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Robert J. Barrett Site Executive Officer

April 25, 2000 IPN-00-032

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

SUBJECT: Indian Point 3 Nuclear Power Plant Docket No. 50-286 License No. DPR-64 Inservice Testing Program

Reference: NYPA letter to NRC (IPN-00-005), "Inservice Testing Program", dated January 18, 2000.

Dear Sir:

The referenced letter submitted Program # 8 of the Indian Point 3 (IP3) Inservice Testing (IST) Program for pumps and valves for NRC review and approval, as required for the third ten-year interval. Subsequently, in a conference telephone call between various NRC and IP3 personnel on March 31, 2000, several items regarding questions formulated during NRC review of the referenced submittal were discussed. As a result of this conversation, NYPA (the Authority) is submitting an updated IST program document as the Attachment to this letter. This Attachment includes minor changes to the previously submitted IST Program # 8.

The subject attachment is an entire updated copy of IST Program # 8, which includes the following changes as agreed to by the NRC staff:

a) Relief request PR-1 is changed and split into three relief requests, PR-1, PR-6 and PR-7. The format for these three new relief requests has been revised to follow that of relief request PR-5.

b) Relief request PR-8 has been added based upon industry experience input. PR-3 has been withdrawn as a result of adding the newly proposed PR-8.

c) Refueling Outage Justifications (ROJ) 1 through 9, 11, 13 through 15, 19, 23 and 27 are changed to clarify that the subject valves are to be tested every refueling outage during the two-year Technical Specification testing.

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d) ROJ-7 through 9, 11, 19, 23 and 27 have their reference to relief request VR-2 deleted. Relief request VR-2 does not exist.

Accordingly, new document page numbering, a new Table of Contents, the replacement of pages 1 of 20 through 20 of 20, the replacement of Appendix D in its entirety and correction of several typographical errors are included in this updated Attachment. We also understand that NRC staff may treat ROJ-1 and ROJ-15 as relief requests.

This updated Attachment of the IP3 IST Program # 8 is submitted for your further review and approval. The third ten-year interval is scheduled to commence July 21, 2000.

The Authority is making no new commitments in this submittal. If you have any questions regarding this letter, please contact Mr. Ken Peters at (914) 736-8029.

Very truly yours,

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Robert J. Barrett Site Executive Officer Indian Point 3 Nuclear Power Plant

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Attachment: Inservice Testing Program # 8

cc: Regional Administrator U.S. Nuclear Regulatory Commission 475 Allendale Road King of Prussia, PA 19406

> Resident Inspector's Office Indian Point Unit 3 U.S. Nuclear Regulatory Commission P.O. Box 337 Buchanan, NY 10511

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ATTACHMENT to IPN-00-032

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IP3 INSERVICE TESTING PROGRAM # 8

NEW YORK POWER AUTHORITY INDIAN POINT 3 NUCLEAR POWER PLANT DOCKET NO. 50-286 DPR-64

New **Procedure** Use Is: Control Copy: York □ Continuous Power Effective Date: Reference **Authority** □ Information **Indian Point 3** TSR □ NTSR PFM-22A Revision: 5 **INSERVICE TESTING PROGRAM #8** Robert Dolansky 1/3/00 **INFORMATION ONLY** Writer Date UM an Reviewer Date Approved By: 3 Procedure Sponsor, DM/Designee Date

MAJOR REVISION

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1.0 INTRODUCTION

Revision 8 of the Indian Point (Unit 3) (IP3) Inservice Testing Program Plan once approved will be in effect for the applicable duration of the third 120-month (10-year) inspection interval (7/21/99-7/21/09), unless changed for other reasons. The Plan will be updated prior to the start of the fourth inspection interval in accordance with the requirements of 10 CFR 50.55a(g).

This document outlines the Inservice Testing (IST) Program for IP3 based on the requirements of ASME/ANSI OM (Parts 6 and 10), OMa 1988 Addenda to ASME/ANSI OM - 1987.

2.0 PROGRAM DEVELOPMENT

ASME/ANSI OM Parts 6 and 10 (hereby referred to as 'the Code') requires that the owner of each nuclear power plant prepare and submit a "plan" for testing and inspection of systems and components under the jurisdiction of the Code and in compliance with Title 10, Part 50 of the Code of Federal Regulations (Para. 50.55.a). With respect to the elements of that plan related to the testing of pumps and valves, ASME/ANSI OM Parts 6 and 10 establishes the Program scope with the provision that the rules apply to ISI Class 1,2, and 3 as stated by the NRC via Federal Register.

In accordance with the Code, the following are required to be included in the testing Program:

- * <u>Centrifugal and positive displacement pumps</u> that are installed in light-water cooled nuclear power plants and provided with an emergency power source and required to perform a specific function in shutting down the reactor or in mitigating the consequences of an accident.
- * <u>Valves (and their actuating and position indicating systems)</u> which are required to perform a specific function in shutting down the reactor to the cold shutdown condition or in mitigating the consequences of an accident.

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

In light of this, a set of rules was established by which the scope of the Indian Point, Unit 3 IST Program is determined, including components that are to be included and the extent and type of testing required for each. Based on these rules the philosophy and assumptions used in determining the test requirements for selected pumps and valves was documented.

2.1 Initial Program Scope

In the course of developing the Program scope, each of the significant safety systems (included within the ISI-class boundaries) were evaluated with respect to the function of each component and the need for its operability as it relates to the scope of OM-6 and OM-10. Supporting documents used include,

Final Safety Analysis Report (FSAR); Technical Specifications; Operational Specifications; Past program correspondence; Operating Procedures (Normal,Emergency and Off-Normal); Plant System Descriptions; and Design Basis Documents.

The sequence followed during the development effort was as follows:

- 1) Each of the plant systems was subjected to an overview to determine any potential active safety function as described in the scope statement. Those systems with no obvious safety functions were then excluded from further consideration. Plant documents as well as operating staff inputs were utilized in this phase.
- 2) For the remaining systems, flow diagrams were studied and any component that could possibly have an active or passive safety function (other than simply maintaining the pressure boundary) were identified for further evaluation.
- 3) The function of each component identified in 2), above, was determined based on available documentation, staff input or general experience of the evaluator. Testing requirements were derived based on the component function(s) and the applicable rule(s).
- 4) Available documents were reviewed and specific or implied component operational requirements were compared to the information derived in 3), above.
- 5) The results of Steps 1) through 4) were reviewed by several knowledgeable members of the plant staff and evaluated for accuracy and consistency. Based on this review, the final program scope was derived and the IST Program Plan developed.

2.2 Program Update

During the test interval it is expected that the scope of the Program will be modified in response to unrelated activities including, but not limited to,

- 1) Plant design changes;
- 2) Changes in operating conditions (eg. normal valve lineup);
- 3) Changes in accident mitigating procedures philosophy;
- 4) Changes to the Technical Specifications.

As a result, it is expected that the IST Program will be occasionally revised to ensure continued compliance with the Code requirements relating to the scope of the test program.

Maintaining the Program current is accomplished by the IST Coordinator. The review of plant modification packages by the Design Engineering Department includes a review with respect to the IST Program (in accordance with NYPA Modification Control Procedure, MCM-1, "Design Change Process"). Based on these modification packages and interaction with applicable modification engineers, the IST Coordinator identifies and implements appropriate changes to the IST Program. Revisions to the IST Program are subjected to management reviews and approvals as required by Technical Specification 6.5.0.

2.3 Program Details

Based on the Program scope as established above, the further development of test program details (frequency, practicality, etc.) evolved using selected portions of the following documents:

- * Title 10, Code of Federal Regulations, Part 50
- * NRC Regulatory Guides Division 1
- * Standard Review Plan 3.9.6, "Inservice Testing of Pumps and Valves"
- * Final Safety Analysis Report, Indian Point Unit 3
- * Technical Specifications, Indian Point Unit 3
- * NRC Safety Evaluation of Indian Point Unit 3 Requests For Relief From Inservice Testing Requirements
- * NRC Generic Letter 89-04, Guidance On Developing Acceptable Inservice Testing Programs
 * NBC Generic Letter 20.04, Guidance On Developing Acceptable Inservice
- * NRC Generic Letter 89-04, Supplement 1 Guidance On Developing Acceptable Inservice Testing Programs
- * NUREG-1482 Guidelines for Inservice Testing at Nuclear Power Plants
- * NRC Generic Letter 87-06, "Periodic Verification of Leak-Tight Integrity of Pressure Isolation Valves."
- * NUREG/CP-0152, "Proceedings of the Fourth NRC/ASME Symposium on Valve and Pump Testing."

The inservice tests called forth in this Plan will verify the operational readiness of pumps and valves which have a specific function in mitigating the consequences of an accident or bringing the reactor to a safe shutdown condition.

2.4 Augmented Testing

Pumps and valves that are not within the designated Indian Point 3 ISI boundaries (NC Class) are not under the jurisdiction of ASME/ANSI OM (Parts 6 and 10) and asociated testing may not necessarily meet all requirements established therein. Such components are considered "augmented" in the IST program plan. Relief requests, cold shutdown justifications and refueling outage justifications for augmented components are provided for information only and do not necessarily require approval.

3.0 TESTING PROGRAM FOR PUMPS

3.1 General

3.1.1 Code

This IST Program Plan for pumps meets the requirements of ASME/ANSI OM Part 6 (OM-6). Where these requirements are determined to be impractical, specific requests for relief are included in Section 3.2.

3.1.2 Pump Program Table

Appendix A lists the pumps included in the IST Program. Data contained in this table identifies those pumps subject to inservice testing with the respective inservice test parameters, intervals, and any other applicable remarks.

- 3.1.3 Allowable Ranges of Test Quantities
 - The allowable ranges specified in OM-6 Table 3 will be used for differential pressure, flow, and vibration measurements except as provided for in relief requests. In some cases, the performance of a pump may be adequate to fulfill its safety function even though there may be a measurement that falls outside the allowable ranges as set forth in OM-6 Table 3.

3.1.4 Instrumentation

Instrumentation used in the IST Program will generally conform to the requirements of OM-6 Section 4.6 except where specific relief is requested.

3.1.5 Testing Intervals

The test frequency for pumps in the Program will be as set forth in Appendix A and the associated relief requests. The frequency of "Refueling" is defined as an outage which includes core alterations. A band of +25 percent of the test interval may be applied to the test schedule, as needed, to provide necessary operational flexibility.

3.2 Relief Requests for Pump Testing

The following pages in this section include relief requests PR-1 through PR-8 for IST pump testing.

RELIEF REQUEST NO. PR-1

PUMPS:

Service Water; Pump Nos. SWN-31 thru SWN-36.

TEST REQUIREMENT:

Reference values shall be at points of operation readily duplicated during subsequent inservice testing. (OM-6 Part 4.3)

BASIS FOR RELIEF:

The Service Water Pumps (SWPs) provide cooling water from the Hudson River to various heat exchangers in the primary and secondary portions of the plant. The SWPs supply cooling water to various heat exchangers for containment heat removal, long term core cooling and equipment cooling during accident conditions. The SWPs provide cooling to systems where throttling for the purpose of testing can lead to undesirable thermal transients on critical operating equipment.

In order to strictly adhere to the OM-6 code requirements to test the SWPs at a fixed flow each time, valves controlling flow to operating equipment would need to be adjusted. In order to minimize the need to adjust these values, the IST test allows for the measured pump flow to vary over the range of the pump curve to allow for expected variations in system alignments/operating conditions from test to test. In developing the pump curves used in the test, the following elements were used:

- 1. The pump curves were developed when the pumps were known to operate acceptably. The data used originated from an Engineering Test performed after pump installation.
- 2. The instruments used during the Engineering Test either met or exceeded the Code required accuracy.
- 3. A minimum of 5 points from the Engineering Test were used to construct the pump reference curve.
- 4. The constructed curve uses a range of flows which encompasses the normally expected flow observed from the Engineering Test.
- 5. The acceptance criteria established does not conflict with the operability criteria for flow rate and differential pressure in technical specifications or the facility safety analysis report.
- 6. Review of the vibration data trend plots indicates that the change in vibration readings over the range of the pump curve being used is insignificant and thus only one fixed reference value has been assigned for each vibration location.
- 7. After any maintenance or repair that may affect the existing reference pump curve, a new reference pump curve shall be determined or the existing pump curve revalidated by an inservice test.

RELIEF REQUEST NO. PR-1 (continued)

ALTERNATE TESTING:

During pump reference tests when the pump is known to be operable, a reference pump curve may be established or the manufacturer's pump curve confirmed as discussed in the Basis For Relief . In subsequent tests, a flowrate (Qa) will be obtained and recorded along with the corresponding differential pressure (dPa). The differential pressure value (dPa) will then be compared to a reference differential pressure obtained from the reference pump curve using measured flowrate (Qa).

RELIEF REQUEST NO. PR-2

PUMPS:

Turbine-Driven Auxiliary Feedwater Pump No. AFW-32

TEST REQUIREMENT:

An inservice test shall be run on each pump nominally every 3 months during normal plant operation. (OM-6 Section 5.1)

Pump testing shall be based on establishing a set of reference values, then comparing subsequent test results to these reference values. Inherent in this is the requirement to determine which of the pump parameters (flowrate or differential pressure) is to be the independent variable, then, in subsequent tests, this parameter is set to the reference value by adjusting system resistance. The value obtained for the dependent variable is compared to its respective reference value with OM-6 Table 3 establishing acceptance criteria. During the test, the test quantities shown in OM-6 Table 2 shall be measured and recorded.

BASIS FOR RELIEF:

During normal plant operation no full-flow test loop is available for this pump. Consequently, the only practical method of testing is to circulate water through the minimum flow line; however there is no flow measuring instrumentation in the minimum flow circuit.

Since this pump stands idle, except for periods of testing, significant inservice degradation is unlikely.

ALTERNATE TESTING:

This pump will be tested quarterly with the fixed resistance of the minimum flow line. During these tests, all appropriate pump operational parameters will be measured and evaluated with respect to OM-6 Table 3 and associated relief requests with the exception of flowrate.

Every 2 years the #32 Auxiliary Feedwater Pump will be tested under nominal full-flow conditions during pump testing required by Technical Specification 4.8.1.a. All required measurements of parameters will be taken and evaluated in accordance with OM-6 Table 3. This agrees with the guidance provided in NRC Generic Letter 89-04, Position 9.

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RELIEF REQUEST NO. PR-3

WITHDRAWN

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RELIEF REQUEST NO. PR-4

PUMPS:

All pumps in the Program

TEST REQUIREMENT:

If the presence or absence of liquid in a gage line could produce a difference of more than 0.25% in the indicated value of the measured pressure, means shall be provided to ensure or determine the presence or absence of liquid as required for the static correction used. (OM-6, Section 4.6.2.1)

BASIS FOR RELIEF:

When this requirement is applied to the measurement of pump suction pressure where measured pressures are at relative low levels, the 0.25% limit is overly restrictive and oftentimes results in complicated venting procedures and unnecessary health physics risks associated with handling and disposal of radioactive contaminated water with no commensurate gain or improvement of test reliability.

Normally, the only quantitative use of suction pressure measurements, where significant accuracy is required, is in determining pump differential pressure or head. In most cases the pump discharge pressure exceeds the suction pressure by at least a factor of five (5). This being the case, a .25% error introduced into the suction pressure measurement results in an error of .05% in the differential pressure calculation. This is insignificant in light of the potential 4% error allowance applied to both the suction and discharge pressure instruments (Ref OM-6, Table 1).

ALTERNATE TESTING:

If the presence or absence of liquid in a gage line used for sensing pump suction pressure could produce a difference of more than 0.25% in the calculated value of the pump differential pressure, means shall be provided to ensure or determine the presence or absence of liquid as required for the static correction used.

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RELIEF REQUEST NO. PR-5

PUMPS:

SIS Pump Circulating Water; Pump Nos. ACC-CW-31 thru ACC-CW-33

TEST REQUIREMENT:

Reference values shall be at points of operation readily duplicated during subsequent inservice testing. (OM-6 Part 4.3)

BASIS FOR RELIEF:

In order to ensure that cooling water flow is supplied to the Safety Injection pumps during an SI actuation concurrent with a blackout event, these pumps were supplied with attached shaft driven centrifugal pumps. These SI-CCW Pumps supply cooling water flow to Safety Injection Pump support services (i.e., SI shaft seals, stuffing box and lube oil coolers). In order to ensure that each Lube Oil Cooler receives adequate flow, a preoperational test was performed to flow balance the system. As a result of the flow balance tests, the Component Cooling return from the SI Pump Cooler outlet isolation valve must be throttled. Once these valves are set/throttled, the less they are adjusted and reset, the more reliable the final valve positions would reflect the original flow balance required positions.

In order to strictly adhere to the OM-6 code requirements to test the SI-CCW pumps at a fixed flow each time, valves which are throttled to required positions due to flow balance concerns need to be adjusted. In order to minimize the need to adjust these valves, the IST test allows for the measured pump flow to vary over a small range of the pump curve to allow for expected variations in system alignments/operating conditions from test to test. In developing the pump curve used in the test, the following elements were used:

- 1. The manufacturer's pump curves were validated when the pumps were known to operate acceptably. The data used originated from the Modification Acceptance Test after pump installation.
- 2. The instruments used during the Modification Acceptance Test either met or exceeded the Code required accuracy.
- 3. 18 points from the manufacturer's curve were used to construct the pump reference curve, however only 4 of the points cover the tested flow range which is considered acceptable due to the narrow test range. The full pump curve ranges from 0 to 85 GPM while the test curve ranges from 20 to 35 GPM.
- 4. The constructed curve uses a narrow flow range which encompasses the normally expected flow observed from the Modification Test.
- 5. The acceptance criteria established does not conflict with the operability criteria for flow rate and differential pressure in technical specifications or the facility safety analysis report.
- 6. Review of the vibration data trend plots indicates that the change in vibration readings over the narrow range of the pump curves being used is insignificant and thus only one fixed reference value has been assigned for each vibration location.

RELIEF REQUEST NO. PR-5 (continued)

7. After any maintenance or repair that may affect the existing reference pump curve, a new reference pump curve shall be determined or the existing pump curve revalidated by an inservice test.

ALTERNATE TESTING:

During pump reference tests when the pump is known to be operable, a reference pump curve may be established or the manufacturer's pump curve confirmed as discussed in the Basis For Relief. In subsequent tests, a flowrate (Qa) will be obtained and recorded along with the corresponding differential pressure (dPa). The differential pressure value (dPa) will then be compared to a reference differential pressure obtained from the reference pump curve using measured flowrate (Qa).

RELIEF REQUEST NO. PR-6

PUMPS:

Component Cooling Water; Pump Nos. CCW-31, CCW-32, CCW-33

TEST REQUIREMENT:

Reference values shall be at points of operation readily duplicated during subsequent inservice testing. (OM-6 Part 4.3)

BASIS FOR RELIEF:

The Component Cooling Water (CCW) pumps circulate CCW through the component cooling loops to meet or exceed the minimum required cooling flows to in service components. The CCW pumps provide cooling to systems where throttling for the purpose of testing can lead to undesirable thermal transients on critical operating equipment.

In order to strictly adhere to the OM-6 code requirements to test the CCW pumps at a fixed flow each time, valves controlling flow to operating equipment would need to be adjusted. In order to minimize the need to adjust these valves, the IST test allows for the measured pump flow to vary over the range of the pump curve to allow for expected variations in system alignments/operating conditions from test to test. In developing the pump curves used in the test, the following elements were used:

- 1. The pump curves were developed or the manufacturer's pump curve validated when the pumps were known to operate acceptably.
- 2. The instruments used either met or exceeded the Code required accuracy.
- 3. A minimum of 5 points were used to construct the pump reference curve.
- 4. The constructed curve uses a range of flows which encompasses the normally expected flow.
- 5. The acceptance criteria established does not conflict with the operability criteria for flow rate and differential pressure in technical specifications or the facility safety analysis report.
- 6. Review of the vibration data trend plots indicates that the change in vibration readings over the range of the pump curve being used is insignificant and thus only one fixed reference value has been assigned for each vibration location.
- 7. After any maintenance or repair that may affect the existing reference pump curve, a new reference pump curve shall be determined or the existing pump curve revalidated by an inservice test.

RELIEF REQUEST NO. PR-6 (continued)

ALTERNATE TESTING:

During pump reference tests when the pump is known to be operable, a reference pump curve may be established or the manufacturer's pump curve confirmed as discussed in the Basis For Relief. In subsequent tests, a flowrate (Qa) will be obtained and recorded along with the corresponding differential pressure (dPa). The differential pressure value (dPa) will then be compared to a reference differential pressure obtained from the reference pump curve using measured flowrate (Qa).

RELIEF REQUEST NO. PR-7

PUMPS:

Residual Heat Removal; Pump Nos. RHR-31 and RHR-32

TEST REQUIREMENT:

Reference values shall be at points of operation readily duplicated during subsequent inservice testing. (OM-6 Part 4.3)

BASIS FOR RELIEF:

The Residual Heat Removal (RHR) pumps circulate RCS water through the RHR system during plant cooldown, cold shutdown and refueling operations. The RHR pumps provide emergency core cooling during the injection phase of a LOCA and provide backup to the recirculation pumps during the recirculation phase of a LOCA. During plant shutdown, throttling RHR flow for testing creates unacceptable core cooling and mixing complications. When the plant is not in a shutdown condition, RHR pump testing is performed through a miniflow path at a fixed resistance reference point.

In order to strictly adhere to the OM-6 code requirements to test the RHR pumps at a fixed flow each time, valves controlling shutdown cooling flow would need to be adjusted. In order to minimize the need to adjust these values, the IST test allows for the measured pump flow to vary over the range of the pump curve to allow for expected variations in system alignments/operating conditions from test to test. In developing the pump curves used in the test, the following elements were used:

- 1. The pump curves were developed or the manufacturer's pump curve validated when the pumps were known to operate acceptably.
- 2. The instruments used either met or exceeded the Code required accuracy.
- 3. A minimum of 5 points were used to construct the pump reference curve.
- 4. The constructed curve uses a range of flows which encompasses the normally expected flow.
- 5. The acceptance criteria established does not conflict with the operability criteria for flow rate and differential pressure in technical specifications or the facility safety analysis report.
- 6. Review of the vibration data trend plots indicates that the change in vibration readings over the range of the pump curve being used is insignificant and thus only one fixed reference value has been assigned for each vibration location.
- 7. After any maintenance or repair that may affect the existing reference pump curve, a new reference pump curve shall be determined or the existing pump curve revalidated by an inservice test.

RELIEF REQUEST NO. PR-7 (continued)

ALTERNATE TESTING:

During pump reference tests when the pump is known to be operable, a reference pump curve may be established or the manufacturer's pump curve confirmed as discussed in the Basis For Relief. In subsequent tests, a flowrate (Qa) will be obtained and recorded along with the corresponding differential pressure (dPa). The differential pressure value (dPa) will then be compared to a reference differential pressure obtained from the reference pump curve using measured flowrate (Qa). Curve comparison will be used only when the plant is in a cold shutdown or cooldown configuration.

RELIEF REQUEST NO. PR-8

<u>PUMPS</u>

All pumps in the Program.

TEST REQUIREMENT

Acceptance criteria requirements of OMa-1988, Part 6 paragraph 6.1.

BASIS FOR RELIEF

OM Part 6 requires doubling of test frequency or declaring a pump inoperable upon reaching the Alert or Required Action Ranges, respectively. In some cases, where a pump has sufficient excess margin to its safety analysis limits and data trending and analysis only indicate a gradual decrease in pump performance, the requirements of OM Part 6 may result in taking unnecessary corrective action.

Paragraph ISTB 4.6 of the 1995 ASME OM Code allows the ability to perform an analysis of the pump and establish new reference values. Paragraph ISTB 6.2.2 states that 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 corrected, or an analysis of the pump is performed and new reference values are established in accordance with Paragraph ISTB 4.6. Paragraph ISTB 4.6 requires that the analysis 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.

Paragraph ISTB 6.2.1 states that if the measured test parameter values fall within the alert range...the frequency of testing specified in paragraph ISTB 5.1 shall be doubled until the cause of the deviation is determined and the condition is corrected. Paragraph ISTB 4.6 allows a new set of reference values to be established when a pump's parameters are in either the alert or required action ranges using the analysis discussed above.

If an analysis, in accordance with paragraph ISTB 4.6, supports establishing new reference values in lieu of correcting the condition, then using the requirements of ISTB 4.6 as an alternative to OM(6)-6.1 would provide an acceptable level of quality and safety.

Note: Where ISTB 4.6, ISTB 6.2.1 and ISTB 6.2.2 refer to ISTB tables, OM(6) Table 3 would be inserted. All references to ISTB in the preceding paragraphs refer to the 1995 ASME OM Code.

ALTERNATE TESTING

If supported by an analysis that meets the requirements of ISTB 4.6, corrective action may be to establish new reference values for pumps which fall within the alert or action ranges.

4.0 TESTING PROGRAM FOR VALVES

4.1 General

4.1.1 Code

This IST Program Plan for valves meets the requirements of ASME/ANSI OM-10. Where these requirements are determined to be impractical, specific requests for relief are included in Section 4.2.

4.1.2 Valve Program Table

Appendix B lists the valves included in the IST Program. Data contained in this table identifies those valves subject to inservice testing with the respective descriptive information, test requirements, test intervals, and applicable remarks and references to relief requests.

4.1.3 Deferred Testing

When one value in a redundant train is determined to be inoperable, non-redundant values in the other train may not be tested, as required by procedures and this Program, but may be exercised after the inoperable value is returned to service.

4.1.4 Testing Intervals

The test frequency for valves in the Program will be as set forth in Appendix B and associated relief requests. The frequency of "Refueling" is defined as an outage which includes core alterations. An allowable band of +25 percent of the test interval may be applied to the testing schedule, as needed, to provide necessary operational flexibility.

4.1.5 Cold Shutdown Testing

For those valves designated to be tested during cold shutdown, testing will commence within 48 hours after reaching the cold shutdown condition as defined in the IP3 Technical Specifications. Testing not completed before startup may be completed during subsequent cold shutdown outages. Valve testing need not be performed more often than once every three (3) months. In the case of an extended cold shutdown, the testing need not be started within 48 hours; however, in this instance all valves must be tested prior to startup.

