	BTF	AO	1247 (I-8)	O	O	O	SC/SO	R	ROJ - 10	CPI-CV-625	
RHR HEAT EXCHANGER A FLOW CONTROL																
626	2	Y	B	A	6	BTF	AO	1247 (H-7)	C	C	C	FC SC/SO	Q Q		STP-O-2.5 STP-O-2.5	
RHR HEAT EXCHANGER BYPASS																
686G	2	N	C	A	0.25	TRV	SA	1247 (D-8)	C	O/C	NA	RT	10Y		GMP-37-55-135/RV	Added per PCR 2008-0015
RHR PUMP A RECIRC LINE UPSTREAM RELIEF VALVE																
686H	2	N	C	A	0.25	TRV	SA	1247 (C-8)	C	O/C	NA	RT	10Y		GMP-37-55-135/RV	Added per PCR 2008-0015
RHR PUMP B RECIRC LINE UPSTREAM RELIEF VALVE																
686I	2	N	C	A	0.25	TRV	SA	1247 (D-8)	C	O/C	NA	RT	10Y		GMP-37-55-135/RV	Added per PCR 2008-0015
RHR PUMP A RECIRC LINE DOWNSTREAM RELIEF VALVE																
686J	2	N	C	A	0.25	TRV	SA	1247 (C-8)	C	O/C	NA	RT	10Y		GMP-37-55-135/RV	Added per PCR 2008-0015
RHR PUMP B RECIRC LINE DOWNSTREAM RELIEF VALVE																
697A	2	N	C	A	8	CK	SA	1247 (F-9)	C	O/C	NA	CC CC CO	Q 2Y R	 ROJ - 02	STP-O-2.2QB STP-O-2.2-COMP-B STP-O-2.10.2	
RHR HEAT EXCHANGER A OUTLET CHECK VLV																
697B	2	N	C	A	8	CK	SA	1247 (B-9)	C	O/C	NA	CC CC CO CO	Q 2Y Q 2Y		STP-O-2.2QA STP-O-2.2-COMP-A STP-O-2.2QB STP-O-2.2-COMP-B	
RHR HEAT EXCHANGER B OUTLET CHECK VLV																
700	1	N	A	A	10	GA	MO	1247 (G-1)	C	O/C	AI	DIAG LT-X PI SC/SO	MOV 2Y MOV CS	 CS - 03	MA-AA-723-300-1006 STP-O-8.0 MA-AA-723-300-1006 STP-O-2.4.1	High Risk MOV
RHR PUMP SUCTION FROM LOOP A HOT LEG MOV-700																

Valve Table

RHR - RESIDUAL HEAT REMOVAL

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
701	1	N	A	A	10	GA	MO	1247 (G-2)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	High Risk MOV
												LT-X	2Y		STP-O-8.0	
RHR PUMP SUCTION FROM LOOP A HOT LEG MOV-701												PI	MOV		MA-AA-723-300-1006	
												SC/SO	CS	CS - 03	STP-O-2.4.1	
704A	2	N	B	A	10	GA	MO	1247 (D-4)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
RESIDUAL HEAT REMOVAL PUMP A SUCTION MOTOR OPERATED VALVE												SC/SO	18M		STP-O-2.4.1	
704B	2	N	B	A	10	GA	MO	1247 (C-4)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
RESIDUAL HEAT REMOVAL PUMP B SUCTION MOTOR OPERATED VALVE												SC/SO	18M		STP-O-2.4.1	
710A	2	N	C	A	8	CK	SA	1247 (F-6)	C	O/C	NA	CC	CS	CS - 06	STP-O-2.2A	
												CO	Q		STP-O-2.2QA	
RHR PUMP A DISCHARGE CHECK VLV												CO	2Y		STP-O-2.2-COMP-A	
710B	2	N	C	A	8	CK	SA	1247 (B-6)	C	O/C	NA	CC	CS	CS - 06	STP-O-2.2A	
												CO	Q		STP-O-2.2QB	
RHR PUMP B DISCHARGE CHECK VLV												CO	2Y		STP-O-2.2-COMP-B	
720	1	N	A	A	10	GA	MO	1247 (I-2)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	High Risk MOV
												LT-X	2Y		STP-O-8.0	
RHR PUMP DISCHARGE TO LOOP B COLD LEG MOV-720												PI	MOV		MA-AA-723-300-1006	
												SC/SO	CS	CS - 03	STP-O-2.4.1	
721	1	N	A	A	10	GA	MO	1247 (I-1)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	High Risk MOV
												LT-X	2Y		STP-O-8.0	
RHR PUMP DISCHARGE TO LOOP B COLD LEG MOV-721												PI	MOV		MA-AA-723-300-1006	
												SC/SO	CS	CS - 03	STP-O-2.4.1	
850A	2	N	B	A	10	GA	MO	1247 (F-4)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	High Risk MOV
												PI	MOV		MA-AA-723-300-1006	
RHR PUMP SUCTION FROM CNMT SUMP B MOV-850A												SC/SO	CS	CS - 13	STP-O-2.4.1	
850B	2	N	B	A	10	GA	MO	1247 (B-4)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	High Risk MOV
												PI	MOV		MA-AA-723-300-1006	
RHR PUMP MOTOR OPERATED SUCTION FROM CNMT SUMP B												SC/SO	CS	CS - 13	STP-O-2.4.1	
851A	2	N	B	P	10	GA	MO	1247 (B-1)	O	O		PI	2Y		STP-O-2.3.3	
												PI	2Y		A-3.1	
RHR PUMP MOTOR OPERATED SUCTION FROM CNMT SUMP B																
851B	2	N	B	P	10	GA	MO	1247 (B-2)	O	O		PI	2Y		STP-O-2.3.3	
												PI	2Y		A-3.1	
RHR PUMP MOTOR OPERATED SUCTION FROM CNMT SUMP B																