4.1.6 Position Indication Testing

For those valves with remote position indicators, tests will be performed to ensure the indication correctly reflects actual valve position in accordance with the requirements of OM-10, Section 4.1.

4.1.7 Fail-Safe Testing

When the normal methods for exercising power-operated valves also tests the failsafe functions of these valves, no additional testing is required.

4.1.8 Stroke Time Evaluation

Where stroke time measurement of power-operated valves is required, maximum allowable stroke times will be established based on test history, manufacturer's specifications, FSAR analyses, technical specifications, and engineering judgement. Generally, the most limiting value will determine the limit. Measured stroke times will be evaluated and corrective actions taken in accordance with OM-10, Section 4.2.1.9 except where relief is granted.

4.1.9 Check Valve Disassembly

When a check valve is disassembled in lieu of exercising (as documented in the program plan), the inspection shall include verification of freedom of motion. In addition, prior to returning a check valve to service following disassembly, it will be subjected to a partial flow test.

4.2 Relief Requests for Valve Testing

The following pages in this section include relief request VR-1 for IST valve testing.

RELIEF REQUEST NO. VR-1

<u>SYSTEM:</u>

Safety Injection (Dwg. No. ISI-27353)

VALVE:

857A, 857G, 857Q, 857R, 857S, 857T, 857U and 857W

CATEGORY:

A/C

FUNCTIONS:

These valves provide a flow path for the high-head safety injection system to the reactor coolant loops and prevent over-pressurization of the safety injection system piping and components.

REQUIREMENTS:

Category A valves shall be leak tested per OM-10 Section 4.2.2.

BASIS FOR RELIEF:

The Indian Point 3 Technical Specifications, Section 4.5.B.2.c, requires leak testing of these check valves due to the potential of over-pressurization of the safety injection system (Event V scenario). To ensure that this does not occur, and in accordance with NRC letter dated February 1980, Subject: Event V Scenario, only two valves in series require testing. Due to difficulties with testing a single valve in these cases, it has been decided to test the inner valve individually and the outer two valves as a pair (considering the inner valve as a barrier and the outer two as a barrier). This relief applies only to the outer two valves which will be tested as a pair due to the man rem exposure levels associated with performing the test. The valves, which are in a high heat and radiation environment, require a difficult series of making and breaking connections to "jumper" high pressures over the inner check valve(s). The two barriers (one inner check valve and two outer check valves) are to be provided with individual leak tests.

ALTERNATE TESTING:

These valve pairs will be leak tested as a pair with the resulting leakrate evaluated as if a single valve were tested. The inner check valves in each of the four flow paths from the reactor coolant system (897A, 897B, 897C, and 897D) will be individually leak tested.

INSERVICE TESTING PROGRAM #8

Appendix A

SUMMARY INSERVICE TESTING PROGRAM - PUMPS -

Appendix A: Summary-Inservice Testing Program - Pumps

<u>LEGEND</u>

Notation used in the pump summary table is as follows:

Pump Pump identification number.

Description Functional name of the pump.

ISI Class Inservice inspection classification of the pump.

Dwg. No. IP3 drawing number referring to the particular pump of interest. (See drawing list in Appendix B.)

Parameters

Refers to the test quantities to be measured or observed. When the character "Y" appears under a specific parameters then that measurement is made for that pump in accordance with the Code. A reference to a relief request accompanying the "Y" indicates some deviation from Code requirements. If the character "N" appears, that particular parameter will not be measured or observed and a relief request is provided if required. Requests for relief are identified as "PR-XX". All relief requests are included in Section 3.2.

Test Interval

The respective frequency of testing for each pump. The letter "Q" denotes a quarterly interval and "R" an interval such that tests are performed during each refueling outage.

IST Relief Request

Refers to any relief request not identified in parameter section.

PFM-22A REV. 5 IST Pump Tables

		IST		IST Req Speed	IST Req Inlet Press	IST Req Diff Press	IST Req Flow	IST Req	IST Req Brg Temp	IST Test	IST Relief
Pomp	Description	Class	Drwg No.	Meas.	Meas.	Meas.	Meas.	Vib Meas.	Meas.	Interval	Request
ACC-31	AUX. COMPONENT COOLING PUMP #31	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	
ACC-32	AUX. COMPONENT COOLING PUMP #32	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	
ACC-33	AUX. COMPONENT COOLING PUMP #33	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	
ACC-34	AUX. COMPONENT COOLING PUMP #34	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	
ACC-CW-31	SIS PUMP CIRC WATER PUMP #31	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	PR-5
ACC-CW-32	SIS PUMP CIRC WATER PUMP #32	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	PR-5
ACC-CW-33	SIS PUMP CIRC WATER PUMP #33	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	PR-5
ACC-SFP-31	SPENT FUEL PIT COOLING PUMP #31	3	ISI 27513-2	NA	Y	Y	Y	Y	N	Q	
ACC-SFP-32	SPENT FUEL PIT COOLING PUMP #32	3	ISI 27513-2	NA	Y	Y	Y	Y	N	Q	
AFW-31	MOTOR-DRIVEN AUX FEED PUMP #31	3	ISI 20193	NA	Y	Y	Y	Y	N	Q	
AFW-32	TURBINE-DRIVEN AUX FEED PUMP #32	3	ISI 20193	Y	Y	Y	N/Y	Y	N	Q/R	PR-2
AFW-33	MOTOR-DRIVEN AUX FEED PUMP #33	3	ISI 20193	NA	Y	Y	Y	Y	N	Q	
BATP-31	BORIC ACID TRANSFER PUMP #31	NC	ISI 27363	NA	Y	Y	Y	Y	N	Q	
BATP-32	BORIC ACID TRANSFER PUMP #32	NC	ISI 27363	NA	Y	Y	Y	Y	N	Q	
NLA TOT A											

Note : PR-4 and PR-8 applies to all pumps.

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PFM-22A REV. 5 IST Pump Tables

				IST Req	IST Req Inlet	IST Req	IST Req.		IST Req		
Pump	Description	IST Class	Drwg No.	Speed Meas	Press Meas	Diff Press Meas	Flow	IST Req.	Brg Temp	IST Test	IST Relief
CCW-31	COMPONENT COOLING PUMP #31	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	PR-6
CCW-32	COMPONENT COOLING PUMP #32	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	PR-6
CCW-33	COMPONENT COOLING PUMP #33	3	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	PR-6
CS-31	CONTAINMENT SPRAY PUMP #31	2	ISI 27503	NA	Y	Y	Y	Y	N	Q	
CS-32	CONTAINMENT SPRAY PUMP #32	2	ISI 27503	NA	Y	Y	Y	Y	N	Q	
CVCS-31	CHARGING PUMP #31	NC	ISI 27363	Y	Y	Y	Y	Y	N	0	
CVCS-32	CHARGING PUMP #32	NC	ISI 27363	Y	Ŷ	Ŷ	Y	Y	N		
CVCS-33	CHARGING PUMP #33	NC	ISI 27363	Y	Y	Y	Y	v	N	0	
REC-31	RECIRCULATION PUMP #31	2	ISI 27353	NA	Ŷ	Y	Ň	Y	N	R R	
REC-32	RECIRCULATION PUMP #32	2	ISI 27353	NA	Y	Y	N	Ŷ	N	R	
RHR-31	RESIDUAL HEAT REMOVAL PUMP #31	2	ISI 27513-1	NA	Y	Y	Y	Ŷ	N	Q	PR-7*
RHR-32	RESIDUAL HEAT REMOVAL PUMP #32	2	ISI 27513-1	NA	Y	Y	Y	Y	N	Q	PR-7*
SIS-31	SAFETY INJECTION PUMP #31	2	ISI 27503	NA	Y	Y	Y	v	N	0	
SIS-32	SAFETY INJECTION PUMP #32	2	ISI 27503	NA	Ŷ	Y	Y	Y	N	0	
SIS-33	SAFETY INJECTION PUMP #33	2	ISI 27503	NA	Ŷ	Ŷ	Ŷ	Y	N	0	
SWN-31	SERVICE WATER PUMP #31	3	ISI 20333-1	NA	Ŷ	Ŷ	· Y	Y	N	0	DD_1
SWN-32	SERVICE WATER PUMP #32	3	ISI 20333-1	NA	Y	Ŷ	Ŷ	v	N	0	DD 1
SWN-33	SERVICE WATER PUMP #33	3	ISI 20333-1	NA	Ŷ	Y	Y	Y	N	0	DD_1
SWN-34	SERVICE WATER PUMP #34	3	ISI 20333-1	NA	Y	Y	Y	· Y	N	<u>×</u>	DP_1
SWN-35	SERVICE WATER PUMP #35	3	ISI 20333-1	NA	Y	Y	Y	· Y	N	× · · ·	DD_1
SWN-36	SERVICE WATER PUMP #36	3	ISI 20333-1	NA	Y	Y	Ŷ	Y	N	<u>×</u>	PR-1

* RHR pump testing performed using a reference pump curve when plant is in a cold shutdown or cooldown configuration.

Appendix B

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SUMMARY INSERVICE TESTING PROGRAM - VALVES -

Reference Drawings

System	Page
Main Steam	B-4
Condensate and Boiler Feed Pump Suction	B-7
Boiler Feedwater	B-9
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Steam Generator Blowdown	B-31
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Personnel Airlock/ Equip. Hatch	B-61
	System Main Steam Condensate and Boiler Feed Pump Suction Boiler Feedwater Condenser Air Removal and Water Box Priming Service Water Station Air Instrument Air Main Steam Traps Post-Accident Containment Sample/Containment Vent Waste Disposal Auxiliary Coolant Service Water Nitrogen To Nuclear Equipment Demineralized Water Steam Generator Blowdown Steam Generator Blowdown Safety Injection, Sheet 1 Chemical and Volume Control Sampling IVSW Reactor Coolant, Sheet 2 Safety Injection, Sheet 1 Chemical and Volume Control Sampling IVSW Reactor Coolant, Sheet 2 Auxiliary Coolant, Sheet 2 <tr< td=""></tr<>

Appendix B: Summary-Inservice Testing Program - Valves

LEGEND

Notation used in the valve summary table is as follows:

Valve No. The valve alpha-numerical identification.

System The system in which the valve is installed.

Dwg. No./Coord. Drawing number and drawing coordinate locator for the valve.

Description Functional description of each valve.

Class/Cat ISI classification/IST category

Size

Туре

The valve type as follows:

The nominal valve size in inches.

AOC **Air-operated Control** Air-Assisted Check Valve AOCK BU **Butterfly** СК Check DA Diaphram GA Gate GL Globe MSC Manual stop-check Safety/relief SF

Actuator

The valve actuator type as follows:

- AO Air-operated
- MA Manual
- MO Motor-operated
- SA Self-actuated SO Solenoid

Position Refers to the normal position of the valve during plant operation at power - open or closed.

Appendix B: Summary-Inservice Testing Program - Valves

LEGEND (Cont.)

Reqm't Test requirer	nent as follows:
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- A-X Denotes augmented test requirement - not specifically required for Code compliance.
- EC Full-stroke exercise to the closed position.
- ĒČ-HW Denotes exercise close of stop check valve or power-operated valve using an installed handwheel.
- Full-stroke exercise to open position. EO
- FST-C Fail-safe test to the closed position.
- FST-O Fail-safe test to the open position.
- LT-1 Leakage test in accordance with 10 CFR 50. Appendix J.
- LT-2 Leakage test - intersystem LOCA
- LT-3 PEO Leakage test - non-Appendix J and non-intersystem LOCA
- Partial-stroke exercise to open position
- PIT Remote position indication verification
- SP Setpoint test of safety/relief valves
- VI Visual inspection of valve internals.
- Non-Intrusive Test NI

Freq The required test interval as follows:

- OP Quarterly during plant operation.
- CS Cold shutdown. See Paragraph 4.1.5.
- RR During reactor refueling outage (outages involving core alterations).
- 1.5Y Every one and one half years
- 2Y Every two years
- 5Y Every 5 years
- Refers to the test period for testing safety/ relief valves 10 10Y vears
- **Relief Rea** Relief Requests are designated VR-XX. Refer to Section 4.2 for relief requests. Cold Shutdown justifications are designated CSJ-Refer to Appendix C for cold shutdown justifications. XX. Refueling Outage justifications are designated ROJ-XX. Refer to Appendix D for refueling outage justifications.

Notes Specific notes are provided at the end of Appendix B.

PFM-22A REV. 5 IST PROGRAM #8

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
MS-1-31	MS	ISI-20173	#31 Steam Generator Main Steam	2(B)	28	AOCK	AO	0	EC	CS	CSJ-1	
		(F7)	Isolation						FST-C	CS	CSJ-1	
MS 1 22		101.00170	////						PIT	2Y		
1013-1-52	MS	181-20173	#32 Steam Generator Main Steam	2(B)	28	AOCK	AO	0	EC	CS	CSJ-1	
		(H/)	Isolation	1					FST-C	CS	CSJ-1	
MS-1-33	MS	181.00172	#22 Gt		<u> </u>				PIT	2Y		
1010-1-55	1010	151-20175	#33 Steam Generator Main Steam	2(B)	28	AOCK	AO	0	EC	CS	CSJ-1	
		(E/)	Isolation	1	j				FST-C	CS	CSJ-1	
MS-1-34	MS	ISI 20172	#24 Starry Constants Md in St						PIT	2Y		
1010 1-54	IVIS	(D7)	Holetion	2(B)	28	AOCK	AO	0	EC	CS	CSJ-1	
		(1)7)							FST-C	CS	CSJ-1	
MS-2-31	MS	ISI-20173	#31 Steam Generator Main Steam Ner	2(0)	-	CIV	<u> </u>		PIT	2Y		
		(F7)	Return Check	2(U)	28	CK	SA	0	A-EC	CS	CSJ-2	
MS-2-32	MS	ISI-20173	#32 Steam Generator Main Steam Non-	2(C)	28	CK	SA	0	A-EC	CS	CSJ-2	
		(H7)	Return Check									
MS-2-33	MS	ISI-20173	#33 Steam Generator Main Steam Non-	2(C)	28	СК	SA	0	A-EC	CS	CSJ-2	
		(E7)	Return Check									
MS-2-34	MS	ISI-20173	#34 Steam Generator Main Steam Non-	2(C)	28	CK	SA	0	A-EC	CS	CSJ-2	
		(D7)	Return Check									
MS-41	MS	ISI-20173	#32 Aux. Boiler Feedpump Steam	2(C)	4	MSC	SA	С	PEO	OP		
		(F8)	Supply From #32 Main Steam Line						EO	2Y	ROJ-1	
									EC-HW	OP	-	
MS 42	MC	191 20172							EC-VI	RR	ROJ-1	
1013-42	MS	151-20173	#32 Aux. Boiler Feedpump Steam	2(C)	4	MSC	SA	C	PEO	OP		
		(F/)	Supply From #33 Main Steam Line						EO	2Y	ROJ-1	
									EC-HW	OP		
MS-45-1	MS	ISI-20173	#31 Steam Concreter Main Steam Sector	2(0)					EC-VI	RR	ROJ-1	
	1410	(F8)	Relief Volvo	2(C)	6	SF	SA	С	SP	5Y		
MS-45-2	MS	ISI-20173	#32 Steam Generator Main Steam Safety	2(0)	6	017	0.4		CD			
		(H8)	Relief Valve	2(0)	0	Sr	SA	0	SP	SY		
MS-45-3	MS	ISI-20173	#33 Steam Generator Main Steam Safety	2(0)	6	SE .	<u> </u>	<u> </u>	SD	5.77		
		(E8)	Relief Valve	2(0)		J.	SA	C	Sr	JY		
MS-45-4	MS	ISI-20173	#34 Steam Generator Main Steam Safety	2(C)	6	SF	SA	C	SP	5V		
		(D8)	Relief Valve	= \ *)	- [~	571	~		- I		

PFM-22A REV. 5 IST PROGRAM #8

		Drwg				1				1	Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
MS-46-1	MS	ISI-20173	#31 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
N/S // 2) (0	<u>(F8)</u>	Relief Valve									
IVIS-46-2	MS	ISI-20173	#32 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
16 16 2) (2	<u>(H8)</u>	Relief Valve								1	
IVIS-46-3	MS	ISI-20173	#33 Steam Generator Main Steam Safety	2(C)	6	SF	SA	C	SP	5Y		
		<u>(E8)</u>	Relief Valve									
MS-46-4	MS	ISI-20173	#34 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
10.17.1		(D8)	Relief Valve									
MS-47-1	MS	ISI-20173	#31 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
10.17.0		<u>(F7)</u>	Relief Valve									
MS-47-2	MS	ISI-20173	#32 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
10.15.0		(H7)	Relief Valve									
MS-47-3	MS	ISI-20173	#33 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y	1	
10.15		(E7)	Relief Valve									
MS-47-4	MS	ISI-20173	#34 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
		(D7)	Relief Valve									
MS-48-1	MS	ISI-20173	#31 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
1 (2) (2) 2		(F7)	Relief Valve									
MS-48-2	MS	ISI-20173	#32 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
16.40.0		(H7)	Relief Valve									
MS-48-3	MS	ISI-20173	#33 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
		<u>(E7)</u>	Relief Valve				Í					
MS-48-4	MS	ISI-20173	#34 Steam Generator Main Steam Safety	2(C)	6	SF	SA	С	SP	5Y		
10.10.1		(D7)	Relief Valve									
MS-49-1	MS	ISI-20173	Main Steam Safety Relief Valve	2(C)	6	SF	SA	С	SP	5Y		
		<u>(F7)</u>										
MS-49-2	MS	ISI-20173	Main Steam Safety Relief Valve	2(C)	6	SF	SA	С	SP	5Y		
2 (0, 10, 0		<u>(H7)</u>										
MS-49-3	MS	ISI-20173	Main Steam Safety Relief Valve	2(C)	6	SF	SA	С	SP	5Y		
		<u>(E7)</u>										
MS-49-4	MS	ISI-20173	Main Steam Safety Relief Valve	2(C)	6	SF	SA	С	SP	5Y		·····
1 (0, 50		(D7)										
MS-52	MS	ISI-20173	#32 ABFP Steam Pressure Reducing	3(C)	4	SF	SA	С	SP	10Y		
DOVIN		(H6)	Staion Relief									
PCV-1134	MS	ISI-20173	#31 Steam Generator Main Steam	2(B)	6	GL	AO	С	EO	CS	CSJ-3	
		(F7)	Atmospheric Relief Valve						ec l	CS	CSJ-3	
									FST-C	CS	CSJ-3	
				[PIT	$2\mathbf{v}$		
Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Req	Notes
-----------	--------	-------------------	-------------------------------------	-----------	------	----------	----------	----------	--------	------	---------------	-------
PCV-1135	MS	ISI-20173	#32 Steam Generator Main Steam	2(B)	6	GL	AO	C	EO	CS	CSJ-3	
		(G7)	Atmospheric Relief Valve						EC	CS	CSJ-3	
									FST-C	CS	CSJ-3	
PCV-1136	MS	181 20172	#22 Starry Course 1 1 1						PIT	2Y		
10,-1150	OTAL	(E7)	#55 Steam Generator Main Steam	2(B)	6	GL	AO	С	EO	CS	CSJ-3	
		(E7)	Almospheric Relief Valve						EC	CS	CSJ-3	
				1					FST-C	CS	CSJ-3	
PCV-1137	MS	ISI 20173	#24 Stoom Congrature Main Store			<u> </u>			PIT	2Y		
101-1157	1410	(D7)	#34 Steam Generator Main Steam	2(B)	6	GL	AO	C	EO	CS	CSJ-3	
		(D7)	Aunospheric Relief Valve						EC	CS	CSJ-3	
									FST-C	CS	CSJ-3	
PCV-1139	MS	ISI 20172	#22 Anny Fred Dress Star O + 1						PIT	2Y		
	1013	131-20173	#32 Aux. Feed Pump Steam Control	3(B)	3	AOC	AO	С	EO	OP		
		(по)							EC	OP		
]]					FST-O	OP		
PCV-13104	MS	ISI 20172	Main Stoom Sun-laste #22 Arrow Fred			~ .			PIT	2Y		
101 10104	1010	131-20173	Draw Draw L. 1 4	2(B)	4	GA	AO	0	EC	OP		
PCV-1310B	MS	<u>ISL-20173</u>	Main Steam Supply to #22 Arms Fred	100					PIT	2Y		
· 1510D	1410	(66)	Pump Doom Japlation	3(B)	4	GA	AO	0	EC	OP		
	I.	(00) 1	rump Koom isolation						PIT	2Y		

Valve No.	System	Drwg No/Coor	Becomption	C1							Relief	
1158-1			Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	l Req	Notes
1150-1	COND	(D7)	Condensate Storage Tank Low-Level	3(B)	12	BU	AO	0	EC	CS	CSJ-4	
			Isolation valve						FST-C	CS	CSJ-4	
1158-2		ISI-20183	Condensate Storage Tank Law Level	NC(D)		DIX			PIT	2Y		
		(D_{-7})	Usolation Valvo	NC(B)	12	BO	AO	0	A-EC	CS	CSJ-5	
									A-FST-C	CS	CSJ-5	
CT-107	COND	ISI-20183	CST Return Line Isolation Check	2(0)	<u> </u>		<u></u>		A-PIT	2Y		
	COND	(F6)	COT Return Entersoration Check	3(C)	б	CK	SA	0	EC	cs	CSJ-6	
CT-26	COND	ISI-20183	#31 Aux, Feed Pump Suction From CST	3(())	6	CV	S A					
		(E7)		5(0)			SA	C	FEO		0017	
									EO	US DV	CSJ-/	
CT-28	COND	ISI-20183	#32 Aux, Feed Pump City Water Supply	NC(C)	6	CK	<u></u>	C	A DEO	$\frac{2Y}{2Y}$	ROJ-2	
		(F7)	Check		0	CK	SA	C	A-FEU			
CT-29-1	COND	ISI-20183	#31 Aux. Feed Pump City Water Supply	NC(C)	6	CK	SA	C	A-PEO	22	<u> </u>	
		(F7)	Check		Ű	OIL	571	C		21		
CT-29-2	COND	ISI-20183	#32 Aux. Feed Pump Suction From CST	3(C)	8	СК	SA	C	PEO	OP		
		(F7)						-	EO	2Y	ROL3	
									EC	$2\mathbf{v}$	ROL2	
CT-31	COND	ISI-20183	#33 Aux. Feed Pump City Water Supply	NC(C)	6	СК	SA	С	A-PEO	2Y	1052	
<u></u>		<u>(E7)</u>	Check									
CT-32	COND	ISI-20183	#33 Aux. Feed Pump Suction From CST	3(C)	6	CK	SA	С	PEO	OP		
		(E7)							EO	CS	CSJ-7	
OT as 1									EC	2Y	ROJ-2	
CI-35-1	COND	ISI-20183	#33 AFW Pump Suction Relief	3(C)	3/4	SF	SA	С	SP	10Y	1	
CT 25 2		<u>(E8)</u>	101									
C1-33-2	COND	181-20183	#31 AFW Pump Suction Relief	3(C)	3/4	SF	SA	С	SP	10Y	1	
CT-6	CONT	(<u>E8</u>)	COT 9 1 / A D 1D									
01-0	COND	151-20183	CST Supply to Aux. Feed Pumps	3(B)	12	BU	MA	0	PIT	2Y		Passive
CT-64	COND	<u>ISI-20183</u>	CST Supply to Any Food During	200		~ ~ ~						
	COND	(F7)	Isolation	3(B)	8	GA	MA	0	PIT	2Y		Passive
CT-85-1	COND	ISI-20183	#31 Auviliary Feed Pump Poter Thrust	2(D)	1.1/2				70	0.7		
	COND	(F8)	Balancing Check	3(B)	1 1/2	CK	SA	С	EO	OP		
CT-85-2	COND	ISI-20183	#32 Auxiliary Feed Pump Rotor Thrust	3(B)	1 1/2	CV	<u> </u>		ro	0.0		
		(F8)	Balancing Check	J(D)	1 1/2	CK	SA	U I	EU	OP		
PCV-1187	COND	ISI-20183	#31 AFWP City Water Makeup Isolation		6	GA	40		FO	22	POL 4	
		(F7)			Ŭ	011				21 2V	х∪ј-4	

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Req	Notes
PCV-1188	COND	ISI-20183 (F7)	#32 AFWP City Water Makeup Isolation	3(B)	8	GA	AO	С	EO PIT	2Y 2Y	ROJ-4	
PCV-1189	COND	ISI-20183 (E7)	#33 AFWP City Water Makeup Isolation	3(B)	6	GA	AO	С	EO PIT	2Y 2Y 2Y	ROJ-4	

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
BFD-2-31	FW	ISI-20193	#31 Boiler Feed Pump Discharge MOV	NC	20	GA	MO	0	A-EC	RR	T	
DED 2 22	DIV	(G3)							A-PIT	2Y		
BFD-2-32	FW	ISI-20193	#32 Boiler Feed Pump Discharge MOV	NC	20	GA	MO	0	A-EC	RR		
DED 21	T 17 7 7	<u>(F3)</u>		L					A-PIT	2Y		
BFD-31	FW	ISI-20193	#32 Aux. Feed Pump Discharge Check	3(C)	6	CK	SA	С	EO	2Y	ROJ-5	
DED 24		<u>(B5)</u>							PEO	CS	CSJ-9	
DrD-34	ΓW	ISI-20193	#31 Aux. Feed Pump Discharge Check	3(C)	4	CK	SA	С	EO	CS	CSJ-8	
RED 25	L.M.	(B5)										
DrD-35	ΓW	181-20193	#31 Aux. Feed Pump Flow Control	3(C)	3	CK	SA	С	EO	CS	CSJ-10	
BED 37	EW	<u>(B7)</u>	Valve Discharge Check						EC	2Y	ROJ-6	
Dr D- 37	rw	151-20193	#31 Aux. Feed Pump Flow Control	3(C)	3	СК	SA	С	EO	CS	CSJ-10	
BED-30	EW	<u>(B/)</u>	Valve Discharge Check						EC	2Y	ROJ-6	
D1 D-33	гw	151-20193	#33 Aux. Feed Pump Discharge Check	3(C)	4	CK	SA	С	EO	CS	CSJ-8	
BFD-40	FW	<u>(B0)</u>										
	ĨŴ	(D4)	Walas Discharge Cl. 1	3(C)	3	CK	SA	С	EO	CS	CSJ-10	
BFD-42	FW	(DO) ISL 20103	#22 Any Food During Flow Control	0(0)					EC	2Y	ROJ-6	
~~		(B6)	Welve Discharge Chash	3(C)	3	СК	SA	С	EO	CS	CSJ-10	
BFD-47-1	FW	ISL-20193	#32 Aux East Pump Flow Control	2(0)			~ ~ ~		EC	<u>2Y</u>	ROJ-6	
		(B4)	Welve Discharge Check	3(C)	3	CK	SA	С	EO	2Y	ROJ-5	
		(D4)	Varve Discharge Check						EC	CS	CSJ-11	
BFD-47-2	FW	ISI-20193	#32 Aux Feed Pump Flow Control	2(0)		CITZ			PEO	CS	CSJ-9	
	1 11	(B3)	Walve Discharge Check	3(0)	3	CK	SA	С	EO	2Y	ROJ-5	
		(15)	varve Discharge Check			ľ			EC	CS	CSJ-11	
BFD-47-3	FW	ISI_20193	#32 Aux Food Pump Flow Control	2(0)		au			PEO	CS	CSJ-9	
	1 11	(B3)	Valva Dizaharga Chash	3(C)	3	CK	SA	С	EO	2Y	ROJ-5	
		(03)	varve Discharge Check						EC	CS	CSJ-11	
BFD-47-4	FW	ISI-20103	#32 Aux Food Dump Flow Control	2(0)			~ .		PEO	CS	CSJ-9	
	1 **	(P)	Walve Discharge Charl	3(C)	3	CK	SA	C	EO	2Y	ROJ-5	
		(62)	valve Discharge Check						EC	CS	CSJ-11	
BFD-50	FW	ISI 20102	#22 Aug Eaged During Min El Cl. 1						PEO	CS	CSJ-9	
512 50	1 **	(B4)	#32 Aux. Feed Pump Min. Flow Check	3(C)	3	CK	SA	C	EO	OP		
BFD-52	FW	ISI-20193	#31 Aux. Feed Pump Min. Flow Check	3(C)	2	CK	SΔ	<u> </u>	FO			
		(A7)			-		0/1					
BFD-54	FW	ISI-20193	#33 Aux. Feed Pump Min. Flow Check	3(C)	2	СК	SA	C	EO	OP		
		(A8)	-	Ì,			~~~	~ .		~.		