Valve Table

RHR - RESIDUAL HEAT REMOVAL

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
852A	1	N	A	A	6	GA	MO	1260 (F-4)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.0	
RHR PUMP DISCHARGE TO REACTOR VESSEL DELUGE MOV-852A												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.4	
												SC/SO	18M		STP-O-2.10.2	
852B	1	N	A	A	6	GA	MO	1260 (F-4)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												LT-X	2Y		STP-O-8.0	
RHR PUMP DISCHARGE TO REACTOR VESSEL DELUGE MOV-852B												PI	MOV		MA-AA-723-300-1006	
												SC/SO	18M		STP-O-2.4	
												SC/SO	18M		STP-O-2.10.2	
853A	1	N	AC	A	6	CK	SA	1260 (F-5)	C	O/C	NA	CC	R	ROJ - 03	STP-O-8.0	
												CO	R	ROJ - 03	STP-O-2.10.2	
RHR INLET CHECK VLV TO REACTOR VESSEL CORE DELUGE												LT-XT	R		STP-O-8.0	
853B	1	N	AC	A	6	CK	SA	1260 (F-5)	C	O/C	NA	CC	R	ROJ - 03	STP-O-8.0	
												CO	R	ROJ - 03	STP-O-2.10.2	
RHR INLET CHECK VLV TO REACTOR VESSEL CORE DELUGE												LT-XT	R		STP-O-8.0	
854	2	N	C	A	10	CK	SA	1247 (G-4)	C	O/C	NA	CC	CM	ROJ - 07	PLIS037	
												CO	R	ROJ - 07	STP-O-2.10.2	
RWST SUCTION CHECK VLV TO RHR PUMPS												D&I	15Y		GMP-37-01-300/CV	
856	2	N	B	A	10	GA	MO	1247 (G-5)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	Treat as High Risk
												PI	MOV		MA-AA-723-300-1006	MOV
RHR PUMP MOTOR OPERATED SUCTION FROM RWST												SC/SO	CS	CS - 21	STP-O-2.4	
857A	2	N	B	A	6	GA	MO	1247 (C-11)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
RHR PUMP DISCHARGE MOTOR OPERATED VALVE TO SAFETY INJECTION PUMP SUCTION												SC/SO	18M		STP-O-2.2-COMP-A	
												SC/SO	18M		STP-O-2.3	
857B	2	N	B	A	6	GA	MO	1247 (B-11)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	Treat as High Risk
												PI	MOV		MA-AA-723-300-1006	MOV
RHR PUMP MOTOR OPERATED DISCHARGE TO SAFETY INJECTION PUMP SUCTION												SC/SO	Q		STP-O-2.2QB	
												SC/SO	2Y		STP-O-2.2-COMP-B	
857C	2	N	B	A	6	GA	MO	1247 (B-11)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
RHR PUMP MOTOR OPERATED DISCHARGE TO SAFETY INJECTION PUMP SUCTION												SC/SO	18M		STP-O-2.3	
												SC/SO	2Y		STP-O-2.2-COMP-A	

Valve Table

SA - SERVICE AIR

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
7141	2	N	A	P	2	GA	M	1886-2 (C-3)	C	C		LJ-C	AJ		STP-O-23.33	
SA MIDDLE ISOL VLV TO CONTAINMENT (INTER BLDG)																
7226	2	N	AC	P	2	CK	SA	1886-2 (C-5)	C	C	NA	LJ-C	AJ		STP-O-23.33	
SERVICE AIR TO CONTAINMENT CHECK VALVE																

Valve Table

SAFW - STANDBY AUXILIARY FEEDWATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
9629A	3	N	B	A	4	GA	MO	1238 (B-3)	C	O	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
SAFW PUMP C SUCTION VLV MOV-9629A												SC/SO	2Y		STP-O-36-COMP-C	
9629B	3	N	B	A	4	GA	MO	1238 (I-3)	C	O	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
SAFW PUMP D SUCTION VLV MOV-9629B												SC/SO	2Y		STP-O-36-COMP-D	
9700A	3	N	C	A	3	CK	SA	1238 (B-6)	C	O/C	NA	BDC	CM		STP-O-5	CVCMP
												CO	2Y		STP-O-36-COMP-C	
SAFW PUMP C DISCHARGE CHECK VALVE												D&I	CM		GMP-37-08-1500/3/CV	
9700B	3	N	C	A	3	CK	SA	1238 (I-6)	C	O/C	NA	BDC	CM		STP-O-5	CVCMP
												CO	2Y		STP-O-36-COMP-D	
SAFW PUMP D DISCHARGE CHECK VALVE												D&I	CM		GMP-37-08-1500/3/CV	
9701A	3	N	B	A	3	GL	MO	1238 (B-7)	O	O	AI	DIAG	MOV		MA-AA-723-300-1006	Treat as High Risk MOV
												PI	MOV		MA-AA-723-300-1006	
SAFW PUMP C DISCHARGE VLV MOV-9701A												SC/SO	Q		STP-O-36QC	
												SC/SO	Q		STP-O-36-COMP-C	
9701B	3	N	B	A	3	GL	MO	1238 (I-7)	O	O	AI	DIAG	MOV		MA-AA-723-300-1006	Treat as High Risk MOV
												PI	MOV		MA-AA-723-300-1006	
SAFW PUMP D DISCHARGE VLV MOV-9701B												SC/SO	Q		STP-O-36Q-D	
												SC/SO	Q		STP-O-36-COMP-D	
9703A	3	N	B	A	3	GL	MO	1238 (F-8)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
STANDBY AUX FW PUMP CROSSOVER VLV MOV-9703A												SC/SO	2Y		STP-O-36-COMP-C	
9703B	3	N	B	A	3	GL	MO	1238 (F-8)	C	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
STANDBY AUX FW PUMP CROSSOVER VLV MOV-9703B												SC/SO	2Y		STP-O-36-COMP-D	
9704A	2	N	BC	A	3	SCK	MO	1238 (B-9)	C	O/C	AI	BDC	CM		Rep Task P501364	CVCMP
												CO	2Y		STP-O-36-COMP-C	
STANDBY AUXILIARY FEEDWATER PUMP C MOTOR OPERATED STOP CHECK ISOLATION VALVE												D&I	CM		GMP-37-08-1500/3/GSV	
												DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
												SC/SO	2Y		STP-O-36-COMP-C	
9704B	2	N	BC	A	3	SCK	MO	1238 (I-9)	C	O/C	AI	BDC	CM		Rep Task P501366	CVCMP
												CO	2Y		STP-O-36-COMP-D	
STANDBY AUX FW PUMP D ISOL VLV MOV-9704B												D&I	CM		GMP-37-08-1500/3/GSV	
												DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
												SC/SO	2Y		STP-O-36-COMP-D	

Valve Table

SAFW - STANDBY AUXILIARY FEEDWATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
9705A	2	N	C	A	3	CK	SA	1238 (B-10)	C	O/C	NA	CC	CM		STP-O-36-COMP-C	CVCMP
												CO	2Y		STP-O-36-COMP-C	
SAFW PUMP C DISC CHECK VALVE TO SG "A"																
9705B	2	N	C	A	3	CK	SA	1238 (I-10)	C	O/C	NA	CC	CM		STP-O-36-COMP-D	CVCMP
												CO	2Y		STP-O-36-COMP-D	
SAFW PUMP D DISC CHECK VALVE TO SG "B"																
9708A	3	N	C	A	4	CK	SA	1238 (H-1)	C	C	NA	CC	18M		STP-O-36-COMP-C	
												CC	Q		STP-O-36QC	
SAFW PUMP DI WATER STORAGE TANK CHECK VLV TO STANDBY AUX FW PUMP C												CO	18M	ROJ - 08	STP-O-36-COMP-C	
												CP	Q		STP-O-36QC	
9708B	3	N	C	A	4	CK	SA	1238 (C-2)	C	C	NA	CC	18M		STP-O-36-COMP-D	
												CC	Q		STP-O-36Q-D	
SAFW PUMP DI WATER STORAGE TANK CHECK VLV TO STANDBY AUX FW PUMP D												CO	18M	ROJ - 08	STP-O-36-COMP-D	
												CP	Q		STP-O-36Q-D	
9709A	3	N	C	A	1	RV	SA	1238 (B-3)	C	O/C	NA	RT	10Y		GMP-37-06-150/RV3	
STANDBY AUX FW PUMP C SUCTION LINE RELIEF VLV																
9709B	3	N	C	A	1	RV	SA	1238 (I-3)	C	O/C	NA	RT	10Y		GMP-37-06-150/RV3	
STANDBY AUX FW PUMP D SUCTION LINE RELIEF VLV																
9710A	3	N	B	A	1.5	GL	AO	1238 (C-7)	C	O/C	O	FO	Q		STP-O-36QC	
												FO	Q		STP-O-36-COMP-C	
STANDBY AUX FW PUMP C RECIRCULATION VLV AOV-9710A												PI	2Y		STP-O-36-COMP-C	
												SC/SO	Q		STP-O-36QC	
												SC/SO	Q		STP-O-36-COMP-C	
												STO	Q		STP-O-36QC	
												STO	Q		STP-O-36-COMP-C	
9710B	3	N	B	A	1.5	GL	AO	1238 (H-7)	C	O/C	O	FO	Q		STP-O-36Q-D	
												FO	Q		STP-O-36-COMP-D	
STANDBY AUX FW PUMP D RECIRCULATION VLV AOV-9710B												PI	2Y		STP-O-36-COMP-D	
												SC/SO	Q		STP-O-36Q-D	
												SC/SO	Q		STP-O-36-COMP-D	
												STO	Q		STP-O-36Q-D	
												STO	Q		STP-O-36-COMP-D	
9721A	3	N	C	A	.5	CK	SA	1238 (C-3)	C	O/C	NA	CC	Q		STP-O-36QC	
												CC	Q		STP-O-36-COMP-C	
CONDENSATE PRESSURIZATION CHECK VALVE TO SAFW PUMP "C"												CO	Q		STP-O-36QC	
												CO	Q		STP-O-36-COMP-C	

Valve Table

SAFW - STANDBY AUXILIARY FEEDWATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
9721B	3	N	C	A	.5	CK	SA	1238 (G-3)	C	O/C	NA	CC	Q		STP-O-36Q-D	
												CC	Q		STP-O-36-COMP-D	
CONDENSATE PRESSURIZATION CHECK VALVE TO SAFW PUMP "d"												CO	Q		STP-O-36Q-D	
												CO	Q		STP-O-36-COMP-D	
9746	3	N	B	A	3	GA	MO	1238 (I-8)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
EMERGENCY DISCHARGE MOV FOR PAF01B (SAFW PUMP D)												SC/SO	2Y		STP-O-36-COMP-D	
9781	SSC	N	C	A	4	CK	SA	1238 (E-2)	C	O	NA	BDC	18M		STP-O-2.9	
												CO	18M	ROJ - 08	STP-O-36-COMP-D	
DI WATER TANK SUPPLY CHECK Vlv												CO	18M	ROJ - 08	STP-O-36-COMP-C	

Valve Table

SFPC - SPENT FUEL POOL COOLING

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
782	3	N	B	A	4	GA	M	1248 (D-1)	C	O	NA	EC/EO	2Y		STP-O-33-COMP-B	
LOW SUCTION ISOL VLV TO SPENT FUEL POOL RECIRC PUMPS (ALT)																
8152	2	N	A	P	1	GA	M	1248 (C-5)	C	C	NA	LJ-TS	AJ		STP-O-23.54	
PRESSURE TEST VALVE TO DOUBLE O-RING BLIND FLANGE SAC05																
8614	3	N	B	A	4	GA	M	1248 (H-8)	O	O/C	NA	EC/EO	2Y		STP-O-33-COMP-B	
SPENT FUEL POOL HEAT EXCHANGER A OUTLET ISOL VLV																
8654	3	N	B	A	6	GA	M	1248 (H-2)	O	O/C	NA	EC EO	2Y Q		STP-O-33-COMP-B STP-O-33A	
SUCTION BLOCK VLV TO SPENT FUEL POOL RECIRC PUMP A																
8655	SSC	N	C	A	4	CK	SA	1248 (H-4)	C	O/C	NA	CC CO	Q Q		STP-O-33B STP-O-33A	
SPENT FUEL POOL RECIRC PUMP A DISCHARGE CHECK VLV																
8658	3	N	C	A	6	CK	SA	1248 (I-4)	C	O/C	NA	CC CO	Q Q		STP-O-33A STP-O-33B	
SPENT FUEL POOL RECIRC PUMP B DISCHARGE CHECK VLV																

Valve Table

SGBD - S/G BLOWDOWN

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
5735	2	N	A	A	.75	GA	AO	1277-1 (A-4)	O	C	C	FC	Q		STP-O-2.5.6	
												LT-X	2Y		STP-O-8.10	
STEAM GENERATOR A BLOWDOWN SAMPLE AIR OPERATED ISOLATION VALVE												PI	2Y		STP-O-2.5.6	
												SC/SO	Q		STP-O-2.5.6	
												STC	Q		STP-O-2.5.6	
5736	2	N	A	A	.75	GA	AO	1277-1 (F-4)	O	C	C	FC	Q		STP-O-2.5.6	
												LT-X	2Y		STP-O-8.10	
STEAM GEN B BLOWDOWN SAMPLE ISOL VLV AOV-5736												PI	2Y		STP-O-2.5.6	
												SC/SO	Q		STP-O-2.5.6	
												STC	Q		STP-O-2.5.6	
5737	2	N	A	A	2	GA	AO	1277-1 (H-5)	O	C	C	FC	Q		STP-O-2.5.6	
												LT-X	2Y		STP-O-8.9	
STEAM GENERATOR B BLOWDOWN ISOLATION AIR OPERATED VALVE												PI	2Y		STP-O-2.5.6	
												SC/SO	Q		STP-O-2.5.6	
												STC	Q		STP-O-2.5.6	
5738	2	N	A	A	2	GA	AO	1277-1 (C-5)	O	C	C	FC	Q		STP-O-2.5.6	
												LT-X	2Y		STP-O-8.9	
STEAM GEN A BLOWDOWN ISOL VLV AOV-5738												PI	2Y		STP-O-2.5.6	
												SC/SO	Q		STP-O-2.5.6	
												STC	Q		STP-O-2.5.6	