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
BFD-6-1	FW	ISI-20193	#31 Steam Generator Feedwater Supply	2(C)	18	СК	SA	0	EC	CS	CSJ-12	
DED CO		(D7)	Check									
BrD-6-2	FW	ISI-20193	#32 Steam Generator Feedwater Supply	2(C)	18	CK	SA	0	EC	CS	CSJ-12	
		<u>(E7)</u>	Check									
BFD-6-3	FW	ISI-20193	#33 Steam Generator Feedwater Supply	2(C)	18	CK	SA	0	EC	CS	CSJ-12	
DED ()		<u>(G7)</u>	Check									
BFD-6-4	FW	ISI-20193	#34 Steam Generator Feedwater Supply	2(C)	18	CK	SA	0	EC	CS	CSJ-12	
DED CZ		<u>(F7)</u>	Check									
BrD-6/	FW	ISI-20193	Aux. Feed Pump Discharge To #32	2(C)	4	CK	SA	С	EO	CS	CSJ-13	
DED (9	THE R	<u>(E8)</u>	Steam Generator Check						EC	OP		
DFD-08	FW	ISI-20193	Aux. Feed Pump Discharge To #31	2(C)	4	CK	SA	С	EO	CS	CSJ-13	
PED (0		(D8)	Steam Generator Check						EC	OP		
DLD-0A	ΓW	ISI-20193	Aux. Feed Pump Discharge To #33	2(C)	4	CK	SA	С	EO	CS	CSJ-13	
PED 70		<u>(G8)</u>	Steam Generator Check						EC	OP		
DrD-70	FW	ISI-20193	Aux. Feed Pump Discharge To #34	2(C)	4	СК	SA	С	EO	CS	CSJ-13	
CD 122	ENV.	(F8)	Steam Generator Check						EC	OP		
CD-122	rw	181-20193	#32 Aux. Feedwater Pump Bearing	3(C)	2	CK	SA	С	EO	OP		
CD-123	EW	(<u>B4</u>)	Cooling Discharge Check									
0.0-125	r w	151-20193	#32 Aux. Feedwater Pump Bearing	3(C)	3	SF	SA	С	SP	10Y		
FCV-1121	FW	(B4)	Cooling Relief									
107-1121	1. AA	131-20193	#31 Aux. Feed Pump Recirculation	3(B)	2	GA	AO	С	EO	OP		
		(A7)	Control to the CST						EC	OP		
									FST-C	OP		
FCV-1123	FW	IST 20102	#22 Ann Fact D. D. 1.1						PIT	2Y		
101-1125	гvv	151-20195	#33 Aux. Feed Pump Recirculation	3(B)	2	GA	AO	C	EO	OP		
ĺ		(A8)	Control to the CS1						EC	OP		
									FST-C	OP		
FCV-405A	FW	181 20102	#22 Arm Fred D						PIT	2Y		
ICV-405A	I' VV	131-20193	#32 Aux. Feed Pump 10 #31 S/G Feed	3(B)	2	GL	AO	С	EO	OP		
		(B3)	Control						EC	OP		
FCV 405P	EW	191 20102	1/22 A E 1D E 1/22 2/2 7 1						FST-O	OP		
ICV-403D	rw	151-20193	#32 Aux. Feed Pump To #32 S/G Feed	3(B)	2	GL	AO	C	EO	OP		
		(B3)	Control	1					EC	OP		
FCV ADEC	THE	TOL OOLOO	//00 h						FST-O	OP		
107-4030	rw	151-20193	#32 Aux. Feed Pump To #33 S/G Feed	3(B)	2	GL	AO	C	EO	OP 🗍		
		(B4)	Control				ł	j	EC	OP		
									FST-O	OP		

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
FCV-405D	FW	ISI-20193	#32 Aux. Feed Pump To #34 S/G Feed	3(B)	2	GL	AO	C	EO	OP	Τ	
		(B3)	Control						EC	OP		
ECV 40CA	DUU	TOT DOLLOG							FST-O	OP		
FCV-406A	ΓW	ISI-20193	#31 Aux. Feed Pump To #31 S/G Feed	3(B)	2	GL	AO	С	EO	OP		
		(B8)	Control		ļ				EC	OP		
FCV ADED	EW	ICI 00102							FST-O	OP		
TC V-400D	FW	151-20193	#31 Aux. Feed Pump To #32 S/G Feed	3(B)	2	GL	AO	С	EO	OP		
		(B7)	Control]			EC	OP		
FCV-406C	FW	151 20102	#22 A		ļ				FST-O	OP		
101-4000	Г үү	131-20193	(#35 Aux. Feed Pump 10 #33 S/G Feed	3(B)	2	GL	AO	С	EO	OP		
		(60)	Control						EC	OP		
FCV-406D	FW	ISI 20102	#22 Ann Ford Dress To #24 0/0 D 1	100					FST-O	OP		
101 400D	1. 44	(P7)	Control	3(B)	2	GL	AO	С	EO	OP		
									EC	OP		
FCV-417	FW	ISI-20193	#31 Steam Generator Main Foodwater		10				FST-O	OP		
	1 11	тог-20195 (Дб)	Control	NC(B)	18	GL	AO	0	A-EC	CS	CSJ-14	
		(D0)	Control						A-FST-C	CS	CSJ-14	
FCV-417L	FW	ISI-20193	#31 Steam Generator Main Feedwater	NC(D)	6	CI	4.0		A-PIT	2Y	aat co	·
	- ···	(D-7)	I ow Flow (Bunass) Control	NC(D)	0	GL	AU	С	A-EC	CS	CSJ-59	
		(27)	Low Flow (Dypass) Control						A-FST-C	CS	CSJ-59	
FCV-427	FW	ISI-20193	#32 Steam Generator Main Feedwater	NC(B)	18	GI	4.0		A-PIT	2Y	COLIA	
		(E6)	Control	ne(b)	10	UL	AU	0	A-EC		CSJ-14	
									A-FSI-C		CSJ-14	
FCV-427L	FW	ISI-20193	#32 Steam Generator Main Feedwater	NC(B)	6	GL	A0	C	A-FC		CSI 50	
		(E6)	Low Flow (Bypass) Control	110(2))		10	C	A-EST-C	CS CS	CSI 50	
					ľ					$2\mathbf{v}$	0.03-39	
FCV-437	FW	ISI-20193	#33 Steam Generator Main Feedwater	NC(B)	18	GL	AO	0	A-EC	CS	CSI-14	
ĺ		(G6)	Control	. ,				Ū.	A-FST-C	CS	CSI-14	
								i	A-PIT	2Y	0.05 14	
FCV-437L	FW	ISI-20193	#33 Steam Generator Main Feedwater	NC(B)	6	GL	AO	C	A-EC	CS	CSJ-59	
		(G7)	Low Flow (Bypass) Control		1				A-FST-C	CS	CSJ-59	
									A-PIT	2Y	0.00 0.7	
CV-447	FW	ISI-20193	#34 Steam Generator Main Feedwater	NC(B)	18	GL	AO	0	A-EC	ĈŜ	CSJ-14	
	Í	(F6)	Control						A-FST-C	CS	CSJ-14	
								1	A-PIT	2Y		

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Req	Notes
FCV-447L	FW	ISI-20193 (F7)	#34 Steam Generator Main Feedwater Low Flow (Bypass) Control	NC(B)	6	GL	AO	C	A-EC A-FST-C A-PIT	CS CS 2Y	CSJ-59 CSJ-59	
PCV-1213	FW	ISI-20193 <u>(B4)</u>	#32 ABFP Bearing Cooling Water Pressure Control Valve	3(B)	1	GL	AO	С	EO FST-O	OP OP		

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Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Req	Notes
PCV-1229	CAR	ISI-20253	Containment Isolation Valve From	NC(A)	4	GA	AO	С	PIT	2Y		Passive
DCVL 1000	<i>a</i> 1 <i>b</i>	<u>(E8)</u>	SJAE's	······					LT-1	5Y		Note 2
PCV-1230	CAR	ISI-20253	Containment Isolation Valve From	NC(A)	4	GA	AO	С	PIT	2Y		Passive
L		<u>(E8)</u>	SJAE's						LT-I	5Y		Note 2

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
FCV-1111	RW	ISI-20333	SWP'S 34,35,36 to Conventional Non	3(B)	16	BU	MA	0	EC	OP		
FCV 1112	DIV	(F3)	Essential Header Disc.	<u> </u>								
100-1112	KW	ISI-20333	SWP'S 31,32,33 to Conventional Non	3(B)	16	BU	MA	0	EC	OP		
PCV 1205	DW	(F3)	Essential Header Disc.									
1 C V-1203	RW	181-20333	#31 Service Water Pump Strainer	3(B)	2	GA	AO	С	EO	OP		
		(C3)	Backwash				·		EC	OP		I
PCV 1206	DW	TOT DODDO	//00 G	L					FST-C	OP		
r C v-1206	КW	ISI-20333	#32 Service Water Pump Strainer	3(B)	2	GA	AO	С	EO	OP		
		(C4)	Backwash	1					EC	OP		
DCV 1207		TOT DODD							FST-C	OP		
rCv-1207	RW	ISI-20333	#33 Service Water Pump Strainer	3(B)	2	GA	AO	С	EO	OP		
		(C5)	Backwash						EC	OP		
DOV 1999									FST-C	OP		
PCV-1208	RW	ISI-20333	#34 Service Water Pump Strainer	3(B)	2	GA	AO	С	EO	OP		
		(C6)	Backwash						EC	OP		
DOVIDOO									FST-C	OP		
PC V-1209	RW	ISI-20333	#35 Service Water Pump Strainer	3(B)	2	GA	AO	С	EO	OP		
		(C7)	Backwash						EC	OP		
DCV/ 1210									FST-C	OP		
PCV-1210	RW	ISI-20333	#36 Service Water Pump Strainer	3(B)	2	GA	AO	C	EO	OP		
		(C8)	Backwash						EC	OP		
SWAL LOO 1									FST-C	OP	ľ	
3 WIN-100-1	RW	ISI-20333	#34, 35, & 36 Service Water Pump	3(C)	24	CK	SA	0	EO	CS	CSJ-16	
SWAL 100 2		(G5)	Header to Nuclear Services								1	
5 WIN-100-2	RW	181-20333	#31, 32, & 33 Service Water Pump	3(C)	24	CK	SA	0	EO	CS	CSJ-16	
SWN 100 2	DW	(G5)	Header to Nuclear Services									
5 W IN-100-3	KW [181-20333	Backup Service Water Discharge to	3(C)	24	CK	SA	С	EC	OP		
SWN 100 4	DW	(<u>G6</u>)	Nuclear Services Header									
5 411-100-4	ĸw	151-20333	Backup Service Water Discharge to	3(C)	24	СК	SA	С	EC	OP		
SWNL1 1	DW	(66)	Nuclear Services Header									
5 111-1-1	τ.vv	151-20333	#31 Service Water Pump Discharge	3(C)	14	CK	SA	0	EO	CS	CSJ-15	ł
		(C3)	Cneck			1			EC	OP	1	
SWN 1 2	DW	TOT DODDD	1120 G						PEO	OP		
5 WIN-1-2	ĸw	151-20333	#32 Service Water Pump Discharge	3(C)	14	CK	SA	0	EO	CS	CSJ-15	
		(C4)	Check						EC	OP		
								Í	PEO	OP		

57. J. N.		Drwg									Relief	
valve wo.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
SWN-1-3	RW	ISI-20333	#33 Service Water Pump Discharge	3(C)	14	CK	SA	0	EO	CS	CSJ-15	
		(C5)	Check						EC	OP		
CUDY 1									PEO	OP		
SWN-1-4	RW	ISI-20333	#34 Service Water Pump Discharge	3(C)	14	CK	SA	0	EO	CS	CSJ-15	
		(C6)	Check						EC	OP		
SUDI 1 C						i			PEO	OP		
SWIN-1-5	RW	ISI-20333	#35 Service Water Pump Discharge	3(C)	14	CK	SA	0	EO	CS	CSJ-15	
		(C7)	Check						EC	OP		
SWDL1 C									PEO	OP		
SW1N-1-6	RW	ISI-20333	#36 Service Water Pump Discharge	3(C)	14	CK	SA	0	EO	CS	CSJ-15	
		(C8)	Check						EC	OP		
CUTNI 4	DIV	TOT BOOD							PEO	OP		
5 W IN-4	RW	ISI-20333	Service Water to Circ Pump Cooling	3(B)	8	BU	MA	O/C	EC	OP		
SWN 5	DW	(D5)	Isolation									
5 1 1 1 - 5	ĸw	151-20333	Service Water to Circ Pump Cooling	3(B)	8	BU	MA	O/C	EC	OP		
SWN-6	DW	(D6)	Isolation									
5 11-0	Κw	151-20555	SWP'S 34,35,36 to Conventional	3(B)	10	BU	MA	O/C	EC	OP		
SWN-7	RW	ISL 20333	SWP'S 21 22 22 to Convertional	200	10							
	10,00	(F4)	Eggential Leader Dischause	3(B)	10	BO	MA	O/C	EC	OP		
SWN-9-1	RW	ISI-20333	#31 Service Water Pump Vent Chook	2(0)	_	OIZ			Da			· · · · · · · · · · · · · · · · · · ·
		(C2)	"ST bervice water rump vent check	3(C)	3	CK	SA	С	EC	OP		
SWN-9-2	RW	ISI-20333	#32 Service Water Pump Vent Check	3(C)	2	CV	C A		EO	<u>OP</u>		
		(C2)	we set the trace i amp vent check	5(0)	3		SA	C	EC	OP		
SWN-9-3	RW	ISI-20333	#33 Service Water Pump Vent Check	3(C)	3	CK	SA	C	EO EC	OP		
	l	(C2)	and a subset of any work chock	5(0)	5		SA	C		OP		
SWN-9-4	RW	ISI-20333	#34 Service Water Pump Vent Check	3(C)	3	CK	SA	C	EU EC	OP		
		(C2)		5(0)) (JA	C	EC FO			
SWN-9-5	RW	ISI-20333	#35 Service Water Pump Vent Check	3(C)	3	CK	SA	C	EO FC			
		(C2)	*	- (-)	Ĩ	0.1	5.1	Ŭ	FO			
SWN-9-6	RW	ISI-20333	#36 Service Water Pump Vent Check	3(C)	3	CK	SA	С	EC	OP 0		
		(C2)	-	, í				-	EO	OP		

Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Req	Notes
SA-24-1	AIR	ISI-20353 (F7)	Containment Isolation for Station Air	NC(A)	2	DA	MA	С	LT-1	2Y		Passive
SA-24-2	AIR	ISI-20353 (F6)	Containment Isolation for Station Air	NC(A)	2	DA	MA	С	LT-1	2Y		Note 2 Passive

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Req	Notes
IA-39	AIR	ISI-20363 (F6)	Inboard Containment Isolation	NC(A/C)	2	CK	SA	0	EC	2Y 5V	ROJ-7	Note 2
PCV-1228	AIR	ISI-20363 (F6)	Outboard Containment Isolation	NC(A)	2	DA	AO	0	EC FST-C PIT LT-1	2Y 2Y 2Y 2Y 5Y	ROJ-7 ROJ-7	Note 2

Drwg Relief Valve No. System No./Coor. Description Class/Cat Size Type Actuator Position Reqm't Freq Rea Notes MS-34-10 MS ISI-20413 #33 Steam Generator MST-14 Inlet 2(B)1 GA MA Ο EC OP (E4) Isolation MS-34-4 MS ISI-20413 #32 Steam Generator MST-10 Inlet 2(B) 1 EC GA MA 0 OP (G5) Isolation MS-34-5 MS ISI-20413 #32 Steam Generator MST-12 Inlet 2(B) 1 GA EC MA 0 OP (G4) Isolation MS-34-7 MS ISI-20413 #31 Steam Generator MST-6 Inlet 2(B) 1 EC GA MA Ο OP (G3) Isolation MS-34-9 MS #34 Steam Generator MST-18 Inlet ISI-20413 2(B) EC OP 1 GA MA 0 (E6) Isolation MS-37-1 MS #31 Steam Generator MST-5 Inlet ISI-20413 2(B) 1 1/4 EC GA MA 0 OP (G2) Isolation MS-37-2 MS ISI-20413 #33 Steam Generator MST-13 Inlet 2(B) 1 1/4 GA EC MA 0 OP (E5) Isolation MS-67-1 MS #31 Steam Generator MST-1 Inlet ISI-20413 2(B) 1 1/2 GA EC MA 0 OP (E2) Isolation MS-67-2 MS #32 Steam Generator MST-2 Inlet ISI-20413 2(B) 1 1/2 EC OP GA MA 0 (G2) Isolation MS-67-3 MS ISI-20413 #33 Steam Generator MST-3 Inlet 2(B) $1 \frac{1}{2}$ GA MA Ο EC OP (E3) Isolation MS-67-4 MS ISI-20413 #34 Steam Generator MST-4 Inlet 2(B) 1 1/2 EC GA MA 0 OP Æ5) Isolation

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Rea	Notes
PS-10	SMPL	ISI-26533	Post Accident Containment Vent	NC(A)	2	DA	MA	С	ILT-1	5Y		Passive
		(G7)	Isolation									Note 2
PS-7	SMPL	ISI-26533	Post Accident Containment Vent	NC(A)	3	DA	MA	С	LT-1	5Y		Passive
		(G7)	Isolation									Note 2
PS-8	SMPL	ISI-26533	Post Accident Containment Vent	NC(A)	3	DA	MA	С	LT-1	5Y		Passive
		<u>(G7)</u>	Isolation									Note 2
PS-9	SMPL	ISI-26533	Post Accident Containment Vent	NC(A)	3	DA	MA	С	LT-1	5Y		Passive
COT COL		<u>(F7)</u>	Isolation									Note 2
SOV-506	SMPL	ISI-26533	#33 Fan Cooler Unit Sample to H2	NC(A)	1	GL	SO	С	EO	OP		Note 2
		(E6)	Analyzer B Isolation						EC	OP		
									FST-C	OP		
									LT-1	5Y		
COTL SOF									PIT	2Y		
SOV-507	SMPL	ISI-26533	#34 Fan Cooler Unit Sample to H2	NC(A)	1	GL	SO	С	EO	OP		Note 2
		(E5)	Analyzer B Isolation						EC	OP		
									FST-C	OP		
									LT-1	5Y		
SOM 500		TOX A COA							PIT	2Y		
SUV-508	SMPL	ISI-26533	#31 Fan Cooler Unit Sample to H2	NC(A)	1	GL	SO	С	EO	OP		Note 2
		(D5)	Analyzer B Isolation						EC	OP		
									FST-C	OP		
				ĺ					LT-1	5Y		
SOV 500		101.06500							PIT	2Y		
307-309	SMPL	181-26533	#31,#33,#34 Fan Cooler Units Sample to	NC(A)	1	GL	SO	С	EO	OP		Note 2
		(E4)	H2 Analyzer B Isolation						EC	OP		
				1			1		FST-C	OP		
			ſ						LT-1	5Y		
SOV 510	C) (D)	TOT OCCOO	TTO						PIT	2Y		
307-310	SIVIPL	181-26533	H2 Analyzer A Return to Containment	NC(A)	1	GL	SO	С	EO	OP		Note 2
		(C4)	Isolation	1					EC	OP		
									FST-C	OP		
							1		LT-1	5Y		
I									PIT	2Y	ľ	

Valva No	Santam	NotCasa	D								Relief	
COV 511	System	130. C.001.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
507-511	SMPL	ISI-26533	H2 Analyzer A Return to Containment	NC(A)	1	GL	SO	С	EO	OP		Note 2
1		(B5)	Isolation						EC	OP		
									FST-C	OP		
									LT-1	5Y		
SOV-512	SMDI	191.26522							PIT	2Y		
507-512		151-20555	#32 Fan Cooler Unit Sample to H2	NC(A)	1	GL	SO	С	EO	OP		Note 2
		(D5)	Analyzer A Isolation	}					EC	OP		
									FST-C	OP		
						1			LT-1	5Y		
SOV-513	SMPI	ISI 26522	#25 For Content Life Content Life						PIT	2Y		
~~~~		131-20333	A palymen A Instation	NC(A)	1	GL	SO	С	EO	OP		Note 2
		(CJ)	Analyzer A Isolation			1			EC	OP		
									FST-C	OP		
									LT-1	5Y		
SOV-514	SMPL	ISI-26533	#32 #35 Fan Cooler Units Sample to U2	NC(A)		OT			PIT	2Y		
		(D4)	Analyzer A Isolation	NC(A)	1	GL	so	С	EO	OP		Note 2
		(124)	Analyzor A isolation						EC	OP		
				[					FST-C	OP		
									LT-1	5Y		
SOV-515	SMPL	ISI-26533	H2 Analyzer B Sample Return to	NC(A)	1	GI	80		PIT	$\frac{2Y}{OP}$		N. 4 0
		(B4)	Containment Isolation			UL	30	C				INOTE 2
				Í					EC	OP		
SOV-516	SMPL	ISI-26533	H2 Analyzer B Sample Return to	NC(A)	1	GL		C	FO	$\frac{2Y}{OP}$		Note 2
		(B5)	Containment Isolation			0L		<u> </u>				INDIE Z
									FST-C			
									T_1	$\frac{\nabla r}{5V}$		
			3			Í				$\frac{31}{2V}$		

Valve No.	System	Drwg No/Coor	Description	G		-		n			Relief	
1610		191.27102	Description	Class/Cat	Size	I vpe	Actuator	Position	Keqm t	Freq	Req	Notes
1010	WD	151-2/193	N2 Supply to RCDT #31 Isolation	NC(A)	1	DA	AO	0	EC	OP		Note 2
		SFIL(F3)							FST-C	OP		
									PIT	2Y		
1616	WD	ISL-27103	N2 Supply to DCDT #21 Isolation Cl. 1			~~~			LT-1	5Y.		
1		SU1 (E2)	142 Supply to RCD1 #31 Isolation Check	NC(A/C)		CK	SA	0	EC	2Y	ROJ-8	Note 2
1702	WD	ISI-27193	RCDT #31 Inhoard Drain	NIC'(A)					<u>LT-1</u>	5Y		
		SH1 (D3)		NC(A)	3	GA	AO	0	IEC	OP		Note 2
		5111 (D5)							FST-C	OP		
	-								PIT 	2Y		
1705	WD	ISI-27193	RCDT #31 Outboard Drain	$NC(\Lambda)$	3	GA	40	0	LT-1	2Y		
		SH1 (D3)		IIC(A)		UA	AU	0	EC			Note 2
			-						roi-C			
										2 Y		1
1723	WD	ISI-27193	Containment Sump Discharge Outboard	NC(A)	2	DA	AO	0		OP D		Note 2
		SH2 (C4)	Isolation Valve	()	[ ~	2	110	U	EST-C			Note 2
					i				PIT	$\frac{01}{2\mathbf{V}}$		
					1				I T_1	$2\mathbf{v}$		
1728	WD	ISI-27193	Containment Sump Discharge Inboard	NC(A)	2	DA	AO	0	EC	ОР ОР		Note 2
		SH2 (C4)	Isolation Valve						FST-C	OP	i	
	Í								PIT	2Y		
1796		TOX OF LOD							LT-1	2Y		
1/80	WD	ISI-27193	RCDT #31 Discharge to Waste Gas	NC(A)	1	DA	AO	0	EC	OP		Note 2
	1	SHI (F3)							FST-C	OP		
									PIT	2Y		
1787	WD	IST 27102	DODT #21 D' 1						LT-1	2Y		
1/0/	WD	SUL (E2)	RCD1 #31 Discharge to Waste Gas	NC(A)	1	DA	AO	0	EC	OP		Note 2
[		SHI (F3)							FST-C	OP		
		-							PIT	2Y		
1788	WD	ISI-27193	PCDT #21 Gog Somple Inheard	NO(A)					LT-1	2Y		
		SU1 (E2)	RCD1 #51 Gas Sample mooard	NC(A)	3/4	DA	AO	0	EC	OP		Note 2
		511 (15)			1				FST-C	OP [		
									PIT	2Y		
									LT-1	2Y		

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Req	Notes
1789	WD	ISI-27193 SH1 (E3)	Reactor Coolant Drain Tank to Gas Analyzer Isolation Valve	NC(A)	3/4	DA	AO	0	EC FST-C	OP OP	]	Note 2
									PIT LT-1	2Y 2V		

Value No.	6	Drwg									Relief	
1026	System	NO. COUR.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
1836	RHR	ISI-27203 (B3)	RHR Supply Safety Relief	2(C)	2	SF	SA	С	SP	10Y		
730	RHR	ISI-27203	RHR Supply from RCS	1(A)	14	GA	MO	С	EO	CS	CSJ-17	
		(C3)							A-EC	CS	CSJ-17	
						1			LT-2	2Y		
701	DUD								PIT	2Y		
/31	RHR	ISI-27203	RHR Supply from RCS	1(A)	14	GA	MO	С	EO	CS	CSJ-17	
		(C3)				ĺ			A-EC	CS	CSJ-17	
									LT-2	2Y		
741	DID	101.07000							PIT	2Y		
/41	KHK	ISI-27203	RHR Pump Discharge to Heat Exchanger	2(A/C)	12	CK	SA	С	PEO	OP		
		(B6)							EO	CS	CSJ-18	
745 4		TOT OTOOD							EC	2Y	ROJ-9	
745A	RHR	181-27203	RHR Pump Discharge to HX Inlet #32	2(B)	8	GA	MO	0	EO	OP		
		(C7)	Isolation Valve						EC	OP		
745D		101.07000							PIT	2Y		
/4JD	KHK	181-2/203	RHR Pump Discharge to HX Inlet #32	2(B)	8	GA	MO	0	EO	OP		
		(07)	Isolation Valve						EC	OP		
774 6		181.27202	#21 DOD 9 1 0 1 000000 1 000 1						PIT	2Y		
7744		(F7)	#31 RCP Seal Cooler CCW Inlet Check	3(C)	1 1/2	CK	SA	0	EC	RR	ROJ-10	
//4B	CC	ISI-27203 (F6)	#32 RCP Seal Cooler CCW Inlet Check	3(C)	1 1/2	СК	SA	0	EC	RR	ROJ-10	
774C	CC	ISI-27203	#33 RCP Seal Cooler CCW Inlet Check	3(C)	1 1/2	СК	SA	0	EC	RR	ROI-10	
		(F4)						-	~~~	101	1000 10	
774D	CC	ISI-27203	#34 RCP Seal Cooler CCW Inlet Check	3(C)	1 1/2	СК	SA	0	EC	RR	ROJ-10	
700		(F3)							:			
/82	CC	ISI-27203	RCP/Sup. Block Ret. Relief Valve	3(C)	3	SF	SA	С	SP	10Y		T-1
7924		<u>(B8)</u>	//									
783A	CC	ISI-27203	#31 RCP Seal Cooler CCW Return	3(C)	3/4	SF	SA	С	SP	10Y		
792D		(F6)	Relief									
783B		ISI-2/203	#32 RCP Seal Cooler CCW Return	3(C)	3/4	SF	SA	С	SP	10Y		
7830	00	(F6)	Relief							_		
/050		151-2/203	#33 KCP Seal Cooler CCW Return	3(C)	3/4	SF	SA	С	SP	10Y		
783D		(16)	Kellet									
		TSI-2/203	H34 KUP Seal Cooler CCW Return	3(C)	3/4	SF	SA	C	SP	10Y		
		(10)	Kellet									

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Rea	Notes
792	CC	ISI-27203 (C4)	Excess Letdown HX Shell Relief	3(C)	3	SF	SA	С	SP	10Y	•	
819A	CC	ISI-27203 (D6)	RHR HX #31 Shell-side Relief Valve	3(C)	1 1/2	SF	SA	С	SP	10Y		
819B	СС	ISI-27203 (D7)	RHR HX #32 Shell-side Relief Valve	3(C)	1 1/2	SF	SA	С	SP	10Y		
821F	CC	ISI-27203 (E7)	RV Cooling Support Blocks Safety Relief Valve	3(C)	3/4	SF	SA	С	SP	10Y		

		Drwg								1	Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	Req	Notes
FCV-1176	RW	ISI-27223	Emergency Diesel Generators SWS	3(B)	6	BU	AO	С	EO	OP		
		(B2)	Outlet Flow Control						FST-O	OP		
FOUL HERE									PIT	2Y		
FCV-1176A	RW	ISI-27223	Emergency Diesel Generators SWS	3(B)	6	BU	AO	С	EO	OP		
		(B2)	Outlet Flow Control						FST-O	OP		
SUDI 100 0									PIT	2Y		
5WIN-108-3	RW	ISI-27223	Service Water Supply to CCR A/C Cross	3(B)	3	GA	MA	0	EC	OP		·
SUNI 109 (		(C3)	Connect									
5 WIN-108-0	KW	181-2/223	Service Water Supply to CCR A/C Cross	3(B)	3	GA	MA	0	EC	OP		
SWN 110 1	DW	(C3)	Connect									
5 WIN-110-1	κw	151-2/223	#31, 32, & 33 Service Water Pump	3(C)	3/4	SF	SA	С	SP	10Y		
SWN-110-2	PW/	( <u>(</u> ))	Supply to CCR A/C Relief									
5 110-2	17 44	$(C^2)$	#34, 53, & 36 Service Water Pump	3(C)	3/4	SF	SA	С	SP	10Y		
SWN-29	RW	ISI-27223	#31 32 & 33 Service Water Dump	2(7))	10	DIX						
		(B4)	Supply to Emergency Discal Coolers	3(B)	10	BO	MA	O/C	EO	OP		
SWN-30	RW	ISI-27223	#34 35 & 36 Service Water Pump	2(D)	10	DU		0/0	<b>F</b> O	OD		
		(B4)	Supply to Emergency Diesel Coolers	3(D)	10	во	MA	0/0	EO	OP		
SWN-31	RW	ISI-27223	#31, 32, & 33 Service Water Pump	3(B)	20	BU		0/0	FO			
		(D4)	Supply to CCW HX Header Isolation	J(D)	20	DU	IVIA	0/0	EU	OP		
SWN-32	RW	ISI-27223	#34, 35, & 36 Service Water Pump	3(B)	2.0	BU	MA	0/C	FO	OP		
		(D3)	Supply to CCW HX Header Isolation	-(-)		20	IVII I	0,0		O1		
SWN-33-1	RW	ISI-27223	CCW HX's Service Water Supply	3(B)	18	BU	MA	0	EC	OP		
		(D3)	Crosstie Isolation	, í				Ŭ	20	Ŭ1		
SWN-33-2	RW	ISI-27223	CCW HX's Service Water Supply	3(B)	18	BU	MA	0	EC	OP		
CUDY OC 1		(D3)	Crosstie Isolation									
SWN-36-1	RW	ISI-27223	CCW HX #31 Outlet Pressure Relief	3(C)	3/4	SF	SA	С	SP	10Y		
SWAL 2C 2	DIT	<u>(E3)</u>										
SWIN-36-2	RW	ISI-27223	CCW HX #32 Outlet Pressure Relief	3(C)	3/4	SF	SA	С	SP	10Y		
SUDI 20	DW	(F3)	DOLLO I VIII				-					
5 W IN-58	RW	ISI-2/223	FCU Supply Isolation	3(B)	18	BU	MA	O/C	EO	OP		
SWNI-30	DW	(D6)	FOLD Street L. L. L. C.						EC	OP		
5 111-39	ις vv	(D5)	red supply isolation	.3(B)	18	BU	MA	O/C	EO	OP		
SWN-40-1	RW	(US) ISL 27222 I	FCU Handar Cross Tis Isolation						EC	OP		
~		(E6)	red reader cross file isolation	3(B)	18	BU	MA	O/C	EC	OP		
				ł						1		

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	Req	Notes
SWN-40-2	RW	ISI-27223	FCU Header Cross Tie Isolation	3(B)	18	BU	MA	O/C	EC	OP		
CUTAL 41 1		(E6)										
SWN-41-1	RW	ISI-27223	#31 FCU Supply Isolation	3(A)	10	BU	MA	0	EC	OP	1	
CUDI 41 0		(E5)							LT-3	2Y		
SWN-41-2	RW	ISI-27223	#32 FCU Supply Isolation	3(A)	10	BU	MA	0	EC	OP		
ONDI 11 -		(E5)							LT-3	2Y		
SWN-41-3	RW	ISI-27223	#33 FCU Supply Isolation	3(A)	10	BU	MA	0	EC	OP		
OTTOT IN I		(E6)				ł			LT-3	2Y		
SWN-41-4	RW	ISI-27223	#34 FCU Supply Isolation	3(A)	10	BU	MA	0	EC	OP		
ONDI 11 -		<u>(E6)</u>							LT-3	2Y		
SWN-41-5	RW	ISI-27223	#35 FCU Supply Isolation	3(A)	10	BU	MA	0	EC	OP		
OVDI 40 4		(E4)							LT-3	2Y		:
SWN-42-1	RW	ISI-27223	#31 FCU Service Water Relief	3(A/C)	1 1/2	SF	SA	С	SP	10Y		
OTTO L (A -		(E5)							LT-3	2Y		
SWN-42-2	RW	ISI-27223	#32 FCU Service Water Relief	3(A/C)	1 1/2	SF	SA	С	SP	10Y		
ONDI 40.0		(E5)							LT-3	2Y		
SWN-42-3	RW	ISI-27223	#33 FCU Service Water Relief	3(A/C)	1 1/2	SF	SA	С	SP	10Y		
CITE I		(E6)							LT-3	2Y		
SWN-42-4	RW	ISI-27223	#34 FCU Service Water Relief	3(A/C)	1 1/2	SF	SA	С	SP	10Y		
CINDI 40 7		<u>(E6)</u>							LT-3	2Y		
SWN-42-5	RW	ISI-27223	#35 FCU Service Water Relief	3(A/C)	1 1/2	SF	SA	С	SP	10Y		
CIUDY 40 4		(E4)							LT-3	2Y		
SWN-43-1	RW	ISI-27223	#31 FCU Service Water Drain Isolation	3(A)	1	GA	MA	С	LT-3	2Y		Passive
OVDI 15 C		(E5)								Í		
SWN-43-2	RW	ISI-27223	#32 FCU Service Water Drain Isolation	3(A)	1	GA	MA	С	LT-3	2Y		Passive
OVID L 10 0		(E4)										
SWN-43-3	RW	ISI-27223	#33 FCU Service Water Drain Isolation	3(A)	1	GA	MA	С	LT-3	2Y		Passive
ONDI 42 4		(E6)										
SWN-43-4	RW	ISI-27223	#34 FCU Service Water Drain Isolation	3(A)	1	GA	MA	С	LT-3	2Y		Passive
ONDY 10 5		(E6)										
SWN-43-5	RW	ISI-27223	#35 FCU Service Water Drain Isolation	3(A)	1	GA	MA	С	LT-3	2Y		Passive
OND L 44		<u>(E4)</u>										
SWN-44-1	RW	ISI-27223	#31 FCU Outlet Isolation	3(A)	10	BU	MA	0	EC	OP		
		<u>(F5)</u>							LT-3	2Y	ļ	
SWN-44-2	RW	ISI-27223	#32 FCU Outlet Isolation	3(A)	10	BU	MA	0	EC	OP		
		<u>(F4)</u>							LT-3	2Y		
SWN-44-3	RW	ISI-27223	#33 FCU Outlet Isolation	3(A)	10	BU	MA	0	EC	OP		
		(F6)					1		тт_з	2V		Í

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
SWN-44-4	RW	ISI-27223	#34 FCU Outlet Isolation	3(A)	10	BU	MA	0	EC	OP		
OUDT 11 5		(F6)							LT-3	2Y		
SWN-44-5	RW	ISI-27223	#35 FCU Outlet Isolation	3(A)	10	BU	MA	0	EC	OP		
SUDI CL 1		(F4)							LT-3	2Y		
SWIN-51-1	RW	ISI-27223	#31 FCU Rad Mon Supply Isolation	3(A)	1	GA	MA	0	EC	OP		
SWAL 51 2	DYY	(F4)							LT-3	2Y		
5WN-51-2	RW	ISI-27223	#32 FCU Rad Mon Supply Isolation	3(A)	1	GA	MA	0	EC	OP		
SULVI 21 2		<u>(F4)</u>							LT-3	2Y		
5 WIN-51-5	ĸw	181-27223	#33 FCU Rad Mon Supply Isolation	3(A)	1	GA	MA	0	EC	OP		
SWAN ST 4	DW	<u>(F4)</u>	HALDOUD INC. C. C.						LT-3	2Y		
5 11-31-4	ĸw	151-2/223	#34 FCU Rad Mon Supply Isolation	3(A)	1	GA	MA	0	EC	OP		
SW/N-51 5	DW	<u>(F4)</u>	Has DOLLD THE G THE STATE						LT-3	2Y		
5411-51-5	κw	151-2/223	#35 FCU Rad Mon Supply Isolation	3(A)	1	GA	MA	0	EC	OP		
SWN-62-1	DW	<u>(F4)</u> ISI 27222	#21 22 8 22 G						<u>LT-3</u>	2Y		
5	IC VV	131-27223	#31, 32, & 33 Service Water Pump	3(B)	4	BU	MA	0	EO	OP		
SWN-62-2	PW	<u>(C3)</u>	Supply to Emergency Diesel #31 Cooler						EC	OP		
5 02-2		(C2)	#34, 35, & 36 Service Water Pump	3(B)	4	BU	MA	0	EO	OP		
SWN-63-1	RW	151-27223	31 EDG Cooler Inlet Delief	0.(0)		~ ~ ~			EC	OP		
	IC W	(C4)	51 EDG Cooler miet Kener	3(C)	3/4	SF	SA	С	SP	10Y		
SWN-63-2	RW	ISI-27223	32 EDG Cooler Inlet Paliof	2(0)	2/4							
		(B4)	52 LDG Cooler linet Kener	3(0)	3/4	SF	SA	С	SP	10Y		
SWN-63-3	RW	ISI-27223	33 EDG Cooler Inlet Relief	2(0)	2/4	OF			<u> </u>			
		(B4)		3(C)	5/4	Sr	SA	C	SP	10 Y		
SWN-71-1	RW	ISI-27223	#31 FCU Motor Cooler Outlet Isolation	3(4)	2	CI	MA		EC			·····
		(F5)		J(A)	2		MA	0		OP		
SWN-71-2	RW	ISI-27223	#32 FCU Motor Cooler Outlet Isolation	3(4)	2	GI	MA		LI-3	2Y OP		
		(F5)		5(11)	2		IVIA	0		OP		
SWN-71-3	RW	ISI-27223	#33 FCU Motor Cooler Outlet Isolation	3(A)	2	GI	MA	0	L1-3 FC	<u>21</u> OP		
		(F5)		5(11)	~	OL	10174	0				
SWN-71-4	RW	ISI-27223	#34 FCU Motor Cooler Outlet Isolation	3(A)	2	GI	MA	0	LI-3 FC			
		(F5)			2		1917-7	Ŭ				
SWN-71-5	RW	ISI-27223	#35 FCU Motor Cooler Outlet Isolation	3(A)	2	GL	МА	0	EC	$\frac{21}{OP}$		
		(F5)		- ()	2		1411				ĺ	
SWN-94-1	RW	ISI-27223	#31, 32, & 33 Service Water Pump to	3(B)	3	GA	MA	0	FU	$\frac{21}{OP}$		
		(C4)	CCR A/C Isolation	-(-)	-	<u> </u>	170.1					
SWN-94-2 T	RW	ISI-27223	#34, 35, & 36 Service Water Pump to	3(B)	3	GA	MA	0	EO			
		(C4)	CCR A/C Isolation	X-7	-	~~~			FC			

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Reg	Notes
TCV-1104	RW	ISI-27223 (G3)	Containment Temperature Control Valve	3(B)	18	BU	AO	С	EO FST-O PIT	OP OP 2V		
TCV-1105	RW	ISI-27223 (G3)	Containment Temperature Control Valve	3(B)	10	BU	AO	С	EO FST-O PIT	OP OP 2Y		

Valve No.	System	Drwg No/Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Renm't	Fren	Relief	Notes
16	N2	ISI-27233 (E7)	PCV-455C Accumulator Check	NC(C)	3/4	СК	SA	С	A-EC	RR		
17	N2	ISI-27233 (E7)	PCV-456 Accumulator Check	NC(C)	3/4	СК	SA	С	A-EC	RR		
863	N2	ISI-27233 (D6)	Containment N2 Supply Outboard	NC(A)	1	GA	AO	С	EC FST-C PIT I T-1	OP OP 2Y 5V		Note 2
NNE-1610	N2	ISI-27233 (G7)	Containment N2 Supply Isolation Valve Inside Containment	NC(A/C)	1	CK	SA	С	EC LT-1	2Y 5Y	ROJ-11	Note 2
NNE-1864	N2	ISI-27233 (H5)	Codensate Storage Tank Breather Valve	NC(C)	12	SF	SA	С	A-SP	10Y		
NNE-1865	N2	ISI-27233 (H5)	Codensate Storage Tank Breather Valve	NC(C)	12	SF	SA	С	A-SP	10Y		

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Reg Notes
DW-AUV-I	DW	ISI-27243	Demin Water To Containment Isolation	NC(A)	2	GA	AO	С	LT-1	2Y	Passive
DW AOV 2	DIV	(F3)							PIT	2Y	Note 2
DW-AUV-2	Dw	181-2/243	Demin Water To Containment Isolation	NC(A)	2	GA	AO	С	LT-1	2Y	Passive
L	L	([5]							PIT	2Y	Note 2

		Drwg								1	Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	Req	Notes
PCV-1214	SG	ISI-27293	#31 SG Blowdown Upstream	2(A)	3	GL	AO	0	EC	OP		Note 2
		SHI (E6)	Containment Isolation			i i			FST-C	OP		
									PIT	2Y		
PCV-1214A	SG	191 27202	#21 SC DL 1 D						LT-1	2Y		
	04	SU1 (E5)	#31 SG Blowdown Downstream	2(A)	3	GL	AO	0	EC	OP		Note 2
			Containment Isolation	1					FST-C	OP		
									PIT	2Y		
PCV-1215	SG	ISI-27293	#32 SG Blowdown Unstream	2(4)			10		LT-1	2Y		
	20	SH1 (E6)	Containment Isolation	$Z(\mathbf{A})$	3	GL	AO	0	EC	OP		Note 2
									FST-C	OP		
									PIT	2Y		
PCV-1215A	SG	ISI-27293	#32 SG Blowdown Downstream	2(4)	3	GI	4.0	0	LT-1	2Y		
		SH1 (E5)	Containment Isolation	2(1)	5		AU	0	EU FOT C			Note 2
										OP		
										2 Y		
PCV-1216	SG	ISI-27293	#33 SG Blowdown Upstream	2(A)	3	GL	AO	0	EC	$\frac{2Y}{0P}$		Note 2
		SH1 (F6)	Containment Isolation		-			Ŭ	EST-C	OP		Note 2
									PIT	$2\mathbf{v}$		
									IT_1	$2^{1}$		
PCV-1216A	SG	ISI-27293	#33 SG Blowdown Downstream	2(A)	3	GL	AO	0	EC	OP		Note 2
		SH1 (F5)	Containment Isolation						FST-C	OP		
									PIT	2Y		
DCV 1017		TOT ATAOA							LT-1	2Y		
FCV-1217	SG	ISI-27293	#34 SG Blowdown Upstream	2(A)	3	GL	AO	0	EC	OP		Note 2
		SHI (G6)	Containment Isolation						FST-C	OP		
									PIT	2Y	1	
PCV-1217A	80	IST 27202	#24.90 DI1						LT-1	<u>2Y</u>		
101 121/1	50	SU1 (CS)	#34 SG Blowdown Downstream	2(A)	3	GL	AO	0	EC	OP [	ľ	Note 2
		зпі (СЗ)	Containment Isolation			Í			FST-C	OP		
									PIT	2Y		
PCV-1223	SG	ISI-27293	#31 SG Blowdown Sample Unstream		-1/0	GT			LT-1	2Y		· · · · · · · · · · · · · · · · · · ·
		SH2 (G7)	Containment Isolation	2(A)	1/2	GL	AO	O	EC	OP	ļ	Note 2
									FST-C	OP		
								ŀ	PIT	2Y		
				1			1		IT 1	ານ I		

Valva No	Suctors	Drwg	<b>D</b>								Relief	
DOVIDOR	DAV STERI	NURCOUT.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
PCV-1223A	. SG	ISI-27293	#31 SG Blowdown Sample Downstream	2(A)	1/2	GL	AO	0	EC	OP		Note 2
-		SH2 (G7)	Containment Isolation						FST-C	OP		
									PIT	2Y		
PCV-1224	SG	181 27202	#22 SC Discuterer St. 1 XV						LT-1	2Y		
101-1224	50	SU2 (E7)	#32 SG Blowdown Sample Upstream	2(A)	1/2	GL	AO	0	EC	OP		Note 2
		SП2 (Е/)	Containment Isolation						FST-C	OP		
									PIT	2Y		
PCV-1224A	SG	ISI-27293	#32 SG Blowdown Sample Downstream	2(4)	1/2		10		LT-1	2Y		
		SH2 (E7)	Containment Isolation	2(A)	172	GL	AO	0	EC	OP		Note 2
									FST-C	OP		
									PIT	2Y		
PCV-1225	SG	ISI-27293	#33 SG Blowdown Sample Upstream	2(A)	1/2	GI	40	0	LT-I FC	$\frac{2Y}{0P}$		Noto 2
		SH2 (F7)	Containment Isolation	-(11)	1/2		AU	Ŭ	EC FST C			Note 2
										or 2V		
									і II Г Т_1	$2^{1}$		
PCV-1225A	SG	ISI-27293	#33 SG Blowdown Sample Downstream	2(A)	1/2	GL	AO	0	EC	OP		Note 2
		SH2 (F7)	Containment Isolation						FST-C	OP		
							ĺ		PIT	2Y		
PCV 1226	80	101.07000	104.00 D1 1 2 4 5 5						LT-1	2Y		
1 C V-1220	50	151-27293	#34 SG Blowdown Sample Upstream	2(A)	1/2	GL	AO	0	EC	OP		Note 2
	ľ	SH2 (D7)	Containment Isolation Valve						FST-C	OP		
					Í				PIT	2Y		
PCV-1226A	SG	ISI-27293	#34 SG Blowdown Sample Dermeters		1/0				LT-1	2Y		
	50	SH2 (D7)	Containment Isolation Value	2(A)	1/2	GL	AO	0	EC	OP		Note 2
			Containment isolation valve					]	FST-C	OP		
ĺ									PIT	2Y		
		l						11	[.T <b>-</b> 1	2Y		

2.0		Drwg								1	Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
1802A	SI	ISI-27353	Recirculating Pump Discharge Isolation	2(B)	10	GA	MO	С	EO	RR	ROJ-12	
18020	CT.	( <u>B5)</u>	Valve						PIT	RR	ROJ-12	
18026	SI	181-27353	Recirculating Pump Discharge Isolation	2(B)	10	GA	MO	С	EO	RR	ROJ-12	
1820	CT .	( <u>B4)</u>	Valve		L				PIT	RR	ROJ-12	
1020	51	181-27353	Recirculating Pump Min Flow Line	2(C)	2	CK	SA	С	EO	2Y	ROJ-13	
18604	ar	<u>(B5)</u>	Check Valve									
1009A	51	181-2/353	RHR HX #32 to SIS Pump Isolation	2(B)	6	GA	MO	0	EC	OP		
1860P	OT.	(C4)	Valve						PIT	2Y		
10090	51	181-2/353	RHR HX #31 to SIS Pump Isolation	2(B)	6	GA	MO	0	EC	OP		
733 ^	GT	(C4)	Valve						PIT	2Y		
735A	51	181-2/353	RHR HX #32 Outlet Safety Valve	2(C)	3/4	SF	SA	С	SP	10Y		
733B	GT	(C5)								ĺ		
7330	51	181-2/353	RHR HX #31 Outlet Safety Valve	2(C)	3/4	SF	SA	С	SP	10Y		
746	GT	(C5)										
/40	51	151-2/353	#31 RHR HX Outlet Injection Stop	2(B)	8	GA	MO	0	EC	OP		
747	GT	(C5)	Valve						PIT	2Y		
/ 4/	51	151-2/353	#32 RHR HX Outlet Injection Stop	2(B)	8	GA	MO	0	EC	OP		
8384		(C5)	Valve						PIT	2Y		
UJUA	51	151-2/353	RHR Return Low Head Injection Loop	1(A/C)	6	CK	SA	С	EO	CS	CSJ-19	
		(C/)	#1						EC	CS	CSJ-20	
839D	CT	101.072.50							LT-2	2Y		
030D	51	181-2/353	RHR Return Low Head Injection Loop	1(A/C)	6	СК	SA	С	EO	CS	CSJ-19	
		(B6)	#2						EC	CS	CSJ-20	
9290	GT	TOT OTO TO							LT-2	2Y		
0300	SI	181-27353	RHR Return Low Head Injection Loop	1(A/C)	6	CK	SA	С	EO	CS	CSJ-19	
		(B6)	#3	1		1			EC	CS	CSJ-20	
0200		YOT A TA TA			_				LT-2	2Y		
0200	SI	ISI-27353	RHR Return Low Head Injection Loop	1(A/C)	6	CK	SA	С	EO	CS	CSJ-19	
		(B6)	#4						EC	CS	CSJ-20	
2204	~~								LT-2	2Y		
839A	SI	ISI-27353	SIS Discharge Valve Test Valve	1(B)	3/4	GL	AO	С	PIT	2Y		Passive
200		(C7)										
S S S S S S S S S S S S S S S S S S S	SI	ISI-27353	SIS Discharge Valve Test Valve	1(B)	3/4	GL	AO	С	PIT	2Y		Passive
200	<u> </u>	(C8)										
\$390	SI	ISI-27353	SIS Discharge Valve Test Valve	1(B)	3/4	GL	AO	С	PIT	2Y		Passive
		(C7)		ĺ								