Valve Table

SI - SAFETY INJECTION AND ACCUMULATORS

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
1815A SI PUMP C SUCTION VALVE	2	N	B	A	4	GA	MO	1262-1 (D-4)	O	O	AI	DIAG PI SC/SO	MOV MOV 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3Q-MOV	
1815B SI PUMP C SUCTION VALVE	2	N	B	A	4	GA	MO	1262-1 (D-3)	O	O	AI	DIAG PI SC/SO	MOV MOV 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3Q-MOV	
1817 SI PUMP C SUCTION RELIEF VLV TO CNMT SPRAY PUMP DISCHARGE	2	N	C	A	.75	RV	SA	1262-1 (D-4)	C	O/C	NA	RT	10Y		GMP-37-06-255/RV	
830A LOOP B ACCUMULATOR A RELIEF VLV	2	N	C	A	1	RV	SA	1262-2 (A-6)	C	O/C	NA	RT	10Y		GMP-37-06-1440/1X2RV	
830B LOOP A ACCUMULATOR B RELIEF VLV	2	N	C	A	1	RV	SA	1262-2 (E-6)	C	O/C	NA	RT	10Y		GMP-37-06-1440/1X2RV	
834A SI ACCUMULATOR A N2 AIR OPERATED FILL/VENT VALVE	2	N	B	P	1	GL	AO	1262-2 (A-5)	C	C	C	PI	2Y		STP-O-2.5.2	
834B SI ACCUMULATOR B AIR OPERATED NITROGEN FILL/VENT VALVE	2	N	B	P	1	GL	AO	1262-2 (E-5)	C	C	C	PI	2Y		STP-O-2.5.2	
835A SI ACCUMULATOR A AIR OPERATED FILL VALVE	2	N	B	P	1	GL	AO	1262-2 (C-4)	C	C	C	PI	2Y		STP-O-2.5.2	
835B SI ACCUMULATOR B AIR OPERATED FILL VALVE	2	N	B	P	1	GL	AO	1262-2 (G-5)	C	C	C	PI	2Y		STP-O-2.5.2	
839A SI ACCUMULATOR A TEST VALVE AOV-839A	2	N	B	P	.75	GL	AO	1262-2 (C-8)	C	C	C	PI	2Y		STP-O-2.5.2	
839B SI LINE LOOP B TEST VALVE AOV-839B	1	N	B	P	.75	GL	AO	1262-2 (D-8)	C	C	C	PI	2Y		STP-O-2.5.2	
840A SI ACCUMULATOR B TEST VALVE AOV-840A	2	N	B	P	.75	GL	AO	1262-2 (G-7)	C	C	C	PI	2Y		STP-O-2.5.2	
840B SI LINE LOOP B TEST VALVE AOV-840B	1	N	B	P	.75	GL	AO	1262-2 (H-7)	C	C	C	PI	2Y		STP-O-2.5.2	

Valve Table

SI - SAFETY INJECTION AND ACCUMULATORS

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
841	2	N	B	A	10	GA	MO	1262-2 (C-7)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	Treat as High Risk MOV
												PI	MOV		MA-AA-723-300-1006	
SI ACCUMULATOR A DISCH TO LOOP B MOV-841												SC	CS		O-2.2	
												SC/SO	CS	CS - 04	STP-O-2.4	
												SO	CS		O-1.1	
842A	1	N	AC	A	10	CK	SA	1262-2 (D-7)	C	O/C	NA	CC	CM		STP-O-8.8	CVCMP
												CO	CM		STP-O-R-24	
LOOP B ACCUMULATOR A DUMP LINE CHECK VLV												CO	18M		STP-O-2.10.7	
												LT-X	2Y		STP-O-8.8	
842B	1	N	AC	A	10	CK	SA	1262-2 (G-7)	C	O/C	NA	CC	CM		STP-O-8.8	CVCMP
												CO	CM		STP-O-R-24	
LOOP A ACCUMULATOR B DUMP LINE CHECK VLV												CO	18M		STP-O-2.10.7	
												LT-X	2Y		STP-O-8.8	
844A	2	N	B	P	1	GL	AO	1262-2 (C-8)	C	C	C	PI	2Y		STP-O-2.5.2	
SI ACCUMULATOR A DRAIN VALVE AOV-844A																
844B	2	N	B	P	1	GL	AO	1262-2 (G-8)	C	C	C	PI	2Y		STP-O-2.5.2	
SI ACCUMULATOR B DRAIN VALVE AOV-844B																
846	2	N	A	A	1	GL	AO	1262-1 (A-6)	C	C	C	FC	Q		STP-O-2.5	
												LJ-C	AJ		STP-O-23.46	
ACCUM N2 SUPPLY ISOL VALVE AOV-846												PI	2Y		STP-O-2.5	
												SC/SO	Q		STP-O-2.5	
												STC	Q		STP-O-2.5	
8623	2	N	AC	A	1	CK	SA	1262-2 (A-3)	C	C	NA	BDO	18M		S-16.2	CVCMP
												CC	AJ		STP-O-23.46	
N2 INLET CHECK VLV TO ACCUMULATORS A & B												LJ-C	AJ		STP-O-23.46	
865	2	N	B	A	10	GA	MO	1262-2 (G-7)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	Treat as High Risk MOV
												PI	MOV		MA-AA-723-300-1006	
SI ACCUMULATOR B DISCHARGE TO LOOP A MOTOR OPERATED VALV E												SC	CS		O-2.2	
												SC/SO	CS	CS - 04	STP-O-2.4	
												SO	CS		O-1.1	
867A	1	N	AC	A	10	CK	SA	1262-2 (D-7)	C	O/C	NA	CC	R		STP-O-2.10.4	CVCMP
												CO	R		STP-O-2.10.1	
SI PUMP DISCHARGE AND ACCUMULATOR TANK A CHECK VALVE TO LOOP B COLD LEG												CO	CM		STP-O-R-24	
												LT-XT	R		STP-O-2.10.4	
867B	1	N	AC	A	10	CK	SA	1262-2 (H-7)	C	O/C	NA	CC	R		STP-O-2.10.4	CVCMP
												CO	CM		STP-O-R-24	
SI PUMP DISCHARGE AND ACCUMULATOR TANK B CHECK VALVE TO LOOP A COLD LEG												CO	R		STP-O-2.10.1	
												LT-XT	R		STP-O-2.10.4	