#### Drwe Relief Valve No. | System | No./Coor. Description Class/Cat Size Type Actuator Position Regm't Freq Rea Notes 839D ISI-27353 SIS Discharge Valve Test Valve SI l(B)3/4 PIT GL AO С 2Y Passive (B8) 839E SI ISI-27353 SIS Discharge Valve Test Valve 1(B) 3/4 GL PIT AO С 2Y Passive (C6) 839F SI ISI-27353 SIS Discharge Valve Test Valve 1(B) 3/4 GL С PIT 2Y AO Passive (B8) 839G SI ISI-27353 SIS Discharge Valve Test Valve 1(B) 3/4 GL PIT AO С 2Y Passive (C6) 839H SI ISI-27353 SIS Discharge Valve Test Valve 1(B) 3/4 GL AO С PIT 2Y Passive (A8) 855 SI ISI-27353 SIS Header Safety Relief Valve 2(C) 3/4 SF C SP SA 10Y (H4) 856B SI ISI-27353 High Head Safety Injection to Loop #3 2(B) 2 GL С ΕO MO CS CSJ-21 (G8) Hot Leg NonBIT Header EC CS CSJ-21 PIT 2Y 856C SI High Head Boron Injection to Loop #4 ISI-27353 2(B) 2 GL MO 0 EC CS CSJ-22 (F8) Cold Leg BIT Header Stop 2Y PIT 856E SI ISI-27353 High Head Boron Injection to Loop #1 2(B) 2 GL MO 0 EC CS CSJ-22 (F8) Cold Leg BIT Header Stop Valve PIT 2Y 856G SI ISI-27353 High Head Boron Injection to Loop #1 2(B) 2 GL. CS MO Ċ ΕO CSJ-21 (E8) Hot Leg BIT Header Stop Valve EC CS CSJ-21 2Y PIT 856H SI ISI-27353 High Head Safety Injection to Loop #3 2(B) 2 EC CS GL MO 0 CSJ-22 (G8) Cold Leg NonBIT Header 2Y PIT 856J SI ISI-27353 High Head Safety Injection to Loop #2 2(B) 2 GL MO 0 EC CS CSJ-22 Cold Leg NonBIT Header (H8) 2Y PIT 857A SI ISI-27353 High Head Safety Injection to Loop #1 1(A/C)2 CK SA C ΕO RR ROJ-14 (G8) Cold Leg NonBIT Header ROJ-14 2Y EC 2Y VR-1 LT-2 857B SI ISI-27353 High Head Safety Injection to Loop #3 1(A/C)2 CK SA С EO RR ROJ-14 (G8) Hot Leg NonBIT Header EC 2Y ROJ-14 LT-2 2Y 857C Boron Injection to Loop #4 Cold Leg SI ISI-27353 1(A/C)2 CK SA C RR ROJ-14 ΕO (F8) ROJ-14 EC 2Y LT-2 2Y

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
857D	SI	ISI-27353	Boron Injection to Loop #2 Cold Leg	1(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
		(F8)			i i				EC	2Y	ROJ-14	
0.571									LT-2	2Y		
85/E	SI	ISI-27353	Boron Injection to Loop #1 Cold Leg	1(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
	ĺ	(F8)	]						EC	2Y	ROJ-14	
857E	GT	TOT OFFICE			<u> </u>				LT-2	2Y		
857F	51	151-2/353	Boron Injection to Loop #3 Cold Leg	1(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
		(F8)	-						EC	2Y	ROJ-14	
857G		191 27252							LT-2	2Y		
05/0	51	151-2/353	High Head Safety Injection to Loop #1	1(A/C)	2	СК	SA	С	EO	RR	ROJ-14	
		(68)	Cold Leg						EC	2Y	ROJ-14	
857H	SI	181 27252	The Head Contact in the Head		·				LT-2	2Y	VR-1	
00/11	51	(09)	Figh Head Safety Injection to Loop #3	1(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
1		(00)	Hot Leg						EC	2Y	ROJ-14	
857.J	SI	ISI-27353	Boron Injection to Learn #4 Call	1(1/0)		~~~			LT-2	2Y		
	51	(F8)	Loop #4 Cold Leg	I(A/C)	2	СК	SA	С	EO	RR	ROJ-14	
		(10)							EC	2Y	ROJ-14	
857K	SI	ISI-27353	Boron Injection to Loon #2 Cald Las	1(4/0)		arr			LT-2	2Y		
	<u>.</u>	(F8)	Eoron injection to Eoop #2 Cold Leg	I(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
	P	(10)			ĺ				EC	2Y	ROJ-14	
857L	SI	ISI-27353	Boron Injection to Loop #1 Cold Leg	1(A/C)		CV	<u>C A</u>		LT-2	2Y	DOTAL	
		(F8)	Boton injection to Loop #1 Cold Leg	I(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
		(, )		1					EC	2Y	ROJ-14	
857M	SI	ISI-27353	Boron Injection to Loop #3 Cold Leg	$1(\Lambda/C)$	2	CV	SA .	~	LT-2 FO	2Y	DOLLA	
		(F8)	African is Boop #5 Cold Log	1(700)	2	CK	SA	C	EO	KK	ROJ-14	
									EC	2 Y	ROJ-14	
857N	SI	ISI-27353	Boron Injection to Loop #1 Hot Leg	1(A/C)	2	CK	SA	C	L1-2 FO	2Y DD	DOI 14	
		(E8)	5	1(100)	2		JA			KK 2V	ROJ-14	
										21 2V	ROJ-14	
857P	SI	ISI-27353	Boron Injection to Loop #1 Hot Leg	1(A/C)	2	CK	SA	<u> </u>		ZI DD	POL 14	
		(E8)	· · · · · ·	-()	-		5/1			$\frac{1}{2}$	DOI 14	
										$\frac{21}{2V}$	K03-14	
857Q	SI	ISI-27353	High Head Safety Injection to Loop #3	1(A/C)	2	CK	SA	/	E0	∠⊥ RR	ROL-14	
		(G8)	Cold Leg				~		FC	2V	ROL14	
						[		ľ	 	2Y	VR-1	

		Drwg									Relief	1
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
85/R	SI	ISI-27353	High Head Safety Injection to Loop #3	1(A/C)	2	CK	SA	C	EO	RR	ROJ-14	
		(68)	Cold Leg			Í			EC	2Y	ROJ-14	
8578		191 27252							LT-2	2Y	VR-1	
0375		151-27555	High Head Safety Injection to Loop #2	1(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
		(F18)	Cold Leg						EC	2Y	ROJ-14	
857T	<u>ei</u>	181 07252							LT-2	2Y	VR-1	
0.571	51	131-2/333	High Head Safety Injection to Loop #2	1(A/C)	2	CK	SA	C	EO	RR	ROJ-14	
		(H8)	Cold Leg						EC	2Y	ROJ-14	
85711	SI	181 27252				L			LT-2	2Y	VR-1	
0370	51	131-27333	Figh Flead Safety Injection to Loop #4	1(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
		(H8)	Cold Leg						EC	2Y	ROJ-14	
857W	SI	191 27252							LT-2	2Y	VR-1	
00711	51	151-27555	Filgh Head Safety Injection to Loop #4	1(A/C)	2	CK	SA	С	EO	RR	ROJ-14	
		(П8)	Cold Leg	1					EC	2Y	ROJ-14	
858A		181 27252							LT-2	2Y	<u>VR-1</u>	
02011	51	151-27555	Sis High Head Injection Test Line	2(C)	3/4	СК	SA	С	EO	OP		
858B	SI	<u>(04)</u> ISL 27353	SIS High Hand Injection Test Line	0(0)					EC	OP		
	51	(G4)	Check	2(C)	3/4	СК	SA	С	EO	OP		
880A	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(D)	2				EC	OP		
	~	(G5)	Charlotat I filer Dousing Isolation	2(B)	2	GA	MO	С	PIT	2Y		Passive
880B	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2	CA	- 10		DIT	0.17		<b>D</b>
		(G5)		2(D)	2	<b>GA</b>	MO	C	PH	2 Y		Passive
880C	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2	GA	MO	C	DIT	237		
		(G5)		2(0)	2	UA	NIO I	C	FII	2 Y		Passive
880D	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2	GA	MO	C	דוק	2V		Pagaina
		<u>(G5)</u>		-(2)	-	0/1	IVIC	Ŭ	1 1 1	21		rassive
880E	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2	GA	MO	C	PIT	28		Passive
		<u>(G6)</u>						Ŭ		21		1 455170
880F	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2	GA	MO	С	PIT	2Y		Passive
0000		(G5)			[			Ŭ		- 1		1 035110
880G	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2	GA	MO	С	PIT	2Y		Passive
00011		(G6)										
880H	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2	GA	MO	С	PIT	2Y		Passive
		(G6)										
1.000	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2	GA	MO	С	PIT	2Y		Passive
		(G4)										

Valve No.	System	No./Coor.	Description	Class/Cat	Size	Tuna	Actuatos	Position	Donnia	Ence	Relief	Nister
880K	SI	ISI-27353	Charcoal Filter Dousing Isolation	2(B)	2		MO	C		1 1 CU	neq	INDERS
886 4	CT I	(G4)		2(B)	2	UA	MO	C	PII	2 Y		Passive
800A	51	181-27353	Recirculating Pump #31 Discharge	2(C)	8	СК	SA	С	PEO	2Y	ROJ-15	
		(B2)	Check Valve						EC	2Y	ROJ-15	
886B	12	181 27252	Desirentating Dr. 120 Di 1			ļ			EO-VI	RR	ROJ-15	
COOL	51	(B4)	Choole Walter	2(C)	8	CK	SA	С	PEO	2Y	ROJ-15	
		(D4)	Check valve	ĺ					EC	2Y	ROJ-15	
889A	SI	ISI-27353	#32 RHR HX Outlet to Spray Header	200	0				EO-VI	RR	ROJ-15	
	~.	(D4)	Stop Valve	2(B)	8	GA	MO	С	EO	RR	ROJ-16	
									EC	RR	ROJ-16	
889B	SI	ISI-27353	#31 RHR HX Outlet to Spray Header	2(B)	8	GA	MO		PII FO	2Y	DOT 16	
		(D4)	Stop Valve	2(D)	0	UA	MO	C	EO		ROJ-16	
			1						DIT	rr 2V	KOJ-16	
890A	SI	ISI-27353	#31 SIS Accumulator Fill	2(B)	1	GL	AO	C		$\frac{21}{2V}$		Passive
		(D7)		- <- >	_			U	111	21		1 455170
890B	SI	ISI-27353	#32 SIS Accumulator Fill	2(B)	1	GL	AO	С	PIT	2Y		Passive
2000		(D6)										
8900	SI	ISI-27353	#33 SIS Accumulator Fill	2(B)	1	GL	AO	С	PIT	2Y		Passive
8900	SI	(D5)	#24 QIG A 1 / D'II									
070D	51	151-2/353	#34 SIS Accumulator Fill	2(B)	1	GL	AO	С	PIT	2Y		Passive
891A	SI	(D3) ISI-27353	#31 SIS A commulator Nitro and	200								
	51	(F7)	Sunnly/Vent	2(B)		GL	AO	С	PIT	2Y		Passive
891B	SI	ISI-27353	#32 SIS Accumulator Nitrogen	2(B)		CI	4.0	0	DIT	0.17		<del>.</del>
		(E6)	Supply/Vent	2(15)	1	GL	AU	C	PII	2 Y		Passive
891C	SI	ISI-27353	#33 SIS Accumulator Nitrogen	2(B)	1	GL	A0	<u> </u>	PIT	νv		Pagging
		(E6)	Supply/Vent	-(-)	î	02	110	Ŭ		21		1 455176
891D	SI	ISI-27353	#34 SIS Accumulator Nitrogen	2(B)	1	GL	AO	С	PIT	2Y		Passive
		(E5)	Supply/Vent									T ubbive
892A	SI	ISI-27353	#31 SIS Accumulator Safety Relief	2(C)	1	SF	SA	С	SP	10Y		
020	01	<u>(E7)</u>	//									1
072D	51	181-2/353	#32 SIS Accumulator Safety Relief	2(C)	1	SF	SA	С	SP	10Y		
892C		(E6)	#22 SIG A									
	51	131-2/333	#33 SIS Accumulator Safety Relief	2(C)	1	SF	SA	С	SP	10Y		
		(E0)									1	

#### Drwg Relief Valve No. | System | No./Coor. Description Class/Cat Size Type Actuator Position Regm't Freg Rea Notes 892D #33 SIS Accumulator Safety Relief SI ISI-27353 2(C) 1 SF SA C SP 10Y (E5) 894A SI ISI-27353 #31 SIS Accumulator Discharge Valve 2(B) 10 GA MO 0 PIT 2Y Passive (D7) 894B ISI-27353 #32 SIS Accumulator Discharge Valve SI 2(B) 10 GA PIT MO 0 2Y Passive (D7) 894C SI ISI-27353 #33 SIS Accumulator Discharge Valve 2(B) 10 PIT GA MO 2Y 0 Passive (D6) 894D SI #34 SIS Accumulator Discharge Valve ISI-27353 2(B) 10 GA PIT МО 0 2Y Passive (D5) 895A SI ISI-27353 #31 SIS Accumulator Discharge Valve l(A/C)10 CK SA PEO С CS CSJ-24 (C7) EC CS CSJ-25 LT-2 2Y EO-NI RR ROJ-17 895B SI ISI-27353 #32 SIS Accumulator Discharge Valve l(A/C)10 CK SA С PEO CS CSJ-24 (C7) EC CS CSJ-25 LT-2 2Y EO-NI ROJ-17 RR 895C SI ISI-27353 #33 SIS Accumulator Discharge Valve 1(A/C) 10 CK SA С PEO CS CSJ-24 (C6) EC CS CSJ-25 LT-2 2Y EO-NI RR ROJ-17 895D SI ISI-27353 #34 SIS Accumulator Discharge Valve 1(A/C)10 CK SA С PEO CS CSJ-24 (C5) EC CS CSJ-25 LT-2 2Y EO-NI RR ROJ-17 897A SI ISI-27353 High Head/ Low Head to Loop #1 Cold l(A/C)10 CK SA С PEO CS CSJ-26 (C8) Leg EC CS CSJ-26 LT-2 2Y EO-NI RR ROJ-18 897B SI ISI-27353 High Head/ Low Head to Loop #2 Cold 1(A/C) 10 CK SA С PEO CSJ-26 CS (B8) Leg EC CS CSJ-26 LT-2 2Y EO-NI RR ROJ-18

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Req	Notes
897C	SI	ISI-27353	High Head/ Low Head to Loop #3 Cold	1(A/C)	10	CK	SA	С	PEO	CS	CSJ-26	
		(B8)	Leg						EC	CS	CSJ-26	
									LT-2	2Y		
897D	<u>ei</u>	191 07252							EO-NI	RR	ROJ-18	
UTD .	51	101-2/333	High Head/ Low Head to Loop #4 Cold	1(A/C)	10	CK	SA	С	PEO	CS	CSJ-26	
		(A8)	Leg						EC	CS	CSJ-26	
									LT-2	2Y		
8994		191 27252							EO-NI	RR	ROJ-18	
07771	- 51	151-27355	#32 RHR HX Outlet to Loop #3 & #4	2(B)	8	GA	MO	0	EC	OP		
800B	<u></u>	(C5)	Cold Leg						PIT	2Y		
0790	51	181-2/353	#31 RHR HX Outlet to Loop #1 & #2	2(B)	8	GA	MO	0	EC	OP		
HCV 629	OT		Cold Leg						PIT	2Y		
110 V-038	51	181-2/353	RHR HX #31 Outlet Throttle Valve	2(B)	8	BU	MO	0	EO	OP		
		(C4)				1		1	EC	OP		
LICV 640		TOT OF OC							PIT	2Y		
110 0-040	51	181-2/353	RHR HX #32 Outlet Throttle Valve	2(B)	8	BU	MO	0	EO	OP		
		(CS)							EC	OP		
L		· · · · · · · · · · · · · · · · · · ·							РІТ	2Y		

		Drwg									Relief	1
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
201	CVCS	ISI-27363	Letdown Containment Isolation	NC(A)	2	GA	AO	0	EC	CS	CSJ-27	Note 2
		(G6)							FST-C	CS	CSJ-27	
									PIT	2Y		
202	CVCS	191.07262							LT-1	2Y		
202	CVCS	151-2/363	Letdown Containment Isolation	NC(A)	2	GA	AO	0	EC	CS	CSJ-27	Note 2
		(00)							FST-C	CS	CSJ-27	
1									PIT	2Y		
203	CVCS	181-27363	Latdown Safety Dalief	Mara					LT-1	2Y		
	0,00	(G7)	Ledown Safety Rener	NC(C)	2	SF	SA	С	A-SP	10Y		
204A	CVCS	ISI-27363	Charging Line Loop 1 Cold Leg Igolation					~				
		(E7)	Charging Line Loop T Cold Leg Isolation	NC(B)	3	GL	AO	С	A-EO	CS	CSJ-29	
									A-FST-O	CS	CSJ-29	
204B	CVCS	ISI-27363	Charging Line Loon 2 Hot Leg Isolation	NC(P)	2	CI	10		A-PIT	2Y	GGLAG	
		(E7)	Sing Sing Sine Boop 2 Hot Deg Isolation	NC(D)	5	GL	AO	0	A-EO	CS	CSJ-29	
		()							A-FSI-O	CS	CSJ-29	
205	CVCS	ISI-27363	Charging Containment Isolation	NC(A)	3	GA	MO	0	A-PII	2Y CS	CELDO	NI-t- 2
		(E6)			5		1010	U	DIT		CSJ-28	INOTE 2
						1			Γ11 Ι <b>Τ</b> Ι	2 I 2 V		
210A	CVCS	ISI-27363	Charging Line Loop 2 Hot Leg Check	1(C)	3	СК	SA	C	EO	$\frac{21}{CS}$	CSI 30	Nota 1
		(E7)		-(-)	Ĩ	<u>on</u>	571	Ŭ	EC	OP OP	031-30	Note 1
210B	CVCS	ISI-27363	Charging Line Loop 1 Cold Leg Check	1(C)	3	СК	SA	0	EO	OP		Note 1
		(E7)						Ũ	EC	OP		
210C	CVCS	ISI-27363	Charging Line Loop 2 Hot Leg Check	1(C)	3	CK	SA	С	EO	CS	CSJ-30	Note 1
2100	arra -	(E7)							EC	OP		
210D	CVCS	ISI-27363	Charging Line Loop 1 Cold Leg Check	1(C)	3	CK	SA	0	EO	OP		Note 1
211	CVCC	<u>(E7)</u>							EC	OP		
211	CVCS	181-2/363	Pressurizer Auxiliary Spray Check	1(C)	2	CK	SA	С	EC	OP		
212	CVCS	<u>(上/)</u>	Describe A 11 C A 1							_,		
212	CVCS	151-2/303	Pressurizer Auxiliary Spray Isolation	1(C)	2	GL	AO	С	EC	OP		
		(E/)							FST-C	OP	ĺ	
213A	CVCS	ISI 27262	European Latelana, L'Artici						PIT	2Y		
		(07)	Excess Leidown Line isolation	1(B)	1	GL	AO	C	EC	OP		
					Í			(I	FST-C	OP		ļ
						1			PIT	2v I	ļ	

		Drwg								1	Relief	1
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	Req	Notes
213B	CVCS	ISI-27363	Excess Letdown Line Isolation	1(B)	1	GL	AO	С	EC	OP	T	
		(D7)							FST-C	OP		
218	CVCS	181 27262	Soal Datum Line Sector D 11 C						PIT	2Y		
	CVCS	(D7)	Sear Return Line Safety Relief	NC(C)	3	SF	SA	C	A-SP	10Y		
222	CVCS	ISI-27363	RCP Seal Water Return Isolation	NC(A)	4	GA	МО	0	EC	CS	CSI-31	Note 2
		(D6)						_	PIT	2Y		11000 2
0.0.6									LT-1	2Y		
226	CVCS	ISI-27363	Charging Containment Isolation	NC(A)	3	GL	MO	0	EC	CS	CSJ-28	Note 2
		(E6)							PIT	2Y		
227	CUCC	101.070.00							LT-1	2Y		
221	CVCS	ISI-2/363	Charging Line Containment Isolation	NC(A)	3	GL	MA	С	LT-1	2Y		Passive
250A	CVCS	(E0) ISI_27363	#31 DCP Sool Injection Containment								L	Note 2
	CYCS	(B8)	Isolation	NC(A)	2	GL	MO	0	EC	CS	CSJ-31	Note 2
		(10)							PIT	2Y		
250B	CVCS	ISI-27363	#32 RCP Seal Injection Containment	NC(A)	2	CI	MO		LT-1	2Y	COT A1	
		(B8)	Isolation	NC(A)	2	GL	MO	0	EC	CS	CSJ-31	Note 2
		<u> </u>							רון דדו	21		
250C	CVCS	ISI-27363	#33 RCP Seal Injection Containment	NC(A)	2	GL	MO	0	EC		CSI 21	Note 2
		(B7)	Isolation		-	01	1410	Ŭ	PIT	$2\mathbf{v}$	03-31	INDIC 2
									LT-1	2 V		
250D	CVCS	ISI-27363	#34 RCP Seal Injection Containment	NC(A)	2	GL	MO	0	EC	CS	CSJ-31	Note 2
		(B7)	Isolation				ĺ		PIT	2Y		
2514									LT-1	2Y		
231A	CVCS	1SI-27363	31 RCP Seal Water Injection Check	2(C)	2	CK	SA	С	EC	OP		
251B	CVCS	ISI-27363	32 RCP Seal Water Injection Check	2(C)	2	CV	<u> </u>		FC			
		(B8)		2(0)	2	CK	SA	C	EC	OP .		
251C	CVCS	ISI-27363	33 RCP Seal Water Injection Check	2(C)	2	СК	SA	Ċ	EC	OP		
		<u>(B7)</u>			_		~~~	Ũ	20	Ŭ,		
251D	CVCS	ISI-27363	34 RCP Seal Water Injection Check	2(C)	2	CK	SA	С	EC	OP		
251E	CVCS	( <u>B7</u> )										
	CVCS	(Do)	STRUP Seal Water Injection Check	NC(C)	2	СК	SA	C	A-EC	OP		
251F	CVCS	ISI-27363	32 RCP Seal Water Injection Chast	NC(C)		CIV						
		(B8)	2 ref bear water injection check		4	CK	SA	C	A-EC	OP		
				1	1							
		Drwg									Relief	
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Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
251G	CVCS	ISI-27363 (B7)	33 RCP Seal Water Injection Check	NC(C)	2	СК	SA	С	A-EC	OP		
251H	CVCS	ISI-27363 (B7)	34 RCP Seal Water Injection Check	NC(C)	2	СК	SA	C	A-EC	OP		
251J	CVCS	ISI-27363 (B8)	31 RCP Seal Water Injection Check	2(C)	2	СК	SA	С	EC	OP		
251K	CVCS	ISI-27363 (B8)	32 RCP Seal Water Injection Check	2(C)	2	CK	SA	С	EC	OP		
251L	CVCS	ISI-27363 (B7)	33 RCP Seal Water Injection Check	2(C)	2	СК	SA	С	EC	OP		
251M	CVCS	ISI-27363 (B7)	34 RCP Seal Water Injection Check	2(C)	2	СК	SA	С	EC	OP		
290	CVCS	ISI-27363 (C5)	Charging Pump Suction from RWST Check	2(C)	4	СК	SA	С	EO	CS	CSJ-32	
332	CVCS	ISI-27363 (B4)	Charging Pump Suction from Emergency Boration Check	NC(C)	2	CK	SA	С	A-EO	2Y		
333	CVCS	ISI-27363 (B4)	Charging Pump Suction from Emergency Boration Isolation	NC(B)	2	GL	МО	С	A-EO	CS	CSJ-33	
362A	CVCS	ISI-27363 (C3)	#31 Boric Acid Transfer Pump Discharge Check	NC(C)	2	СК	SA	0	A-P11 A-E0	OP		
362B	CVCS	ISI-27363 (C3)	#32 Boric Acid Transfer Pump Discharge Check	NC(C)	2	CK	SA	0	A-EO	OP		
374	CVCS	ISI-27363 (E7)	Charging Line Check	NC(C)	3	СК	SA	0	A-EO	OP		
401	CVCS	ISI-27363 (C6)	#31 Charging Pump Discharge to Charging Header Check	NC(C)	1 1/2	CK	SA	0	A-EO	OP		
403	CVCS	ISI-27363 (C6)	#32 Charging Pump Discharge to Charging Header Check	NC(C)	1 1/2	СК	SA	0	A-EO	OP		
405	CVCS	ISI-27363 (B6)	#33 Charging Pump Discharge to Charging Header Check	NC(C)	1 1/2	СК	SA	0	A-EO	OP		
441	CVCS	(B8)	#31 RCP Seal Injection Containment Isolation	NC(A)	1	GL	МО	0	EC PIT	CS 2Y	CSJ-31	Note 2
142	CVCS	ISI-27363 (B8)	#32 RCP Seal Injection Containment Isolation	NC(A)	1	GL	МО	0	EC PIT	$\frac{21}{CS}$ 2Y 2V	CSJ-31	Note 2

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Value No.	e .	Drwg							1		Relief	
vaive to.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
443	CVCS	ISI-27363	#33 RCP Seal Injection Containment	NC(A)	1	GL	MO	0	EC	CS	CSJ-31	Note 2
		(B7)	Isolation						PIT	2Y		
111	OVOO	101.072.02							LT-1	2Y		
444	CVCS	ISI-27363	#34 RCP Seal Injection Containment	NC(A)	1	GL	MO	0	EC	CS	CSJ-31	Note 2
		(B/)	Isolation						PIT	2Y		
HCV-133	CVCS	191 272/2							LT-1	2Y		
110 1105	CVCS	131-27363 (G7)	RHR/CVUS Cross Connect	2(B)	2	GL	AO	С	PIT	2Y		Passive
LCV-112B	CVCS	ISI-27363	Charging Pump Suction from RWST	2(B)	4	GA	MO	0	FO	CS	CRI24	
		(C5)	Isolation	$\mathcal{L}(\mathcal{D})$	т	UA	1010	0	DUT	lov	CSJ-34	
LCV-112C	CVCS	ISI-27363	Charging Pump Suction from VCT	NC(B)	4	GA	MO	0	A-EC	CS	CSI-35	
I GIL 150		(D5)	Isolation	, ,				Ŭ	A-PIT	2Y	003-00	
LCV-459	CVCS	ISI-27363	Letdown Line Isolation	NC(B)	3	GL	AO	0	EC	CS	CSJ-36	
		(F7)							FST-C	CS	CSJ-36	
LCV/4C0	OLIOG	TOT OTO CO.							PIT	2Y		
LC V-400	CVCS	ISI-2/363	Letdown Line Isolation	NC(B)	3	GL	AO	0	EC	CS	CSJ-36	
		(F7)							FST-C	CS	CSJ-36	
	]								PIT	2Y		

V.1. A		Diwg									Relief	
valve ivo.	System	No./Coor	. Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	Req	Notes
956A	SMPL	ISI-27453	Pressurizer Steam Space Sample	1(A)	3/8	GL	AO	C	EC	OP	Γ	Note 2
1		(G7)	Containment Isolation						FST-C	OP		
									PIT	2Y		
956B	SMDI	101.07452	D i G G		L				LT-1	2Y		
550B	SIVIPL	151-2/453	Pressurizer Steam Space Sample	1(A)	3/8	GL	AO	С	EC	OP		Note 2
		(00)	Containment Isolation						FST-C	OP		
									PIT	2Y		
956C	SMPI	ISI-27453	Pressurizor Liquid Crease Compl						LT-1	2Y		
		101-27年35 (F7)	Containment Isolation	I(A)	3/8	GL	AO	C	EC	OP		Note 2
		(17)	Containment Isolation	-					FST-C	OP		
									PIT	2Y		
956D	SMPL	ISI-27453	Pressurizer Liquid Space Sample	1(A)	2/0	CI	10	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	LT-1	2 <u>Y</u>		
		(F6)	Containment Isolation	I(A)	3/8	GL	AO	С	EC	OP		Note 2
		(, )							FST-C	OP		
									PIT	2Y		
956E	SMPL	ISI-27453	RCS Hot Leg Sample Isolation	1(A)	3/8	GI	40		LT-1	2Y OP		NL + O
		(F7)		1(11)	5/0	UL	AU	0	EU EST C	OP OD		Note 2
		. ,							roi-C	OP		
										21		
956F	SMPL	ISI-27453	RCS Hot Leg Sample Isolation	1(A)	3/8	GL	AO	0	EC	OP D		Note 2
		(F6)						Ŭ	EST-C	OP		Note 2
									PIT	$\frac{OI}{2V}$		
0000									I T_1	$\frac{21}{2V}$		
956G	SMPL	ISI-27453	Accumulator's Sample Isolation	2(A)	3/8	GL	AO	0	EC	OP		Note 2
		(E6)							FST-C	OP		
									PIT	2Y		
05611	CI (TI	101.07.170							LT-1	2Y		
930n	SMPL	181-27453	Accumulator's Sample Isolation	2(A)	3/8	GL	AO	0	EC	OP		Note 2
		(E7)							FST-C	OP	ľ	
ļ									PIT	2Y	-	
958	SNADI	181 27452	DIM I a l a						LT-1	2Y		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	SIVIEL	(D7)	RHR Loop Sample Containment	2(A)	3/4	GL	AO	C	EC	OP		
		(D)	Isolation				ľ		FST-C	OP		ł
	1				[				PIT	2Y		
					1	1			гтз (	ov I		

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Relief Reg	Notes
959	SMPL	ISI-27453	RHR Loop Sample Containment	2(A)	3/8	GL	AO	С	EC	IOP		
		(D6)	Isolation	ĺ					FST-C	OP		
									PIT	2Y		*
9904	SMDI	ISL 27452							LT-3	2Y		
220M	SIVIPL	151-27455	Recirculating Pump Discharge Sample	2(A)	1 1/2	GL	MO	С	PIT	2Y		Passive
0000		(F7)	Isolation						I T_3	2V		
990B	SMPL	ISI-27453	Recirculating Pump Discharge Sample	2(A)	1 1/2	GL	MO	С	PIT	$\frac{21}{2Y}$		Passive
		(F6)	Isolation					-	1 7 2	21		1 455100
990C	SMPL	ISI-27453	RHR Loop Sample Main Valve	2(A)	3/8	GI	ΜΔ	C	LI-3 IT 2	$\frac{2}{2}$ V		Doggiyo
	i	(D6)		-(1)	5/0	OL.	IVILA	C	L1-3	21		rassive

		Drwg									Relief		
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Regm't	Frea	Rea	Not	es
1495	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP			
1501	THOM:	(F6)											
	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP			
1502	IVSW	(E/) ISI-27463	IVSW Injection Check										
	1,0,0	(H5)	1 V S W IIJection Check	2(C)	3/8	CK	SA	0	EO	OP			
1503	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CV	84		FO				
		(E6)		2(0)	5/0	CK	SА	U	EO	UP			
1505	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP			
1506		(H3)						Ũ		Ŭ,			
1300	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP			
1507	IVSW	(E5) ISI-27463	IVSW Injection Charle	<b>A</b> (G)									
	1,2,4	(E5)	1 V S W IIJection Check	2(C)	3/8	СК	SA	0	EO	OP			
1508	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CV	SV.	0	TO				
		(E5)	J	2(0)	5/0	CK	SA	0	EO			i I	