Valve Table

SI - SAFETY INJECTION AND ACCUMULATORS

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
870A	2	N	C	A	3	CK	SA	1262-1 (C-7)	C	O/C		CC	18M		STP-O-2.1-COMP-A	
												CC	18M		STP-O-2.1-COMP-C	
SI PUMP C DISCHARGE CHECK VLV TO LOOP B COLD LEG												CO	R	ROJ - 05	STP-O-2.10.1	
870B	2	N	C	A	3	CK	SA	1262-1 (E-7)	C	O/C		CC	18M		STP-O-2.1-COMP-B	
												CC	18M		STP-O-2.1-COMP-C	
SI PUMP C DISCHARGE CHECK VLV TO LOOP A COLD LEG												CO	R	ROJ - 05	STP-O-2.10.1	
871A	2	N	B	A	3	GA	MO	1262-1 (D-7)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
SI PUMP C DISCHARGE TO LOOP B MOV-871A												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	
871B	2	N	B	A	3	GA	MO	1262-1 (E-7)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
SI PUMP C DISCHARGE TO LOOP A MOV-871B												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	
877A	1	N	AC	P	2	CK	SA	1262-2 (E-3)	C	C	NA	LT-XT	40M	GR - 01	STP-O-2.10.4	
SI PUMP A DISCHARGE CHECK VLV TO LOOP B HOT LEG																
877B	1	N	AC	P	2	CK	SA	1262-2 (I-6)	C	C	NA	LT-XT	40M	GR - 01	STP-O-2.10.4	
SI PUMP B DISCHARGE CHECK VLV TO LOOP A HOT LEG																
878A	2	N	A	P	2	GL	MO	1262-2 (E-3)	C	C	AI	LT-XT	40M	GR - 01	STP-O-2.10.4	
												PI	2Y		STP-O-2.10.4	
SI PUMP A DISCHARGE TO LOOP B HOT LEG MOV-878A																
878B	2	N	B	P	2	GL	MO	1262-2 (D-4)	O	O	AI	PI	2Y		STP-O-2.10.4	
SI PUMP A DISCHARGE TO LOOP B COLD LEG MOTOR OPERATED VA LVE																
878C	2	N	A	P	2	GL	MO	1262-2 (I-5)	C	C	AI	LT-XT	40M	GR - 01	STP-O-2.10.4	
												PI	2Y		STP-O-2.10.4	
SI PUMP B DISCHARGE TO LOOP A HOT LEG MOV-878C																
878D	2	N	B	P	2	GL	MO	1262-2 (H-5)	O	O	AI	PI	2Y		STP-O-2.10.4	
SI PUMP B DISCHARGE TO LOOP A COLD LEG MOV-878D																
878F	1	N	AC	P	2	CK	SA	1262-2 (E-3)	C	C	NA	LT-XT	40M	GR - 01	STP-O-2.10.4	
SI PUMP A DISCHARGE CHECK VLV TO LOOP B HOT LEG																
878G	1	N	AC	A	2	CK	SA	1262-2 (D-5)	C	O/C	NA	CC	R	ROJ - 04	STP-O-2.10.4	
												CO	R	ROJ - 04	STP-O-2.10.1	
SI PUMP A DISCHARGE CHECK VLV TO LOOP B COLD LEG												LT-XT	R		STP-O-2.10.4	

Valve Table

SI - SAFETY INJECTION AND ACCUMULATORS

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
878H	1	N	AC	P	2	CK	SA	1262-2 (I-6)	C	C	NA	LT-XT	40M	GR - 01	STP-O-2.10.4	
SI PUMP B DISCHARGE CHECK VLV TO LOOP A HOT LEG																
878J	1	N	AC	A	2	CK	SA	1262-2 (H-6)	C	O/C	NA	CC	R	ROJ - 04	STP-O-2.10.4	
												CO	R	ROJ - 04	STP-O-2.10.1	
SI PUMP B DISCHARGE CHECK VLV TO LOOP A COLD LEG												LT-XT	R		STP-O-2.10.4	
885A	2	N	B	A	.75	GL	M	1262-1 (C-7)	O	O/C	NA	EC/EO	2Y		STP-O-2.1-COMP-A	
INSTR ROOT VLV TO PT-922 & PI-922A (SI PMP A DISCH)																
885B	2	N	B	A	.75	GA	M	1262-1 (F-8)	O	O/C	NA	EC/EO	2Y		STP-O-2.1-COMP-B	
INSTR ROOT VLV TO PT-923 & PI-923A (SI PMP B DISCH)																
887	2	N	C	A	.75	TRV	SA	1262-2 (H-8)	C	O/C	NA	RT	10Y		CMP-37-06-887	
LOOP A ACCUMULATOR B TEST LINE RELIEF VLV TO PRT (IN CNMT)																
889A	2	N	C	A	3	CK	SA	1262-1 (C-5)	C	O/C	NA	CC	18M		STP-O-2.1-COMP-A	
												CC	Q		STP-O-2.1QA	
SI PUMP A DISCHARGE CHECK VLV												CO	R		STP-O-2.10.1	
												CO	Q		STP-O-2.1QA	
												CO	18M		STP-O-2.1-COMP-A	
889B	2	N	C	A	3	CK	SA	1262-1 (F-6)	C	O/C	NA	CC	18M		STP-O-2.1-COMP-B	
												CC	Q		STP-O-2.1QB	
SI PUMP B DISCHARGE CHECK VLV												CO	R		STP-O-2.10.1	
												CO	Q		STP-O-2.1QB	
												CO	18M		STP-O-2.1-COMP-B	
890	2	N	C	A	0.75	RV		33013-1262-2 (I-3)	C	C	NA	RT	10Y		CMP-37-06-890	
Safety Injection Pump Header Relief VLV (IN CNMT)																
891A	2	N	C	A	1.5	CK	SA	1262-1 (B-3)	C	O/C	NA	CC	18M		STP-O-2.1-COMP-B	
												CC	Q		STP-O-2.1QB	
SI PUMP A RECIRC LINE CHECK VLV TO RWST												CO	18M		STP-O-2.1-COMP-A	
												CO	Q		STP-O-2.1QA	
891B	2	N	C	A	1.5	CK	SA	1262-1 (D-5)	C	O/C	NA	CC	18M		STP-O-2.1-COMP-A	
												CC	Q		STP-O-2.1QA	
SI PUMP C RECIRC LINE CHECK VLV TO RWST												CO	18M		STP-O-2.1-COMP-C	
												CO	Q		STP-O-2.1QC	
891C	2	N	C	A	1.5	CK	SA	1262-1 (E-5)	C	O/C	NA	CC	Q		STP-O-2.1QA	
												CC	18M		STP-O-2.1-COMP-A	
SI PUMP B RECIRC LINE CHECK VLV TO RWST												CO	Q		STP-O-2.1QB	
												CO	18M		STP-O-2.1-COMP-B	

Valve Table

SI - SAFETY INJECTION AND ACCUMULATORS

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
893 SI PUMP HDR RELIEF VALVE	2	N	C	A	0.75	RV	SA	1262 (F-3)	C	O/C	NA	RT	10Y		CMP-37-06-893	

Valve Table

SW - SERVICE WATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4561	3	N	B	A	14	BTF	AO	1250-3 (G-9)	O	O	O	FO	Q		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
CONTAINMENT COOLERS SW OUTLET FLOW CONTROL AOV												STO	Q		STP-O-2.5.5	
4562	3	N	B	A	14	BTF	AO	1250-3 (G-10)	C	O	O	FO	Q		STP-O-2.5.5	
												SC/SO	Q		STP-O-2.5.5	
AIR OPERATED BYPASS OF VALVE 4561 (CONTAINMENT FAN COOLERS SW OUTLET FLOW CONTROL AOV)												STO	Q		STP-O-2.5.5	
4598G	3	N	B	A	4	GL	AO	1250-1 (C6)	C	O	O	FO	Q		STP-O-2.5.7A	
												SC/SO	Q		STP-O-2.5.7A	
EDG A SW ISOL VALVE												STO	Q		STP-O-2.5.7A	
4598H	3	N	B	A	4	GL	AO	1250-1 (C6)	C	O	O	FO	Q		STP-O-2.5.7A	
												SC/SO	Q		STP-O-2.5.7A	
EDG A SW ISOL VALVE												STO	Q		STP-O-2.5.7A	
4599G	3	N	B	A	4	GL	AO	1250-1 (E6)	C	O	O	FO	Q		STP-O-2.5.7B	
												SC/SO	Q		STP-O-2.5.7B	
EDG B SW ISOL VALVE												STO	Q		STP-O-2.5.7B	
4599H	3	N	B	A	4	GL	AO	1250-1 (E6)	C	O	O	FO	Q		STP-O-2.5.7B	
												SC/SO	Q		STP-O-2.5.7B	
EDG B SW ISOL VALVE												STO	Q		STP-O-2.5.7B	
4601	3	N	C	A	14	CK	SA	1250-1 (D-2)	O/C	O/C	NA	CC	Q		STP-O-2.7.1B	
												CO	Q		STP-O-2.7.1A	
NOZZLE CHECK VALVE FOR SERVICE WATER PUMP "A" DISCHARGE																
4602	3	N	C	A	14	CK	SA	1250-1 (E-2)	O/C	O/C	NA	CC	Q		STP-O-2.7.1A	
												CO	Q		STP-O-2.7.1B	
NOZZLE CHECK VALVE FOR SERVICE WATER PUMP "B" DISCHARGE																
4603	3	N	C	A	14	CK	SA	1250-1 (F-2)	O/C	O/C	NA	CC	Q		STP-O-2.7.1D	
												CO	Q		STP-O-2.7.1C	
NOZZLE CHECK VALVE FOR SERVICE WATER PUMP "C" DISCHARGE																
4604	3	N	C	A	14	CK	SA	1250-1 (G-2)	O/C	O/C	NA	CC	Q		STP-O-2.7.1C	
												CO	Q		STP-O-2.7.1D	
NOZZLE CHECK VALVE FOR SERVICE WATER PUMP "D" DISCHARGE																
4609	3	N	B	A	8	BTF	MO	1250-1 (C-2)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
SCREENHOUSE SW ISOL VLV MOV-4609												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	
4613	3	N	B	A	10	BTF	MO	1250-1 (D-6)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
TURBINE BUILDING SERVICE WATER ISOLATION MOTOR OPERATED VALVE												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	

Valve Table

SW - SERVICE WATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4614	3	N	B	A	10	BTF	MO	1250-3 (H-2)	O	C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
TURBINE BUILDING SERVICE WATER ISOLATION MOTOR OPERATED VALVE												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	
4615	3	N	B	A	20	GA	MO	1250-1 (J-9)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
AUX BLDG SW ISOL VLV MOV-4615												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	
4616	3	N	B	A	20	GA	MO	1250-1 (A-9)	O	O/C	AI	DIAG	MOV		MA-AA-723-300-1006	
												PI	MOV		MA-AA-723-300-1006	
AUX BLDG SW ISO VLV MOV-4616												SC/SO	18M		STP-O-2.3	
												STC	18M		STP-O-2.3	
4619C	3	N	B	A	12	GA	M	1250-2 (F-6)	C	O	NA	EC/EO	2Y		STP-O-2.10.11	
CCW HX A REDUNDANT SW OUTLET ISOL VLV																
4620B	3	N	B	A	12	GA	M	1250-2 (E-6)	C	O	NA	EC/EO	2Y		STP-O-2.10.11	
CCW HX B REDUNDANT SW OUTLET ISOL MOV																
4622	3	Y	B	A	6	GL	M	1250-2 (H-8)	O	O/C	NA	EC/EO	2Y		STP-O-2.10.11	
SFP HX A SW OUTLET ISOL VLV																
4622A	3	Y	B	A	6	GA	M	1250-2 (H-7)	C	O	NA	EC/EO	2Y		STP-O-2.10.11	
SFP HX A REDUNDANT SW OUTLET ISOL VLV																
4629	2	N	A	A	8	BTF	M	1250-3 (B-7)	O	O/C	NA	EC/EO	2Y		STP-O-2.9	
												LT-X	2Y		STP-O-R-2.4	
SERVICE WATER OUTLET BLOCK VALVE FOR ACA01A, ACA01E, ACA01F (CONTAINME NT RECIRCULATING FAN A COOLERS) & ACA10 (CNMT RECIRC FAN A MTR CLR)																
4630	2	N	A	A	8	BTF	M	1250-3 (C-7)	O	O/C	NA	EC/EO	2Y		STP-O-2.9	
												LT-X	2Y		STP-O-R-2.4	
SERVICE WATER OUTLET BLOCK VALVE FOR ACA01B, ACA01G, ACA01H (CONTAINME NT RECIRCULATING FAN B COOLERS) & ACA07 (CNMT RECIRC FAN B MTR CLR)																
4635	2	N	B	A	8	BTF	M	1250-3 (D-7)	O	C	NA	EC/EO	2Y		STP-O-2.5.1	
SW INLET BLOCK VLV TO REACTOR COMPARTMENT COOLER B																
4636	2	N	A	A	2.5	BTF	M	1250-3 (F-7)	O	C	NA	EC/EO	2Y		STP-O-2.9	
												LT-X	2Y		STP-O-R-2.8	
REACTOR COMPARTMENT COOLER B SW OUTLET BLOCK VLV																