1509	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP			
1510	IN CONV.	<u>(E5)</u>						-	20				
1510	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP			
1511	IVSW	(E5) ISI-27463	IVSW Injection Charle	2(0)									
		(E5)	1 V S W Injection Check	2(C)	3/8	CK	SA	0	EO	OP			
1512	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	FO				
		(E5)	-	2(0)	5/0	CIX	JA.	0	LU				
1513	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP			
1514	IVON	(E5)									l		
1514	IVSW	181-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP			
1515	IVSW	(E3) ISI-27463	IVSW Injection Check	2(0)	2/0		~ ~ ~						
		(E5)	THE W INJUSTIC ENCOR	2(0)	3/8	CK	SA	0	EO	OP	ł		
1516	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	FO	OP			
		(H5)	-	2(0)	5/0		5A		LO	Or			ĺ
1517	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP			
1518	IVON	(H6)											
1.210	1v5w	151-2/463	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP			
519	IVSW	(F10) ISI-27463	IVSW Injection Check		2/0								
	~	(G8)		2(U)	3/8	CK	SA	0	EO	OP	(		
		>				1		4	1				

	1_	Diwg								1	Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	Rea	Notes
1520	IVSW	ISI-27463 (H8)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1521	IVSW	ISI-27463 (H5)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1522	IVSW	ISI-27463 (E7)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1523	IVSW	ISI-27463 (E7)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1524	IVSW	ISI-27463 (H8)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1525	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1526	IVSW	ISI-27463 (G8)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1529	IVSW	ISI-27463 (F6)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1530	IVSW	ISI-27463 (F6)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1531	IVSW	ISI-27463 (F5)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1534	IVSW	ISI-27463 (E6)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1535	IVSW	ISI-27463 (E7)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1536	IVSW	ISI-27463 (E7)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1537	IVSW	ISI-27463 (H4)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1538	IVSW	ISI-27463 (H5)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1539	IVSW	ISI-27463 (H5)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1540	IVSW	ISI-27463 (H4)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
541	IVSW	ISI-27463	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
542	IVSW	ISI-27463 [ (H4)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Ream't	Fren	Relief Rea	Notes
1543	IVSW	ISI-27463 (H4)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1544	IVSW	ISI-27463 (E7)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1545	IVSW	ISI-27463 (D5)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1546	IVSW	ISI-27463 (D5)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1547	IVSW	ISI-27463 (D5)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1548	IVSW	ISI-27463 (D5)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1549	IVSW	ISI-27463 (F5)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1550	IVSW	ISI-27463 (E6)	IVSW Injection Check	2(C)	3/8	CK	SA	0	EO	OP		
1551	IVSW	ISI-27463 (H4)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1552	IVSW	ISI-27463 (H4)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1553	IVSW	ISI-27463 (H4)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		
1554	IVSW	ISI-27463 (H4)	IVSW Injection Check	2(C)	3/8	СК	SA	0	EO	OP		

Valve No.	System	Dfwg No/Coor	Description	Classif		<b>.</b>		n			Relief	
518	RCS	151 27472	N2 Superior DDT Control Vision	Class/Cat	Size	1 vpe	Actuator	Position	Reqm't	Freq	Req	Notes
	I I I I I I I I I I I I I I I I I I I	(G7)	INZ Supply to PRT Containment Isolation	NC(A/C)	3/4	CK	SA	С	EC	2Y	ROJ-19	Note 2
519	RCS	ISI-27473	Primary Water Supply to DDT Isolation	NO(A)					LT-1	5 <u>Y</u>		
		(F8)	Value	NC(A)	3	DA	AO	C	EC	OP		Note 2
		(10)		Í					FST-C	OP		
									PIT	2Y	]	
535	RCS	ISI-27473	PORV Blocking Valve	1(D)					LT-1	2 <u>Y</u>		
		(G1)		1(Б)	3	GA	MO	0	EO	OP		
		(01)							EC	OP		
536	RCS	ISI-27473	PORV Blocking Valve	1/D)	2				PIT	2Y		
		(G1)		I(B)	3	GA	MO	0	EO	OP		
									EC	OP		
548	RCS	ISI-27473	PRT Gas Sample to Analyzer Isolation	NC(A)	2/0	OT	10		PIT	2Y		
		(G8)	Valve	NC(A)	3/8	GL	AO	0	EC	OP		Note 2
		(00)							FST-C	OP		
									PIT	2Y		
549	RCS	ISI-27473	PRT Gas Sample to Analyzer Isolation	$NC(\Lambda)$	2/9	CI			LT-1	2Y		
		(G7)	Valve	NC(A)	5/8	GL	AU	0	EC Dom a	OP		Note 2
		<b>X</b> = 1 <b>y</b>							FST-C	OP		
						ſ			PIT	2Y		
550	RCS	ISI-27473	N2 Supply to PRT Isolation Valve	NC(A)	3/4	GA	10	<u> </u>	LT-1	$\frac{2Y}{OP}$		
		(G8)		NC(A)	5/4	UA	AU			OP OD		Note 2
1		Ì, Í							FS1-C	OP		
										2Y		
552	RCS	ISI-27473	Primary Water Supply to PRT Isolation	NC(A)	3	DA		C		$\frac{5Y}{OP}$		NI-t- 2
		(F8)	Valve		5							Note 2
				1				 		or		
					ļ		1					
652	RCS	ISI-27473	RX Vessel Head Vent Valve	1(B)	1	GL	50	C	30	$\frac{2Y}{CS}$	CSI 27	
		(E4)								$\frac{1}{2}$	03-37	
653	RCS	ISI-27473	RX Vessel Head Vent Valve	1(B)	1	GL	SO	C II	70	$\frac{21}{CS}$	CSI 37	·
		(E4)		) í			~ ~ ~		лт Г	$\frac{1}{2}$	003-37	
554	RCS	ISI-27473	RX Vessel Head Vent Valve	1(B)	1	GL	so	C	EO	$\frac{2}{CS}$	CSI-37	
		(E5)								$\frac{1}{2}$	000-07	
555	RCS	ISI-27473	RX Vessel Head Vent Valve	1(B)	1	GL	SO	CF	EO	CS 0	CSJ-37	
		(E5)							лт УТТ			

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Regm't	Frea	Relief Rea	Notes
PCV-455C	RCS	ISI-27473 (G1)	PORV	1(B)	3	GL	AO	С	EO	CS	CSJ-38	
PCV-456	RCS	181-27473	POPV	1.00					PIT	CS 2Y	C3J-38	
	Reb	(G1)	TORV	I(B)	3	GL	AO	С	EO EC DIT	CS CS	CSJ-38 CSJ-38	
PCV-464	RCS	ISI-27473 (G2)	Pressurizer Safety Relief Valve	1(C)	6	SF	SA	С	SP	2 I 5Y		
PCV-466	RCS	ISI-27473 (G3)	Pressurizer Safety Relief Valve	1(C)	6	SF	SA	С	SP	5Y		
PCV-468	RCS	ISI-27473 (G3)	Pressurizer Safety Relief Valve	1(C)	6	SF	SA	С	SP	5Y		

Yate No.         System         No./C fort         Description         Class Cat         System         Activator         People         Req         Req         Req         Notest           13         S1         ISI-27503         Spray Add. Tamk Vac. Rel.         3(C)         1         SF         SA         C         SP         10Y	** 5		Drwg									Relief	
13       S1       ISI-27503       Spray Add. Tank Vac. Rel.       3(C)       1       SF       SA       C       SP       10Y       Image: Constraint of the second sec	Valve No.	System	No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Regm't	Freq	Rea	Notes
14         S1         ISI-2703         Spray Add. Tank Vac. Rel. (PT)         3(C)         1         SF         SA         C         SP         107         0           1807B         S1         ISI-2703         \$#32 Safety Injection Pump Min Flow (PT)         2(B)         3/4         GL         MA         O         EC         OP         1           1810         S1         ISI-2703         RWST Outlet isolation Valve         2(B)         3/4         GL         MA         O         EC         OP         1           1810         S1         ISI-2703         RWST Outlet isolation Valve         2(B)         3/4         GL         MA         O         EC         OP         107         1           1815         S1         ISI-2703         Byray Adl. Tank Relief         3(C)         3/4         SF         SA         C         SP         107         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	13	SI	ISI-27503	Spray Add. Tank Vac. Rel.	3(C)	1	SF	SA	С	ISP	107	<u> </u>	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	14		<u>(F7)</u>						Ű				
1807B       SI       151-27503       322 Safety Injection Pump Min Flow [solation Valve       2(B)       3/4       GL       MA       O       EO       OP         1810       SI       ISI-27503       MSAT Outlet Isolation Valve       2(B)       8       GA       MO       O       EC       OP       P         1810       SI       ISI-27503       Spray Add. Tank Relief       3(C)       3/4       SF       SA       C       SP       IOY       P       P         1812       SI       ISI-27503       Borie Acid Injection Safety Relief Valve       2(C)       3/4       SF       SA       C       SP       IOY       P       P         1823       SI       ISI-27503       BORie Acid Injection Safety Relief Valve       2(C)       3/4       SF       SA       C       SP       IOY       P       P         1835A       SI       ISI-27503       BIT Outlet Valve       2(A)       4       GA       MO       O       EO       OP       P       P       P       P       P       P       P       P       P       P       P       P       P       P       P       P       P       P       P       P       P       P <td>14</td> <td>SI</td> <td>ISI-27503</td> <td>Spray Add. Tank Vac. Rel.</td> <td>3(C)</td> <td>1</td> <td>SF</td> <td>SA</td> <td>С</td> <td>SP</td> <td>10Y</td> <td></td> <td></td>	14	SI	ISI-27503	Spray Add. Tank Vac. Rel.	3(C)	1	SF	SA	С	SP	10Y		
180/7B       S1       ISIL 27503       32 Safety Injection Pump Min Flow Isolation Valve       2(B)       3/4       GL       MA       O       EO       OP       EC       CS       CS       SI       ISIL 27503       Boric Acid Injection Safety Relief Valve       2(C)       3/4       SF       SA       C       SP       10Y       Image: CS       CS       CS       OP       EC       OP	19070	<u></u>	<u>(F7)</u>					-					
Image: State of the	100/B	SI	181-27503	#32 Safety Injection Pump Min Flow	2(B)	3/4	GL	MA	0	EO	OP		
N10       S1       ISI-27503 (F7)       RWST Outlet Isolation Valve       2(B)       8       GA       MO       O       EC       CS	1810	CT.	(F3)	Isolation Valve						EC	OP		
1815       SI       ISI-27503       Spray Add. Tank Relief       3(C) $3/4$ SF       SA       C       SP       10Y       Image: Constraint of the second	1010	51	181-27503	RWST Outlet Isolation Valve	2(B)	8	GA	MO	0	EC	CS	CSJ-47	
M12         M1         M12/1703         Spray Add. Tank Keilef         3(C)         3/4         SF         SA         C         SP         10Y         Image: Constraint of the second secon	1815	er	(F4)							PIT	2Y		
1823StISI-27503 (G7)Boric Acid Injection Safety Relief Valve (G7) $2(C)$ $3/4$ SFSACSP10Y1835ASIISI-27503 (G7)BIT Outlet Valve $2(A)$ 4GAMO0EO EC OP PIT $2Y$ 1835BSIISI-27503 (G7)BIT Outlet Valve $2(A)$ 4GAMO0EO EC OP 	1015	51	151-27503	Spray Add. Tank Relief	3(C)	3/4	SF	SA	С	SP	10Y		
State       State       State       C       SP       SA       C       SP       10Y       IOY         1835A       SI $ISI-27503$ (G7)       BIT Outlet Valve $2(A)$ 4       GA       MO       O       EO       OP       EC       SI       ISI-27503       Spray Add to Educt. #32       2(C)       3       CK       SA       C       EO <td< td=""><td>1823</td><td>51</td><td>(F/) ISI 27502</td><td>Derie Arith, die O. C. D. B. Over</td><td></td><td>ļ</td><td>ļ</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	1823	51	(F/) ISI 27502	Derie Arith, die O. C. D. B. Over		ļ	ļ						
1835A       SI       ISI-27503 (G7)       BIT Outlet Valve $2(A)$ 4       GA       MO       O       EC       OP PTT       2Y         1835B       SI       ISI-27503 (G7)       BIT Outlet Valve $2(A)$ 4       GA       MO       O       EC       OP PTT       2Y         1835B       SI       ISI-27503 (G7)       BIT Outlet Valve $2(A)$ 4       GA       MO       O       EC       OP PTT       2Y         1838A       SI       ISI-27503 (G7)       Spray Add. to Educt. #31 $2(C)$ 3       CK       SA       C       EO       CS       CSI-48         1838B       SI       ISI-27503 (C4)       Spray Add. to Educt. #32 $2(C)$ 3       CK       SA       C       EO       CS       CSI-48         1852A       SI       ISI-27503 (G5)       BIT Inlet Valve $2(B)$ 4       GA       MO       O       PIT       2Y       Passive         442       SI       ISI-27503 (E3)       BIT nuet Valve $2(B)$ 4       GA       MO       O       PIT       2Y       Passive         442       SI       ISI-27503 (E3)       SI Pump Recirculation Isolation Valve	1025	51	131-27303	Boric Acid Injection Safety Relief Valve	2(C)	3/4	SF	SA	С	SP	10Y		
Marking       Sin       IMPEPSON (G7)       INFORME Value $2(A)$ 4       GA       MO       O       EC       OP EC       OS       CS       CSI-39 EC-11       OP EC       OP EC       CS       CSI-41       OP EC       OP EC       CSI-41 <t< td=""><td>1835A</td><td>SI</td><td>ISL 27503</td><td>DIT Outlet Value</td><td></td><td><u> </u></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	1835A	SI	ISL 27503	DIT Outlet Value		<u> </u>							
Image: https://index.org/line       Image: h		51	(67)	BIT Outlet valve	2(A)	4	GA	MO	0	EO	OP		
1835B       SI       ISI-27503 (G7)       BIT Outlet Valve $2(A)$ 4       GA       MO       O       EC       OP EO       OP PIT $2Y$ $2Y$ 1838A       SI       ISI-27503 (D4)       Spray Add. to Educt. #31 $2(C)$ 3       CK       SA       C       EO       CS       CS1-48 EC-NI       RR       ROJ-20         1838B       SI       ISI-27503 (C4)       Spray Add. to Educt. #32 $2(C)$ 3       CK       SA       C       EO       CS       CS1-48 EC-NI       RR       ROJ-20         1852A       SI       ISI-27503 (G5)       BIT Inlet Valve $2(B)$ 4       GA       MO       O       PIT $2Y$ Passive         1852B       SI       ISI-27503 (G5)       BIT Inlet Valve $2(B)$ 4       GA       MO       O       PIT $2Y$ Passive         1842       SI       ISI-27503 (E3)       SI Pump Recirculation Isolation Valve $2(B)$ $2$ GL       MO       O       EC       CS       CS1-39 LT-3 $2Y$ Passive         443       SI       ISI-27503 (E3)       SI Pump Recirculation Isolation Valve $2(B)$ $14$ GA <td></td> <td></td> <td>(07)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>EC</td> <td>OP</td> <td></td> <td></td>			(07)							EC	OP		
Internal (G7)Internal (G7)2(A)4GAMO0EO EC PIT PITOp PIT 2Y1838ASIISI-27503 (G4)Spray Add. to Educt. #31 (C4)2(C)3CKSACEO EOCSCS1-48 EC-NI1838BSIISI-27503 (C4)Spray Add. to Educt. #32 (G5)2(C)3CKSACEO EOCSCS1-48 EC-NI1852ASIISI-27503 (G5)BIT Inlet Valve (G5)2(B)4GAMOOPIT2YPassive1852BSIISI-27503 (G5)BIT Inlet Valve (G5)2(B)4GAMOOPIT2YPassive442SIISI-27503 (E3)SI Pump Recirculation Isolation Valve (G3)2(B)2GLMOOEC ECCS CS1-39 LT-3 2YPIT2YPassive444SIISI-27503 (E3)SI Pump Recirculation Isolation Valve (G3)2(B)2GLMOOEC ECCS CS1-39 LT-3CS1-39 LT-32Y PITPIT 2Y446SIISI-27503 (G3)SIS Pump Suction2(B)14GAMAOEC ECCS CS1-39 LT-3CS1-40 LT-32Y PIT47SIISI-27503 (F3)SIS Pump Suction2(C)8CKSACPEO PEO PEO PITCS1-40 PITCS1-40 PIT47SIISI-27503 (F3)SIS Pump	1835B	SI	ISL-27503	RIT Outlet Velve						PIT	2Y		
I838ASIISI-27503 (D4)Spray Add. to Educt. #31 $2(C)$ $3$ $CK$ $SA$ $C$ $EC$ PIT QY $QY$ $QY$ 1838BSIISI-27503 (C4)Spray Add. to Educt. #32 $2(C)$ $3$ $CK$ $SA$ $C$ $EO$ $CS$ $CSI-48$ EC-NI1852ASIISI-27503 (C5)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ $Passive$ 1852BSIISI-27503 (G5)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ $Passive$ 1852BSIISI-27503 (G5)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ $Passive$ 1842SIISI-27503 (E3)SI Pump Recirculation Isolation Valve $2(B)$ $2$ $GL$ $MO$ $O$ $EC$ $CS$ $CSJ-39$ $LT-32Y443SIISI-27503(C3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCSCSJ-39LT-3ZY446SIISI-27503(G3)RWST Isolation Valve2(B)14GAMAOECCSCSJ-4047SIISI-27503(G3)SIS Pump Suction2(C)8CKSACPEOOPECCSCSJ-4047SIISI-27503(G3)SIS Pump Suction2(C)8CKSAC<$		51	(67)		2(A)	4	GA	MO	0	EO	OP		
1838ASIISI-27503 (D4)Spray Add. to Educt. #31 $2(C)$ $3$ $CK$ $SA$ $C$ $EO$ $CS$ $CSJ-48$ 1838BSIISI-27503 (C4)Spray Add. to Educt. #32 $2(C)$ $3$ $CK$ $SA$ $C$ $EO$ $CS$ $CSJ-48$ 1852ASIISI-27503 (C4)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ $Passive$ 1852BSIISI-27503 (G5)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ $Passive$ 1852BSIISI-27503 (G5)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ $Passive$ 1842SIISI-27503 (E3)SI Pump Recirculation Isolation Valve $2(B)$ $2$ $GL$ $MO$ $O$ $EC$ $CS$ $CSJ-39$ 443SIISI-27503 (E3)SI Pump Recirculation Isolation Valve $2(B)$ $2$ $GL$ $MO$ $O$ $EC$ $CS$ $CSJ-39$ 443SIISI-27503 (E3)RWST Isolation Valve $2(B)$ $14$ $GA$ $MA$ $O$ $EC$ $CS$ $CSJ-40$ 446SIISI-27503 (G3)RWST Isolation Valve $2(B)$ $14$ $GA$ $MA$ $O$ $EC$ $CS$ $CSJ-40$ 47SIISI-27503 (G3)SIS Pump Suction $2(C)$ $8$ $CK$ $SA$ $C$ $PEO$ $OP$ $EO$ $EO$ $CS$ $CSJ-40$ <			(07)							EC	OP		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1838A	SI	ISI-27503	Spray Add to Educt #21	2(0)		GTL			PIT	2Y		
1838BSIISI-27503 (C4)Spray Add. to Educt. #32 $2(C)$ $3$ $CK$ $SA$ $C$ $EC-NI$ $RR$ $ROJ-20$ 1852ASIISI-27503 (G5)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ Passive1852BSIISI-27503 (G5)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ Passive1852BSIISI-27503 (G5)BIT Inlet Valve $2(B)$ $4$ $GA$ $MO$ $O$ $PIT$ $2Y$ Passive1842SIISI-27503 (E3)SI Pump Recirculation Isolation Valve $2(B)$ $2$ $GL$ $MO$ $O$ $EC$ $CS$ $CSJ-39$ 1843SIISI-27503 (E3)SI Pump Recirculation Isolation Valve $2(B)$ $2$ $GL$ $MO$ $O$ $EC$ $CS$ $CSJ-39$ 46SIISI-27503 (G3)RWST Isolation Valve $2(B)$ $2$ $GL$ $MO$ $O$ $EC$ $CS$ $CSJ-39$ 47SIISI-27503 (F3)SIS Pump Suction $2(C)$ $8$ $CK$ $SA$ $C$ $PEO$ $OP$ $IT-3$ $2Y$ 47SIISI-27503 (F3)SIS Pump Suction $2(C)$ $8$ $CK$ $SA$ $C$ $PEO$ $OP$ $IT-3$ $2Y$ 47SIISI-27503 (F3)SIS Pump Suction $2(C)$ $8$ $CK$ $SA$ $C$ $PEO$ $OP$ $IT-3$ $2Y$ 47SI		~	(D4)	Spray Add. to Educi. #31	2(0)	3	CK	SA	С	EO	CS	CSJ-48	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1838B	SI	ISI-27503	Spray Add to Educt #32	2(0)		OV			EC-NI	RR	ROJ-20	
1852ASIISI-27503 (G5)BIT Inlet Valve $2(B)$ 4GAMO0PIT2YPassive1852BSIISI-27503 (G5)BIT Inlet Valve $2(B)$ 4GAMO0PIT2YPassive1852BSIISI-27503 (G5)BIT Inlet Valve $2(B)$ 4GAMO0PIT2YPassive1842SIISI-27503 (E3)SI Pump Recirculation Isolation Valve (E3) $2(B)$ 2GLMO0ECCS (CS)CSJ-39143SIISI-27503 (E3)SI Pump Recirculation Isolation Valve (G3) $2(B)$ 2GLMO0ECCS (CS)CSJ-3946SIISI-27503 (G3)RWST Isolation Valve (G3) $2(B)$ 14GAMA0ECCS (CS)CSJ-3947SIISI-27503 (F3)SIS Pump Suction $2(C)$ 8CKSACPEO (CS)QP (CS)ECCS (CS)CSJ-4047SIISI-27503 (F3)SIS Pump Suction $2(C)$ 8CKSACPEO (CS)QP (CS)ECCS (CS)CSJ-41			(C4)	Spray Maa. to Edubl. #52	2(0)	3	CK	SA	С	EO	CS	CSJ-48	
Image: second	1852A	SI	ISI-27503	BIT Inlet Valve	2(B)		GA	MO	0	EC-NI	RR	<u>ROJ-20</u>	
SIISI-27503 (G5)BIT Inlet Valve2(B)4GAMOOPIT2YPassive342SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCSCSJ-39443SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCSCSJ-39443SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCS (CS)CSJ-3946SIISI-27503 (G3)RWST Isolation Valve2(B)14GAMAOECCS (CS)CSJ-4047SIISI-27503 (F3)SIS Pump Suction2(C)8CKSACPEO (PIC)OP (EORR (CS)ROJ-21			(G5)		2(D)	4	GA	MO	0	PIT	2 Y		Passive
A42SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOFI12YPassive343SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCSCSJ-3946SIISI-27503 (E3)RWST Isolation Valve2(B)2GLMOOECCSCSJ-3946SIISI-27503 (G3)RWST Isolation Valve2(B)14GAMAOECCSCSJ-3947SIISI-27503 (F3)SIS Pump Suction2(C)8CKSACPEOOPEORR EOROJ-21ECCSCSJ-41ECCSCSJ-41	1852B	SI	ISI-27503	BIT Inlet Valve	2(B)	A	GA	MO		DIT	237		D .
SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCSCSJ-39443SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCSCSJ-39443SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCSCSJ-3946SIISI-27503 (G3)RWST Isolation Valve2(B)14GAMAOECCSCSJ-4047SIISI-27503 (F3)SIS Pump Suction2(C)8CKSACPEOOPEORR EORCJ-21ECCSCSJ-41ECCSCSJ-41			(G5)		2(D)	-	UA	IVIO	0	PII	2 Y		Passive
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	842	SI	ISI-27503	SI Pump Recirculation Isolation Valve	2(B)	2	GI	MO	0	FC	CC	CSI 20	
A43SIISI-27503 (E3)SI Pump Recirculation Isolation Valve2(B)2GLMOOECCSCSJ-3946SIISI-27503 (G3)RWST Isolation Valve2(B)14GAMAOECCSCSJ-4047SIISI-27503 (G3)SIS Pump Suction2(C)8CKSACPEOOP47SIISI-27503 (F3)SIS Pump Suction2(C)8CKSACPEOOPEORRROJ-21EORRROJ-21ECCSCSL41			(E3)	-	_()	~		1110	Ŭ		$\frac{1}{2}$	C91-39	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $											21		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	843	SI	ISI-27503	SI Pump Recirculation Isolation Valve	2(B)	2	GL	MO	0	FU	$\frac{21}{CS}$	CSI 20	
46SIISI-27503 (G3)RWST Isolation Valve2(B)14GAMAOECCSCSJ-4047SIISI-27503 (F3)SIS Pump Suction2(C)8CKSACPEOOP600F30F30F30F50F50F50F50F50F50F50F50F50			(E3)	-	-(-)	-			Ŭ		$\frac{1}{2}$	C3J-39	-
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						1	l l				$\frac{21}{2V}$		
(G3)         (G3) <th< td=""><td>346</td><td>SI</td><td>ISI-27503</td><td>RWST Isolation Valve</td><td>2(B)</td><td>14</td><td>GA</td><td>MA</td><td>- 1</td><td>EC</td><td>$\frac{21}{CS}$</td><td>CSL40</td><td></td></th<>	346	SI	ISI-27503	RWST Isolation Valve	2(B)	14	GA	MA	- 1	EC	$\frac{21}{CS}$	CSL40	
47 SI ISI-27503 SIS Pump Suction 2(C) 8 CK SA C PEO OP EO RR ROJ-21 (F3) FOR CK SA C PEO OP EO RR ROJ-21 EC CS CSL41			(G3)		N-7				Ŭ	ГТ_3	20 2V	05,-40	
(F3) EO RR ROJ-21 EC CS CSL41	347	SI	ISI-27503	SIS Pump Suction	2(C)	8	CK	SA	C	PEO	$\frac{41}{OP}$		
$= \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$			(F3)		, í				-	EO	RR	ROI-21	
										EC	CS	CSLA1	

<b>X</b> 2 <b>X</b>		Drwg									Relief	
valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
849A	SI	ISI-27503	SIS Pump #31 Discharge Isolation Valve	2(C)	4	CK	SA	С	PEO	OP	1	]
		(F4)							EO	RR	ROJ-22	
840D		101.05500							EC	OP		
049D	51	181-27503	SIS Pump #33 Discharge Isolation Valve	2(C)	4	CK	SA	С	PEO	OP		
		(G4)		1					EO	RR	ROJ-22	
850.4	CI CI	191.07502			ļ				EC	OP		
850A	51	151-2/503	SIS Pump #31 Discharge Isolation Valve	2(A)	4	GA	MO	0	EC	OP		Note 2
		(F5)							LT-1	2Y		
8500	er	191 27502							PIT	2Y		
0500	51	151-27505	SIS Pump #31 Discharge Isolation Valve	2(A)	4	GA	MO	0	EC	OP		Note 2
		(F5)				1			LT-1	2Y		
8514	12	181 27502							PIT	2Y		
00 111	51	(ES)	SIS Pullip #32 Discharge Isolation Valve	2(A)	4	GA	MO	0	EO	OP		Note 2
		(13)							EC	OP		
									LT-1	2Y		
851B	SI	ISI-27503	SIS Pump #22 Discharge Instation Value	2(D)		<u> </u>			PIT	2Y	ļ	
	51	(F5)	SIS Fullp #32 Discharge Isolation Valve	2(B)	4	GA	МО	0	EO	OP		
		(1 J)							EC	OP		
852A	SI	ISI-27503	SIS Pump #32 Discharge Igelation Value	2(0)		OV			PIT	2Y		
	<u>.</u>	(F5)	ors rump #52 Discharge isolation valve	2(C)	4	СК	SA	С	PEO	OP		
		(13)							EO	RR	ROJ-22	
852B	SI	ISI-27503	SIS Pump #32 Discharge Isolation Volue	2(0)		OV			EC	OP		
	S.	(G5)	bib i ump #52 Discharge isolation valve	2(C)	4	CK	SA	С	PEO	OP		
		(05)							EO	RR	ROJ-22	
859A	SI	ISI-27503	SIS Pump Test Isolation Value	2(4)	2/4	OT I			EC	OP		
		(H7)	sis i unip i est isolation valve	2(A)	3/4	GL	MA	С	LT-I	2 Y		Passive
859C	SI	ISI-27503	SIS Pump Test Isolation Valve	2(4)	3/4	CI		~	TTTI	017		Note 2
		(H7)		2(A)	5/4	OL	IVIA	C		2 Y		Passive
866A	SI	ISI-27503	Containment Spray Pump #31 Discharge	2(B)	8	GA	MO	C	FO			Note 2
		(D6)	Valve	2(D)	°		IVIO	C		on	i I	
		, ,										
866B	SI	ISI-27503	Containment Spray Pump #32 Discharge	2(B)	8	GA	MO					
		(D6)	Valve	2(2)	Ĭ	0/1		C	EC			ĺ
		, í			1					$\frac{\partial \mathbf{r}}{\partial \mathbf{v}}$		
					_			I.	F11 1	2 Y		

		Drwg									Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
867A	SI	ISI-27503	Containment Spray Pump #31 Discharge	2(A/C)	8	СК	SA	С	PEO	OP		Note 2
		(D6)	Valve			Í			EO	RR	ROJ-23	
1									EC	2Y	ROJ-23	
867P	or	101.07.000							LT-1	5Y		
807B	51	181-27503	Containment Spray Pump #32 Discharge	2(A/C)	8	CK	SA	C	PEO	OP		Note 2
		(D6)	Valve			l			EO	RR	ROJ-23	
									EC	2Y	ROJ-23	
869A	SI	191 27502	Containment S. D. WOLD' 1						LT-1	5Y		
00071	51	(D9)	Containment Spray Pump #31 Discharge	2(A)	8	GA	MA	0	EC	OP		Note 2
869B	SI	ISI-27503	Containment Sprov Dump #22 Direl	2(1)					LT-1	2Y		
	51	(D8)	Valve	2(A)	8	GA	MA	0	EC	OP		Note 2
876A	SI	ISI-27503	Spray Additive to Educt	2(D)				~	<u>LT-1</u>	2Y		
1	~.	(E6)	Spray Additive to Educt.	3(B)	3	DA	AO	С	EO	CS	CSJ-42	
		(120)							EC	CS	CSJ-42	
									FST-O	CS	CSJ-42	
876B	SI	ISI-27503	Spray Additive to Educt	3(B)	3		10	0	PIT	2Y	COL 10	
		(D6)	-r,	5(15)	5	DA	AU	C	EO	CS CS	CSJ-42	
		(= -)							EC DOT O	CS	CSJ-42	
									FST-O	CS	CSJ-42	
878A	SI	ISI-27503	Containment Spray Pump Isolation Valve	2(A)	3/4	GI	ΜA	C	<u>РП</u> Тті	2Y 5V		Dessive
		(D6)		2(11)	5/4	OL	IVIA	C	LI-I	21		Passive
878B	SI	ISI-27503	Containment Spray Pump Test Isolation	2(A)	3/4	GL	MA	C	I T_1	5V		Possive
		(D6)	Valve			02		Ŭ	<i>D</i> 1 – 1	51		Note 2
881	SI	ISI-27503	RHR Pump Suction	2(C)	12	CK	SA	С	PEO	OP		Note 2
		(B3)						_	EO	RR	ROI-24	
882	SI	ISI-27503	RHR Pump Suction	2(B)	12	GA	MO	0	EC	CS	CSJ-43	
002	~~~	(B3)							PIT	2Y		
883	SI	ISI-27503	RHR Pump Discharge to SIS Isolation	2(B)	8	GA	MO	С	EO	CS	CSJ-44	
0011		<u>(C5)</u>	Valve						PIT	2Y		
004A	SI	181-27503	SIS Pump to #31 Min-Flow	2(C)	3/4	CK	SA	С	EO	OP		
884B	CI	(F4)							EC	OP		
	SI	ISI-2/303	SIS Pump to #32 Min-Flow	2(C)	3/4	CK	SA	C	EO	OP		
884C	IZ	( <u>r4)</u> ISI 27502	SIS Dump to #22 Min El					[	EC	OP		
	51	(CA)	SIS Fully to #33 Min-Flow	2(C)	3/4	СК	SA	C	EO	OP		
L		(04)						1	EC	OP 1		

#### Drwg Relief Valve No. | System | No./Coor. Description Class/Cat| Size Type Actuator Position Regm't Freq Req Notes 885A SI ISI-27503 Containment Sump RHR Suction 2(A) 14 GA MO С ΕO CS CSJ-45 (B8) Isolation Valve PIT 2Y 885B SI ISI-27503 Containment Sump RHR Suction 2(A) 14 GA С ΕO MO CS CSJ-45 (B7) Isolation Valve PIT 2Y 887A SI ISI-27503 #32 SI Pump Suction Isolation Valve 2(B) 6 GA MO 0 ΕO OP (F4) EC OP PIT 2Y 887B SI #32 SI Pump Suction Isolation Valve ISI-27503 2(B) GA 0 6 MO ΕO OP (F4) EC OP 2Y PIT 888A SI ISI-27503 Low Head to High Head SI Recirculation 2(A) 6 GA MO С ΕO CS CSJ-46 (D7) Stop Valve CS EC CSJ-46 PIT 2Y 888B SI Low Head to High Head SI Recirculation ISI-27503 2(A) 6 GA MO CS C ΕO CSJ-46 (C7) Stop Valve EC CS CSJ-46 PIT 2Y 898 SI ISI-27503 #32 SIS Pump RWST Suction 2(B) 6 GA MA C ΕO OP (F3)

		Drwg									Relief	
VAIVE NO.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
1870	RHR	ISI-27513	RHR Pump Mini Flow Isolation	2(A)	2	GL	MO	0	EO	CS	CSJ-57	
		SHI (GI)							EC	CS	CSJ-57	
									LT-3	2Y		
701A	CC	ISI-27513	City Water to Charging Den						PIT	2Y		
	00	SH1 (B3)	City water to charging Pumps	3(B)	2	GL	MA	С	EO	OP		
701B	CC	ISI-27513	City Water from Charging Pumps	3(B)	2		λfλ	0				
		SH1 (B3)			2	GL	MA	C	EO	IOP		
732	RHR	ISI-27513	#32 Loop Hot Leg to RHR Pumps	2(A)	14	GΑ	MΔ	C	FO		l	
		SH1 (H2)	Suction Isolation	-(1)		0/1	1VLA	C	EC			
		· · · · · · · · · · · · · · · · · · ·							LC IT_3	$\frac{1}{2}$		
738A	RHR	ISI-27513	RHR Pump #31 Discharge	2(C)	8	СК	SA	C	PEO	OP		
		SH1 (F3)						_	EO	CS	CSJ-49	
729D									EC	OP	0.00 12	
/38B	RHR	ISI-27513	RHR Pump #32 Discharge	2(C)	8	CK	SA	С	PEO	OP		
		SH1 (G3)							EO	CS	CSJ-49	
743	DLID	101 27512							EC	OP		
745	Krik	ISI-2/513	RHR Pump Mini Flow Isolation	2(A)	3	GA	MO	0	EO	CS	CSJ-50	
		SHI (H2)				ĺ			EC	CS	CSJ-50	
							ł		LT-3	2Y		
744	RHR	ISI-27513	RHR Pump Discharge to RHR HY	2(4)	10		1/0		PIT	2Y		
		SH1 (H3)	Isolation	2(A)	12	GA	MO	0	EO	CS	CSJ-51	
		(410)			1				EC	CS	CSJ-51	
						1			LI-J	2Y		
750A	CC	ISI-27513	CCW From SIS Pump #31 Cooler Check	3(C)	1	CK	SA	0	FO	$\frac{2Y}{0P}$		
		SH1 (C3)	-		-		~	Ŭ				
750B	CC	ISI-27513	CCW From SIS Pump #32 Cooler Check	3(C)	1	CK	SA	0	EO	OP		
7500		<u>SH1 (B3)</u>										
/300	CC	ISI-27513	CCW From SIS Pump #33 Cooler Check	3(C)	1	CK	SA	0	EO	OP		
750D	- <u>cc</u>	<u>SHI (A3)</u>	CONVER DIM R									
		SUL (C2)	CCW From KHR Pump #32 Seal	3(C)	1	CK	SA	0	EO	OP		
750E	CC	ISI-27512	CCW From PLID Pure #21 Sec1	- 2(0)	<del>.                                    </del>							
		SH1 (F3)	COW From Krik Fump #31 Seal	3(C)	1	СК	SA	0	EO	OP		
		STITIN				1						

		Drwg						Relief				
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
/51A	CC	ISI-27513	Cooling Water to RHR HX #31	3(C)	12	CK	SA	0	PEO	OP	<u> </u>	
		SHI (H4)							EO	RR	ROJ-26	
751B	<u> </u>	101.07510							EC-NI	RR	ROJ-25	
/ 310		151-2/513 SULL (TLA)	Cooling Water to RHR HX #32	3(C)	10	СК	SA	0	PEO	OP		
		SHI (H4)							EO	RR	ROJ-26	
755A	CC	181 27512							EC-NI	RR	ROJ-25	
10011		SU1 (05)	Check Component Cooling Pump Bypass	3(C)	2	CK	SA	0	EC	OP		
755B		ISI-27513	Aux Component Cooling Days #21	<b>.</b>	<u> </u>							
	00	SH1 (GS)	Digehenge Cheele	3(C)	2	СК	SA	0	EO	OP		
755C	CC	ISI-27513	Aux Component Cooling Pump #22	2(0)		017	<u> </u>		EC	OP		
		SH1 (G5)	Discharge Check	3(C)		СК	SA	0	EO	OP		
755D	CC	ISI-27513	Aux Component Cooling Pump Bypace	2(())	2	OV	<u> </u>		EC	OP		
		SH1 (G5)	Valve	3(C)	2	UK .	SA	0	EC	OP		
755E	CC	ISI-27513	Aux. Component Cooling Pump #33	3(C)	2	CV	SA		FO			
		SH1 (G6)	Discharge Check	5(0)	2	CK	SА	0	EO EC	OP		
755F	CC	ISI-27513	Aux. Component Cooling Pump #34	3(C)	2	CK	SA	0	EC FO	OP		
		SH1 (G6)	Discharge Check	0(0)	- I	UIX	5/A	Ŭ	EC	OP		
756A	CC	ISI-27513	Charging Pump CCW Supply Isolation	3(B)	3	GA	MA	0	EC	CS	CSL52	
		SH1 (B3)						Ŭ	20	00	003-52	
756B	CC	ISI-27513	Charging Pump CCW Return Isolation	3(B)	3	GA	MA	0	EC	CS	CSI-52	
7.00		SH1 (B3)						~	20	0.0	000 52	
759C	cc	ISI-27513	CCW Pumps Discharge Header Isolation	3(B)	14	GA	MA	0	EC	OP		
7500		SH1 (C6)										
7390	CC	ISI-27513	CCW Pumps Discharge Header Isolation	3(B)	14	GA	MA	0	EC	OP		
7614		<u>SH1 (B6)</u>										
701A		1S1-2/513	Component Cooling Pump #31	3(C)	10	CK	SA	0	EO	OP		
761B	<u> </u>	SHI (C6)	Discharge Valve						EC	OP		
/ UID		ISI-2/515	Component Cooling Pump #32	3(C)	10	CK	SA	0	EO [	OP		
761C	CC	<u>SFI (B0)</u> ISI 27512	Component Cooling Day 1/22	0.100					EC	<u>OP</u>		
		SU1 (D6)	Discharge Value	3(C)	10	CK	SA	0	EO	OP		
766A	CC	ISI-27513	CCW Rumps Suction Header Lealet					]	EC	OP		
		SH1 (B7)	Com rumps suction Header Isolation	3(B)	12	GA	MA	0	EC	OP		
766B	CC	ISI-27513	CCW Pumps Suction Header Isolation	200	12							
		SH1 (B7)	Set i amps suction meader isolation	)(B)	12	GA	MA	υp	5C	OP		

		Drwg							1		Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	Req	Notes
766C	CC	ISI-27513	CCW Heat Exchanger Cross Connect	3(B)	12	GA	MA	0	EC	OP	T	1
766D	<u> </u>	<u>SHI (CS)</u> ISI 07512	Isolation									
100D	CC	SU1 (C5)	CCW Heat Exchanger Cross Connect	3(B)	12	GA	MA	0	EC	OP		
769	CC	$\frac{3F1}{(C3)}$	PCP Seel & Peering Carlanse 1 V							<u> </u>		
	00	SH1 (H4)	Cooling Support Diacks COW Su	3(A)	6	GA	MO	0	EC	CS	CSJ-53	Note 2
		5111 (114)	Usolation						LT-1	2Y		
784	CC	ISI-27513	RCP Bearing Coolers and Vessel	2(4)					PIT	2Y		
	00	SH1 (H7)	Cooling Support Placks COW Dates	3(A)	6	GA	MO	0	EC	CS	CSJ-54	Note 2
		0111 (117)	Usolation			1			LT-1	2Y		
785A	CC	ISI-27513	SGBD HTX Cooling Water Safety	2(0)	-	<u> </u>	~ ~ ~		PIT	2Y		
		SH1 (F7)	SODD TITY Cooling Water Safety	3(C)	3/4	SF	SA	С	SP	10Y		
785B	CC	ISI-27513	Failed Fuel Detector Cooling Water	2(0)	2/4	an			<u> </u>		<u> </u>	
		SH1 (F5)	Safety	3(C)	5/4	Sr	SA	C	SP	10Y		
786	CC	ISI-27513	RCP Bearing Coolers and Vessel	$3(\Delta)$	6	GA	MO	0	EC	00	COLEA	
		SH1 (H7)	Cooling Support Blocks CCW Return	J(A)	0	UA	IVIO	0			CSJ-54	note 2
			Isolation									
789	CC	ISI-27513	RCP Seal CCW Return Isolation	3(A)	3	GΔ	MO	0	FC	2Y CS	CGISS	Nata 2
		SH1 (G7)		5(11)	Ĵ	UA		0		27	C3J-33	Note 2
										21 2V		
791	CC	ISI-27513	Excess Letdown HX CCW Supply	3(A)	3	DA	AO	0	FC	<u>2 I</u> OP		Note 2
		SH1 (H4)	Isolation		-	2	110	Ŭ	EC FST-C	OP		Note 2
									I T_1	$2\mathbf{v}$		
						1			DI-I PIT	2V		
/93	CC [	ISI-27513	Excess Letdown HX CCW Return	3(A)	3	DA	AO	0	EC	OP		Note 2
		SH1 (G7)	Isolation						FST-C	OP		1.000 2
									LT-1	2Y		
706	00	TOT OT TA						. 1	PIT	2Y		1
/90	CC	ISI-27513	Excess Letdown HX CCW Return	3(A)	3	DA	AO	0	EC	OP		Note 2
		SH1 (H7)	Isolation						FST-C	OP		
1									LT-1	2Y		
707	00	TOT 07510						-	PIT	2Y		
		151-2/513	KUP Seal & Bearing Coolers and Vessel	3(A)	6	GA	мо Т	0	EC	CS	CSJ-53	Note 2
1		SHI (H4)	Cooling Support Blocks CCW Supply		Í				LT-1	2Y		
	I		Isolation		1			[	ріт І	2Y		

17 . L		Diwg								1	Relief	1
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Type	Actuator	Position	Reqm't	Freq	Req	Notes
/98	CC	ISI-27513	Excess Letdown HX CCW Supply	3(A)	3	DA	AO	0	EC	OP	1	Note 2
		SH1 (G4)	Isolation						FST-C	OP		
									LT-1	2.Y		
807	00	TOT OF FLA							PIT	2Y		
807	CC	ISI-27513	Seal Water HTX Safety	3(C)	3/4	SF	SA	С	SP	10Y		······································
810		<u>SH1 (D2)</u>		Ĺ								
010	CC	181-27513	NRHX Inlet Isolation	3(B)	6	GA	MA	0	EC	CS	CSJ-56	
910		<u>SH1 (D3)</u>										
012	CC	ISI-27513	NRHX Cooling Water Safety	3(C)	3/4	SF	SA	С	SP	10Y		······································
014		<u>SH1 (E2)</u>										
014	CC	ISI-27513	NRHX Outlet Isolation	3(B)	6	GA	MA	0	EC	CS	CSJ-56	
916	<u> </u>	<u>SH1 (E1)</u>			1					1	0.00 00	-
816	cc	ISI-27513	Sample HX Cooling Water Safety	3(C)	1	SF	SA	С	SP	10Y	· · · · · · · · · · · · · · · · · · ·	
2010		<u>SH1 (B3)</u>									ĺ	
821G	CC	ISI-27513	Flash Evaporator Product Cooler Safety	3(C)	1	SF	SA	С	SP	10Y	·	
2004		<u>SH1 (C7)</u>						-		Î. Î.		
522A	CC	ISI-27513	#31 RHR HX CCW Outlet Isolation	3(B)	12	GA	МО	С	EO	OP		
		SH1 (H8)	Valve					_	EC	OP		
									PIT	$2\mathbf{v}$		
322B	CC	ISI-27513	#32 RHR HX CCW Outlet Isolation	3(B)	12	GA	MO	С	<u>FΩ</u>	OP		
		SH1 (H8)	Valve				1110	Ŭ	EC			
337	RHR	ISI-27513	RHR Pump #31 Mini-flow	2(C)	3	СК	SA	C	FO			
		SH1 (G2)		-(0)	Ĩ	OIX	021	Č	EO	Or		
838	RHR	ISI-27513	RHR Pump #32 Mini-flow	2(C)	3	CK	SA		FO	OP		
		SH1 (H3)	-	-(0)	Ŭ		5/1	C	LO	Or		
FCV-625	CC	ISI-27513	RCP Seal CCW Return Isolation	3(A)	3	GΑ	MO	0	FC	<u>CS</u>	COLSE	NIete 2
		SH1 (H7)		- (, ~)	Ĩ		INIO				C3J-55	Note 2
						Í				2 Y		
09	FPC	ISI-27513	#32 Spent Fuel Pit Pump Discharge	3(())	8	CY	SA .			2Y OD		
		SH2 (E6)	Check	5(0)	°	CK	SA		A-EO	OP		
3	FPC	ISI-27513	#31 Spent Fuel Pit Pump Discharge	3(C)	8	CK	84		A-EC			
		SH2 (F6)	Check		5		JA		A-EU			
02	FPC	ISI-27513	Spent Fuel Pit HTX Relief	3(C)	3/1	SF +	SA		A-EC			
		SH2 (G3)		3(0)	5/4	51	SA		51	IUY		
									1	1		

ProventionVolumeVolumeClass/CatSizeTypeActuatorPositionRequitFreqReqNotesFCV-1170HVACISI-40223 (G6)Containment Building Purge Inside Supply ValveNC(A)36BUAOCECCSCSJ-58 FST-CNote 2FCV-1171HVACISI-40223 (G5)Containment Building Purge Outside Supply ValveNC(A)36BUAOCECCSCSJ-58 FST-CNote 2FCV-1172HVACISI-40223 (G5)Containment Building Purge Outside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 FST-CNote 2FCV-1172HVACISI-40223 (G5)Containment Building Purge Outside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 FST-CNote 2FCV-1173HVACISI-40223 (G4)Containment Building Purge Inside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 FST-CNote 2FCV-1190HVACISI-40223 (G4)Containment Building Inside Pressure Relief ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1191HVACISI-40223 (B7)Containment Building Outside Pressure Relief YalveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief YalveNC(A)10BU </th <th>Value No.</th> <th>e</th> <th>Drwg</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Relief</th> <th></th>	Value No.	e	Drwg									Relief	
FCV-1170       HVAC       ISI-40223 (G6)       Containment Building Purge Inside Supply Valve       NC(A)       36       BU       AO       C       EC       CS       CSI-58       Note 2         FCV-1171       HVAC       ISI-40223 (G5)       Containment Building Purge Outside Supply Valve       NC(A)       36       BU       AO       C       EC       CS       CSI-58       Note 2         FCV-1171       HVAC       ISI-40223 (G5)       Containment Building Purge Outside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1172       HVAC       ISI-40223 (G5)       Containment Building Purge Outside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1173       HVAC       ISI-40223 (G4)       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         PCV-1190       HVAC       ISI-40223 (B8)       Containment Building Inside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       CS       CSJ-58       PIT       2Y       IT-1       2Y       IT-1 </th <th>EQUAL STR</th> <th>System</th> <th>NO. COOR.</th> <th>Description</th> <th>Class/Cat</th> <th>Size</th> <th>Туре</th> <th>Actuator</th> <th>Position</th> <th>Reqm't</th> <th>Freq</th> <th>Req</th> <th>Notes</th>	EQUAL STR	System	NO. COOR.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
COM(G6)Supply ValveNC(A)36BUAOCECCSCSJ-58FCV-1171HVACISI-40223 (G5)Containment Building Purge Outside Supply ValveNC(A)36BUAOCECCSCSJ-58FCV-1172HVACISI-40223 (G5)Containment Building Purge Outside Exhaust ValveNC(A)36BUAOCECCSCSJ-58FCV-1173HVACISI-40223 (G4)Containment Building Purge Inside Exhaust ValveNC(A)36BUAOCECCSCSJ-58PCV-1190HVACISI-40223 (G4)Containment Building Inside Pressure Relief YalveNC(A)10BUAOCECCSCSJ-58PCV-1191HVACISI-40223 (G4)Containment Building Inside Pressure Relief 2nd ValveNC(A)10BUAOCECCSCSJ-58PCV-1192HVACISI-40223 (B8)Containment Building Outside Pressure Relief 2nd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 2nd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3nd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Cont	FCV-1170	HVAC	ISI-40223	Containment Building Purge Inside	NC(A)	36	BU	AO	С	EC	CS	CSJ-58	Note 2
FCV-1171HVACISI-40223 (G5)Containment Building Purge Outside Supply ValveNC(A)36BUAOCECCSCSJ-58 (SI-50)Note 2FCV-1172HVACISI-40223 (G5)Containment Building Purge Outside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 (SI-50)Note 2FCV-1172HVACISI-40223 (G4)Containment Building Purge Outside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 (SI-50)Note 2FCV-1173HVACISI-40223 (G4)Containment Building Purge Inside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 (SI-50)Note 2PCV-1190HVACISI-40223 (B8)Containment Building Inside Pressure Relief ValveNC(A)10BUAOCECOP (SI-57)Note 2PCV-1191HVACISI-40223 (B7)Containment Building Outside Pressure Relief 2nd ValveNC(A)10BUAOCECOP (SI-57)Note 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3rd ValveNC(A)10BUAOCECOP (SI-57)Note 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3rd ValveNC(A)10BUAOCECOP (SI-57)Note 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pre			(G6)	Supply Valve						FST-C	CS	CSJ-58	
FCV-1171       HVAC       ISI-40223 (G5)       Containment Building Purge Outside Supply Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1172       HVAC       ISI-40223 (G5)       Containment Building Purge Outside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1172       HVAC       ISI-40223 (G5)       Containment Building Purge Outside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1173       HVAC       ISI-40223 (G4)       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         PCV-1190       HVAC       ISI-40223 (G4)       Containment Building Inside Pressure Relief Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Contai		ł								PIT	2Y		
INCAL       ISI-40223       Containment Building Purge Outside Supply Valve       NC(A)       36       BU       AO       C       EC       CS       CSI-58       Note 2         FCV-1172       HVAC       ISI-40223       Containment Building Purge Outside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSI-58       Note 2         FCV-1172       HVAC       ISI-40223       Containment Building Purge Outside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1173       HVAC       ISI-40223       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1173       HVAC       ISI-40223       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         PCV-1190       HVAC       ISI-40223       Containment Building Inside Pressure (B7)       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223       Containment Building Outside Pressure (B7) <td< td=""><td>ECV 1171</td><td>TIVAC</td><td>101 40000</td><td></td><td></td><td>ļ</td><td></td><td></td><td></td><td>LT-1</td><td>2Y</td><td></td><td></td></td<>	ECV 1171	TIVAC	101 40000			ļ				LT-1	2Y		