Valve Table

SW - SERVICE WATER

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4643	2	N	A	A	8	BTF	M	1250-3 (G-7)	O	O/C	NA	EC/EO LT-X	2Y 2Y		STP-O-2.9 STP-O-R-2.4	
SERVICE WATER OUTLET BLOCK VALVE FOR ACA01C, ACA01J, ACA01K, (CONTAINM ENT RECIRCULATING FAN C COOLERS) & ACA08 (CNMT RECIRC FAN C MTR CLR)																
4644	2	N	A	A	8	BTF	M	1250-3 (H-7)	O	O/C	NA	EC/EO LT-X	2Y 2Y		STP-O-2.9 STP-O-R-2.4	
SERVICE WATER OUTLET BLOCK VALVE FOR ACA01D, ACA01L, ACA01M, (CONTAINM ENT RECIRCULATING FAN D COOLERS) & ACA09 (CNMT RECIRC FAN D MTR CLR)																
4653	3	N	C	A	.75	TRV	SA	1250-2 (F-6)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
CCW HX A SW OUTLET RELIEF VLV																
4653A	3	N	D	A	.75	RPD	SA	1250-2 (F-6)	C	O	NA	RD	5Y		Rep Task P311162	
CCW HX A SW Outlet Relief Valve - Rupture Disk																
4654	3	N	C	A	.75	TRV	SA	1250-2 (D-6)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
CCW HX B SW OUTLET RELIEF VLV																
4654A	3	N	D	A	.75	RPD	SA	1250-2 (D-6)	C	O	NA	RD	5Y		Rep Task P311164	
CCW HX B SW Outlet Relief Valve - Rupture Disk																
4655	2	N	AC	A	.75	RV	SA	1250-3 (A-7)	C	O/C	NA	LT-X RT	2Y 10Y		STP-O-R-2.4 GMP-37-06-125/RV	
CONTAINMENT RECIRC FAN A COOLER SW OUTLET RELIEF VLV																
4655A	2	N	D	A	.75	RPD	SA	33013-1250 R3 (A-7)	C	O	NA	RD	5Y		P311190	
Containment Recirculation Fan A Cooler SW Outlet Relief VLV Rupture Disk																
4656	2	N	AC	A	.75	RV	SA	1250-3 (C-7)	C	O/C	NA	LT-X RT	2Y 10Y		STP-O-R-2.4 GMP-37-06-125/RV	
CONTAINMENT RECIRC FAN B COOLER SW OUTLET RELIEF VLV																
4656A	2	N	D	A	.75	RPD	SA	33013-1250,3 (C-7)	C	O	NA	RD	5Y		P311191	
Containment Recirc Fan B Cooler SW Outlet Relief VLV Rupture Disk																
4657	3	Y	C	A	.75	TRV	SA	1250-2 (H-8)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
SFP HX A SW OUTLET RELIEF VLV																
4657A	3	N	D	A	.75	RPD	SA	33013-1250,2 (H-8)	C	O	NA	RD	5Y		REP TASK P311984	
SFP HX A SW OUTLREL RD																

Valve Table

SW - SERVICE WATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4658	2	N	AC	A	.75	RV	SA	1250-3 (E-7)	C	O/C	NA	LT-X RT	2Y 10Y		STP-O-R-2.8 GMP-37-06-125/RV	
REACTOR COMPARTMENT COOLER B SW OUTLET RELIEF VLV																
4658A	2	N	D	A	.75	RPD	SA	1250-3 (E-7)	C	O	NA	RD	5Y		P311060	
REACTOR COMPARTMENT COOLER B SW RELIEF VLV RUPTURE DISC																
4659	2	N	AC	A	.75	RV	SA	1250-3 (G-7)	C	O/C	NA	LT-X RT	2Y 10Y		STP-O-R-2.4 GMP-37-06-125/RV	
CONTAINMENT RECIRC FAN C COOLER SW OUTLET RELIEF VLV																
4659A	2	N	D	A	.75	RPD	SA	33013-1250,3 (G-7)	C	O	NA	RD	5Y		P311192	
Containment Recirc Fan C Cooler SW Outlet Relief VLV Rupture Disk																
4660	2	N	AC	A	.75	RV	SA	1250-3 (H-7)	C	O/C	NA	LT-X RT	2Y 10Y		STP-O-R-2.4 GMP-37-06-125/RV	
CONTAINMENT RECIRC FAN D COOLER SW OUTLET RELIEF VLV																
4660A	2	N	D	A	.75	RPD	SA	33013-1250,3 (H-7)	C	O	NA	RD	5Y		P311193	
Containment Recirc Fan D Cooler SW Outlet Relief VLV Rupture Disk																
4663	3	N	B	A	6	BTF	MO	1250-3 (I-3)	O	C	AI	DIAG PI SC/SO STC	MOV MOV 18M 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3 STP-O-2.3	
AIR CONDITIONING SERVICE WATER MOTOR OPERATED ISOLATION VALVE																
4664	3	N	B	A	10	GA	MO	1250-3 (H-2)	O	C	AI	DIAG PI SC/SO STC	MOV MOV 18M 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3 STP-O-2.3	
TURBINE BLDG SW ISOL VLV MOV-4664																
4670	3	N	B	A	10	GA	MO	1250-1 (D-5)	O	C	AI	DIAG PI SC/SO STC	MOV MOV 18M 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3 STP-O-2.3	
TURBINE BLDG SW ISOL VLV MOV-4670																
4717	3	N	C	A	.75	TRV	SA	1250-1 (D-7)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
D/G A HX'S SW OUTLET RELIEF VLV																
4717A	3	N	D	A	.75	RPD	SA	33013-1250,1 (D-7)	C	O	NA	RD	5Y		REP TASK P311985	
D/G A HX'S SW OUTLET RD																
4718	3	N	C	A	.75	TRV	SA	1250-1 (H-5)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
D/G B HX'S SW OUTLET RELIEF VLV																

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4718A D/G B HX's SW OUTLET RD	3	N	D	A	.75	RPD		33013-1250,1 (H-5)	C	O	NA	RD	5Y		P312104	
4733 AIR CONDITIONING SW ISOL VLV MOV-4733	3	N	B	A	6	BTF	MO	1250-3 (I-3)	O	C	AI	DIAG PI SC/SO STC	MOV MOV 18M 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3 STP-O-2.3	
4734 AUXILIARY BUILDING SERVICE WATER ISOLATION MOTOR OPERATED VALVE	3	N	B	A	14	BTF	MO	1250-2 (E-3)	O	O/C	AI	DIAG PI SC/SO STC	MOV MOV 18M 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3 STP-O-2.3	
4735 AUXILIARY BUILDING SERVICE WATER ISOLATION MOTOR OPERATED VALVE	3	N	B	A	18	BTF	MO	1250-2 (B-2)	O	O/C	AI	DIAG PI SC/SO STC	MOV MOV 18M 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3 STP-O-2.3	
4739B AUX BLDG MOTOR COOLERS SW OUTLET ISOL VLV (REDUNDANT)	3	N	B	A	3	GA	M	1250-1 (B-11)	C	O	NA	EC/EO	2Y		STP-O-2.10.11	
4757 SW INLET BLOCK VLV TO REACTOR COMPARTMENT COOLER A	2	N	B	A	8	BTF	M	1250-3 (E-7)	O	C	NA	EC/EO	2Y		STP-O-2.5.1	
4758 REACTOR COMPARTMENT COOLER A SW OUTLET BLOCK VLV	2	N	A	A	2.5	BTF	M	1250-3 (D-7)	O	C	NA	EC/EO LT-X	2Y 2Y		STP-O-2.9 STP-O-R-2.8	
4759 REACTOR COMPARTMENT COOLER A SW OUTLET RELIEF VLV	2	N	AC	A	.75	RV	SA	1250-3 (D-7)	C	O/C	NA	LT-X RT	2Y 10Y		STP-O-R-2.8 GMP-37-06-125/RV	
4759A REACTOR COMPARTMENT COOLER A SW RELIEF VLV RUPTURE DISC	2	N	D	A	.75	RPD	SA	1250-3 (D-7)	C	O	NA	RD	5Y		P311072	
4770 CNMT PENETRATION COOLER SW OUTLET RELIEF VLV	3	Y	C	A	.75	TRV	SA	1250-1 (G-11)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
4770A RHR PUMP COOLING FAN A SW OUTLET RELIEF VLV	3	N	C	A	.75	TRV	SA	1250-1 (E-10)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
4770B RHR PUMP COOLING FAN B SW OUTLET RELIEF VLV	3	N	C	A	.75	TRV	SA	1250-1 (D-10)	C	O	NA	RT	10Y		GMP-37-06-125/RV	

Valve Table

SW - SERVICE WATER

Valve ID Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
4770F CHARGING PUMP ROOM COOLER A SW OUTLET RELIEF VLV	3	Y	C	A	.75	TRV	SA	1250-1 (C-11)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
4770G CHARGING PUMP ROOM COOLER B SW OUTLET RELIEF VLV	3	Y	C	A	.75	TRV	SA	1250-1 (F-11)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
4770H CNMT Penetration Cooler SW Outlet Relief Valve - Rupture Disk	3	Y	D	A	.75	RPD	SA	1250-1 (G-11)	C	O	NA	RD	5Y		P312031	
4770J RHR Pump Cooling Fan A SW Outlet Relief Valve - Rupture Disk	3	N	D	A	.75	RPD	SA	1250-1 (D-10)	C	O	NA	RD	5Y		Rep Task P311167	
4770L RHR Pump Cooling Fan B SW Outlet Relief Valve - Rupture Disk	3	N	D	A	.75	RPD	SA	1250-1 (D-10)	C	O	NA	RD	5Y		Rep Task P311168	
4770T CHARGING PUMP ROOM COOLER A SW OUTLET RUPTURE DISK	3	Y	D	A	.75	RPD	SA	33013-1250,1 (C-11)	C	O	NA	RD	5Y		P312042	
4770V CHARGING PUMP ROOM COOLER A SW OUTLET RUPTURE DISK	3	Y	D	A	.75	RPD	SA	33013-1250,1 (E-11)	C	O	NA	RD	5Y		P312043	
4780 SCREEN HOUSE SW ISOL VLV MOV-4780	3	N	B	A	8	BTF	MO	1250-1 (C-2)	O	C	AI	DIAG PI SC/SO STC	MOV MOV 18M 18M		MA-AA-723-300-1006 MA-AA-723-300-1006 STP-O-2.3 STP-O-2.3	
8681 SFP HX B SW OUTLET RELIEF VLV	3	N	C	A	.75	TRV	SA	1250-2 (C-8)	C	O	NA	RT	10Y		GMP-37-06-125/RV	
8681A SFP HX B SW Outlet Relief VLV Rupture Disk	3	N	D	A	.75	RPD	SA	33013-1250,2 (C-6)	C	O	NA	RD	5Y		P311194	
8689 SFP HX B SW OUTLET ISOL VLV	3	Y	B	A	10	BTF	M	1250-2 (E-9)	O	O/C	NA	EC/EO	2Y		STP-O-2.10.11	
9627A SW INLET CHECK VLV TO STANDBY AUX FW PUMP ROOM	3	N	C	A	4	CK	SA	1250-2 (A-6)	C	O/C	NA	CP CP D&I	CM CM CM		STP-O-36QC STP-O-36-COMP-C GMP-37-53-150/4/CV	CVCMP

Valve Table

SW - SERVICE WATER

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
9627B	3	N	C	A	4	CK	SA	1250-2 (B-6)	C	O/C	NA	CP	CM		STP-O-36Q-D	CVCMP
												CP	CM		STP-O-36-COMP-D	
SW INLET CHECK VLV TO STANDBY AUX FW PUMP ROOM												D&I	CM		GMP-37-53-150/4/CV	
9632A	3	N	B	A	1.5	GA	AO	1250-2 (E-9)	C	O	O	FO	Q		STP-O-36QC	
												FO	Q		STP-O-36-COMP-C	
SAFW PUMP ROOM COOLING UNIT A SW OUTLET FLOW CONTROL AOV												SC/SO	Q		STP-O-36QC	
												SC/SO	Q		STP-O-36-COMP-C	
												STO	Q		STP-O-36QC	
												STO	Q		STP-O-36-COMP-C	
9632B	3	N	B	A	1.5	GA	AO	1250-2 (E-10)	C	O	O	FO	Q		STP-O-36Q-D	
												FO	Q		STP-O-36-COMP-D	
SAFW PUMP ROOM COOLING UNIT B SW OUTLET FLOW CONTROL AOV												SC/SO	Q		STP-O-36Q-D	
												SC/SO	Q		STP-O-36-COMP-D	
												STO	Q		STP-O-36Q-D	
												STO	Q		STP-O-36-COMP-D	
9634B	3	N	B	A	2	GL	M	1250-2 (F-10)	C	O	NA	EC/EO	2Y		STP-O-2.10.11	
SAFW PUMP ROOM CLG UNITS A & B SW ISOL VLV TO RETURN HDR																

Valve Table

WDG - WASTE DISPOSAL - GAS

Valve ID / Description	Class	Aug.	Cat.	A/P	Size	Valve Type	Actuator Type	Drawing & Coord	Position Normal	Position Safety	Position Fail-Safe	Required Test	Frequency	RR/CSJ/ROJ	Procedure	Comments / Notes
14	SSC	N	B	A	2	GL	AO	1273-2 (I-3)	C	C	C	FC	Q		STP-O-2.5	
												PI	2Y		STP-O-2.5	
GAS DECAY TANK RELEASE AOV TO PLANT VENT VIA CHARCOAL FILTER												SC/SO	Q		STP-O-2.5	

Attachment 16

Check Valve Condition Monitoring Plan Index

CVCM PLAN NUMBER	**REV #**	**TITLE**
AFW-001	0	4014, 4016, 4017
AFW-002	0	3998, 4010
AFW-003	0	4009
AFW-004	0	4304A, 4310A
AFW-005	0	4000C, 4000D
AFW-006	0	4003, 4004
AFW-007	0	3996
CCW-001	0	Deleted
CS-002	0	862A, 862B
CVCS-001	0	Deleted
DFO-001	0	5960A, 5960B
FP-001	0	9229
IA-001	0	5393
MS-001	0	3504B, 3505B
PWT-001	0	8419
RCP-001	0	528
RCP-002	0	529
RHR-001	0	854
SAFW-001	0	9700A, 9700B, 9705A, 9705B
SAFW-002	0	9704A, 9704B
SI-001	0	842A, 842B, 867A, 867B
SI-002	0	8623
SW-001	0	9627A, 9627B
SW-002	0	Deleted