FCV-1172HVACISI-40223 (G5)Containment Building Purge Outside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 PTTNote 2FCV-1173HVACISI-40223 (G5)Containment Building Purge Inside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 FST-CNote 2FCV-1173HVACISI-40223 (G4)Containment Building Purge Inside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 FST-CNote 2PCV-1190HVACISI-40223 (B7)Containment Building Inside Pressure Relief 2nd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1191HVACISI-40223 (B7)Containment Building Outside Pressure Relief 2nd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3rd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3rd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3rd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure (B7)	10,0-11/1	HVAC	151-40223	Containment Building Purge Outside	NC(A)	36	BU	AO	С	EC	CS	CSJ-58	Note 2
Image: constraint of the constra			(65)	Supply Valve		, i				FST-C	CS	CSJ-58	
FCV-1172       HVAC       ISI-40223 (G5)       Containment Building Purge Outside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1173       HVAC       ISI-40223 (G4)       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1173       HVAC       ISI-40223 (G4)       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         PCV-1190       HVAC       ISI-40223 (B8)       Containment Building Inside Pressure Relief Valve       NC(A)       10       BU       AO       C       EC       CS       CSJ-58       Note 2         PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)										PIT	2Y		-
PCV-1172       HVAC       ISI-40223       Containment Building Purge Outside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1173       HVAC       ISI-40223       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         FCV-1173       HVAC       ISI-40223       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         PCV-1190       HVAC       ISI-40223       Containment Building Inside Pressure Relief Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223       Containment Building Outside Pressure Relief 3rd Valve <td>FCV-1172</td> <td>UVAC</td> <td>191 40002</td> <td>Contained D. 111 D. Contained</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>LT-1</td> <td>2Y</td> <td></td> <td></td>	FCV-1172	UVAC	191 40002	Contained D. 111 D. Contained						LT-1	2Y		
FCV-1173HVACISI-40223 (G4)Containment Building Purge Inside Exhaust ValveNC(A)36BUAOCECCSCSJ-58PTT2YLT-12YLT-12YLT-12YLT-12YLT-12YPCV-1190HVACISI-40223 (B8)Containment Building Inside Pressure Relief ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1191HVACISI-40223 (B7)Containment Building Outside Pressure Relief 2nd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3rd ValveNC(A)10BUAOCECOP FST-CNote 2PCV-	107 1172	IIVAC	151-40225	Containment Building Purge Outside	NC(A)	36	BU	AO	С	EC	CS	CSJ-58	Note 2
Image: constrainment Building Purge Inside FCV-1173NC(A)36BUAOCECCSCSJ-58 CSJ-58Note 2FCV-1173HVACISI-40223 (G4)Containment Building Purge Inside Exhaust ValveNC(A)36BUAOCECCSCSJ-58 CSJ-58Note 2PCV-1190HVACISI-40223 (B8)Containment Building Inside Pressure Relief ValveNC(A)10BUAOCECOPNote 2PCV-1191HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3rd ValveNC(A)10BUAOCECOPNote 2PCV-1192HVACISI-40223 (B7)Containment Building Outside Pressure Relief 3rd ValveNC(A)10BUAOCECOPNote 2PCV-119			(65)	Exhaust Valve	Í					FST-C	CS	CSJ-58	
FCV-1173       HVAC       ISI-40223 (G4)       Containment Building Purge Inside Exhaust Valve       NC(A)       36       BU       AO       C       EC       CS       CSJ-58 PIT       Note 2         PCV-1190       HVAC       ISI-40223 (B8)       Containment Building Inside Pressure Relief Valve       NC(A)       10       BU       AO       C       EC       CS       CSJ-58 PIT       Note 2         PCV-1190       HVAC       ISI-40223 (B8)       Containment Building Outside Pressure Relief Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outsid					ł					PIT	2Y		
PCV-1190       HVAC       ISI-40223       Containment Building Purge Inside       NC(A)       36       BU       AO       C       EC       CS       CSJ-58       Note 2         PCV-1190       HVAC       ISI-40223       Containment Building Inside Pressure (B8)       NC(A)       10       BU       AO       C       EC       CS       CSJ-58       Note 2         PCV-1191       HVAC       ISI-40223       Containment Building Outside Pressure (B7)       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)	FCV-1173	HVAC	ISI 40223	Containment Duilding Deve I 11						LT-1	2Y		
PCV-1190       HVAC       ISI-40223 (B8)       Containment Building Inside Pressure Relief Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223 (B8)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PTT       2X       ISI-40223       Containment Building Outside Pressure Relief 3rd Valve       NC(A)		IIVAC	(G4)	Exponent Value	NC(A)	36	BU	AO	С	EC	CS	CSJ-58	Note 2
Image: series of the series			(04)	Exhaust valve						FST-C	CS	CSJ-58	
PCV-1190       HVAC       ISI-40223 (B8)       Containment Building Inside Pressure Relief Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>ĺ</td><td></td><td></td><td>PIT</td><td>2Y</td><td></td><td></td></t<>							ĺ			PIT	2Y		
INTRO	PCV-1190	HVAC	ISI-40223	Containment Building Inside Program	NIC(A)	10	DII		~	LT-1	<u>2Y</u>		
PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2			(B8)	Relief Value	NC(A)	10	BO	AO	С	EC	OP		Note 2
PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PUT       2V			(100)							FST-C	OP		
PCV-1191       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 2nd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PCV-1192       HVAC       ISI-40223 (B7)       Containment Building Outside Pressure Relief 3rd Valve       NC(A)       10       BU       AO       C       EC       OP       Note 2         PUT       2X       OP       Note 2       OP       Note 2       OP       Note 2							1			PIT	2Y		
(B7)     Relief 2nd Valve     Note 2       PCV-1192     HVAC     ISI-40223 (B7)     Containment Building Outside Pressure Relief 3rd Valve     NC(A)     10     BU     AO     C     EC     OP     Note 2       PCV-1192     HVAC     ISI-40223 (B7)     Containment Building Outside Pressure Relief 3rd Valve     NC(A)     10     BU     AO     C     EC     OP     Note 2	PCV-1191	HVAC	ISI-40223	Containment Building Outside Pressure	NC(A)	10	DII	40	<u> </u>	LT-1	<u>2Y</u>		
PCV-1192 HVAC ISI-40223 Containment Building Outside Pressure NC(A) 10 BU AO C EC OP Note 2 (B7) Relief 3rd Valve NC(A) 10 BU AO C EC OP Note 2			(B7)	Relief 2nd Valve	NC(A)	10	BU	AU	C	EC .	OP		Note 2
PCV-1192 HVAC ISI-40223 Containment Building Outside Pressure NC(A) 10 BU AO C EC OP Note 2 (B7) Relief 3rd Valve NC(A) 10 BU AO C EC OP Note 2 PT 2V			<u></u>							FSI-C	OP		
PCV-1192 HVAC ISI-40223 Containment Building Outside Pressure NC(A) 10 BU AO C EC OP Note 2 (B7) Relief 3rd Valve NC(A) 10 BU AO C EC OP Note 2											2Y		
(B7) Relief 3rd Valve	PCV-1192	HVAC	ISI-40223	Containment Building Outside Pressure	NC(A)	10	BII	40	C	LT-I	$\frac{2Y}{OP}$		NI-t- 2
			(B7)	Relief 3rd Valve		10	BO	AU			OP		Note 2
			Ì, í		ĺ	1		1					

Valve No.	System	Drwg No./Coor.	Description	Class/Cat	Size	Tyne	Actuator	Pasition	Renm ¹ t	Fred	Relief	Notor
PCV-1234	SMPL	ISI-70453	Containment Isolation Valve To	NC(A)	1	DA	AO	0	EC	OP		Note 2
		(07)	RTI/RT2						FST-C	OP		
									PIT	2Y		
PCV-1235	SMPL	ISI-70453	Containment Isolation Value To	NC(A)	1				LT-1	5Y		
		(C7)	R11/R12	NC(A)	1	DA	AO	0	EC	OP		Note 2
		(07)	K11/K12						FST-C	OP		
									PIT	2Y		
PCV-1236	SMPI	ISL-70453	Containment Isolation Value To		-				LT-1	5Y		
		101-70400		NC(A)	1	DA	AO	0	EC	OP		Note 2
		(08)	R11/R12						FST-C	OP		
									PIT	2Y		
PCV-1237	SMDI	181 70452	Cartain and La Lain XV L. Th						LT-1	5Y		
101-1257	SIVIFL	151-70455	Containment Isolation Valve To	NC(A)	1	DA	AO	0	EC	OP		Note 2
		(08)	RII/RI2			Í			FST-C	OP		
									PIT	2Y		
									LT-1	5Y		

		Drwg					<u> </u>				Relief	
Valve No.	System	No./Coor.	Description	Class/Cat	Size	Туре	Actuator	Position	Reqm't	Freq	Req	Notes
CB-1	PAEH	N/A	Personnel Airlock Vent to VC	NC(A/C)	1	СК	SA	С	EC	2Y	ROJ-27	Note 2
			Check Valve						LT-1	5Y		
CB-2	PAEH	N/A	Personnel Airlock Vent to VC	NC(A/C)	1	CK	SA	C	EC	2Y	ROJ-27	Note 2
			Check Valve		i i	Ì		_	LT-1	5Y		11000 2
CB-3	PAEH	N/A	Personnel Airlock Inner Door	NC(A)	3	GL	MA	С	LT-1	5Y		Passive
			Equalizing Ball Valve									Note 2
CB-4	PAEH	N/A	Personnel Airlock Outer Door	NC(A)	3	GL	MA	С	LT-1	5Y		Passive
 			Equalizing Ball Valve					. –			ĺ	Note 2
CB-5	PAEH	N/A	Equipment Hatch Airlock Vent	NC(A/C)	1	CK	SA	С	EC	2Y	ROJ-27	Note 2
			to VC Check Valve						LT-1	5Y		
CB-6	PAEH	N/A	Equipment Hatch Airlock Vent	NC(A/C)	1	CK	SA	С	EC	2Y	ROJ-27	Note 2
			to VC Check Valve						LT-1	5Y		
CB-7	PAEH	N/A	Equipment Hatch Airlock Inner	NC(A)	3	GL	MA	С	LT-1	5Y		Passive
			Door Equalizing Ball Valve									Note 2
CB-8	PAEH	N/A	Equipment Hatch Airlock Outer	NC(A)	3	GL	MA	С	LT-1	5Y		Passive
			Door Equalizing Ball Valve									Note 2

#### PFM-22A REV. 5 INSERVICE TESTING PROGRAM #8

#### NOTES TO APPENDIX B

- 1. The normal plant operation, the charging alignment establishes valves 204A closed and 204B open. This necessarily allows exercising check valves 210B and 210D during plant operation while 210A and 210C are isolated. In the event that the CVCS system charging alignment is reversed (ie. 204A open and 204B closed), the testing requirements for 210 A-D will be reversed and 210A and 210C will require quarterly exercising while 210B and 210D will be exercised during cold shutdown.
- 2. The test frequency for valves tested in accordance with Appendix J will be controlled by the Appendix J program not the IST program. The IST program will be updated periodically to reflect Appendix J.

#### PEM-22A REV. 5 INSERVICE TESTING PROGRAM #8

Appendix C

COLD SHUTDOWN JUSTIFICATIONS

.

# **Cold Shutdown Justifications**

#### <u>CSJ-1</u>

System:	MS				
Drawing:	ISI-20173				
Components:	MS-1-31 MS-1-32 MS-1-33 MS-1-34	<ul> <li>31 Steam Generator Main Steam Isolation</li> <li>32 Steam Generator Main Steam Isolation</li> <li>33 Steam Generator Main Steam Isolation</li> <li>34 Steam Generator Main Steam Isolation</li> </ul>			
Normal Function	Air assisted open to pr	ovide flowpaths for steam to the main turbine generator and auxiliaries.			
Safety Function:	Close during MSLB inside containment to prevent blowdown of more than 1 S/G. Close during MSLB downstream of MSIV to isolate steam break. Close during SGTR to isolate faulted S/G.				
Testing Requirement:	EC and FST-C				
CS Justification:	Closing any of these valves during operation would result in an unacceptable transient and plant trip.				
		CSJ-2 (Augmented)			
System:	MS				
Drawing:	ISI-20173				
Components:	MS-2-31 MS-2-32 MS-2-33 MS-2-34	<ul> <li>31 Steam Generator Main Steam Non-Return Check</li> <li>32 Steam Generator Main Steam Non-Return Check</li> <li>33 Steam Generator Main Steam Non-Return Check</li> <li>34 Steam Generator Main Steam Non-Return Check</li> </ul>			
Normal Function	Open to provide flowpa	ths for steam to the main turbine generator and auxiliaries.			
Safety Function:	Closes during MSLB u Note, no credit is taken	pstream of an MSIV to prevent blowdown of more than 1 S/G. in the accident analysis for these valves.			
Testing Requirement:	A-EC				
CS Justification:	Closing any of these valves during operation would result in an unacceptable transient and plant trip.				

### **Cold Shutdown Justifications**

#### <u>CSJ-3</u>

System:	MS				
Drawing:	ISI-20173				
Components:	PCV-1134 PCV-1135 PCV-1136 PCV-1137	<ul> <li>31 Steam Generator Main Steam Atmospheric Relief Valve</li> <li>32 Steam Generator Main Steam Atmospheric Relief Valve</li> <li>33 Steam Generator Main Steam Atmospheric Relief Valve</li> <li>34 Steam Generator Main Steam Atmospheric Relief Valve</li> </ul>			
Normal Function	Provide a means of S/	G pressure control if the high pressure steam dump is not available.			
Safety Function:	Open/Close to provide a means of controlling RCS heat rejection when the main condenser is unavailable as a heat sink. Valve is assumed closed during MSLB to not increase the severity of the cooldown transient.				
Testing Requirement:	EO, EC, and FST-C				
CS Justification:	Opening any of these values during operation would result in an undesirable power transient with the potential for exceeding reactor core power limits.				

#### <u>CSJ-4</u>

System:	COND				
Drawing:	ISI-20183				
Components:	1158-1	Condensate Storage Tank Low-Level Isolation Valve			
Normal Function	Normally open to allow condensate makeup to the main condensers.				
Safety Function:	Closes on low CST level to maintain a minimum of 360,000 gallons for ABFP operation for at least 24 hours following a plant trip from 100% power.				
Testing Requirement:	EC and FST-C				
CS Justification:	Closing this valve during operation would result in a loss of condenser makeup. Also, because of the Condensate Pump Seals, if this valve closes we would have to trip the plant due to losing sea water to the Condensate Pumps.				

#### Cold Shutdown Justifications <u>CSJ-5</u> (Augmented)

System:	COND					
Drawing:	ISI-20183					
Components:	1158-2	Condensate Storage Tank Low-Level Isolation Valve				
Normal Function	Normally open to allo	w condensate makeup to the main condensers.				
Safety Function:	Closes on low CST lev least 24 hours following	Closes on low CST level to maintain a minimum of 360,000 gallons for ABFP operation for at east 24 hours following a plant trip from 100% power.				
Testing Requirement:	A-EC and A-FST-C					
CS Justification:	Closing this valve dur the Condensate Pump water to the Condensa	ing operation would result in a loss of condenser makeup. Also, because of Seals, if this valve closes we would have to trip the plant due to losing seal te Pumps.				
		<u>CSJ-6</u>				
System:	COND					
Drawing:	ISI-20183					
Components:	CT-107	CST Return Line Isolation Check				
Normal Function	Opens for main conder	nser level control and CST makeup				
Safety Function:	Closes to isolate ABFF	minimum recirculation flow line from non-seismic portions of pipe.				
Testing Requirement:	EC					
CS Justification:	Closing CT-107 during	g power operations requires securing condensate recirculation to the CST				

for an extended period of time.

.

### **Cold Shutdown Justifications**

#### <u>CSJ-7</u>

System:	COND					
Drawing:	ISI-20183					
Components:	CT-26 CT-32	#31 Aux. Feed Pump Suction From CST #33 Aux. Feed Pump Suction From CST				
Normal Function	The check valves shal whenever a negative p also allow system flow	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.				
Safety Function:	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.					
Testing Requirement:	EO					
CS Justification:	During power operation each motor driven AB thermal shock to the f	on, exercising these values to their open position would require operating FP and injecting cold water into the steam generators. This could result in eedwater supply piping and steam generator nozzles.				
		<u>CSJ-8</u>				
System:	FW					
Drawing:	ISI-20193					
Components:	BFD-34 BFD-39	#31 Aux. Feed Pump Discharge Check #33 Aux. Feed Pump Discharge Check				
Normal Function	The check valves shall whenever a negative p also allow system flow	provide passive means to isolate nonoperating sections of the system ressure gradient exists across the valve. In addition, the check valves shall when a positive pressure gradient is present.				
Safety Function:	The check valves shall whenever a negative p also allow system flow	provide passive means to isolate nonoperating sections of the system ressure gradient exists across the valve. In addition, the check valves shall when a positive pressure gradient is present.				
Testing Requirement:	EO					
CS Justification:	During power operatio each motor driven ABI thermal shock to the fe	n, exercising these valves to their open position would require operating FP and injecting cold water into the steam generators. This could result in redwater supply piping and steam generator nozzles.				

# **Cold Shutdown Justifications**

#### <u>CSJ-9</u>

System:	FW	
Drawing:	ISI-20193	
Components:	BFD-31 BFD-47-1 BFD-47-2 BFD-47-3 BFD-47-4	<ul> <li>#32 Aux. Feed Pump Discharge Check</li> <li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li> </ul>
Normal Function	The check values shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the value. In addition, the check values shall also allow system flow when a positive pressure gradient is present.	
Safety Function:	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.	
Testing Requirement:	PEO	
CS Justification:	During power operation, exercising these values in the open direction would require operating the turbine driven ABFP and injecting cold water into the steam generators. This could result in thermal shock to the feedwater supply piping and steam generator nozzles.	
		<u>CSJ-10</u>
System:	FW	
Drawing:	ISI-20193	
Components:	BFD-35 BFD-37 BFD-40 BFD-42	<ul><li>#31 Aux. Feed Pump Flow Control Valve Discharge Check</li><li>#31 Aux. Feed Pump Flow Control Valve Discharge Check</li><li>#33 Aux. Feed Pump Flow Control Valve Discharge Check</li><li>#33 Aux. Feed Pump Flow Control Valve Discharge Check</li></ul>
Normal Function	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.	
Safety Function:	The check valves shall whenever a negative p also allow system flow	provide passive means to isolate nonoperating sections of the system ressure gradient exists across the valve. In addition, the check valves shall when a positive pressure gradient is present.
Testing Requirement:	EO	
CS Justification:	During power operatio each motor driven AB thermal shock to the fe	n, exercising these valves to their open position would require operating FP and injecting cold water into the steam generators. This could result in sedwater supply piping and steam generator nozzles.

# **Cold Shutdown Justifications**

#### <u>CSJ-11</u>

System:	FW	
Drawing:	ISI-20193	
Components:	BFD-47-1 BFD-47-2 BFD-47-3 BFD-47-4	<ul><li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li><li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li><li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li><li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li></ul>
Normal Function	The check valves shall whenever a negative p also allow system flow	l provide passive means to isolate nonoperating sections of the system ressure gradient exists across the valve. In addition, the check valves shall when a positive pressure gradient is present.
Safety Function:	The check valves shall whenever a negative p also allow system flow	l provide passive means to isolate nonoperating sections of the system ressure gradient exists across the valve. In addition, the check valves shall when a positive pressure gradient is present.
Testing Requirement:	EC	
CS Justification:	These valves have no position indication devices and verifying closure of these valves by back leakage requires operation of the motor driven 31 and 33 Auxiliary Boiler Feed Pumps with flow established to all steam generators. During plant operation this is not practical due to potential of unacceptable thermal stress in the feedwater piping.	
		<u>CSJ-12</u>
System:	FW	
Drawing:	ISI-20193	
Components:	BFD-6-1 BFD-6-2 BFD-6-3 BFD-6-4	<ul><li>#31 Steam Generator Feedwater Supply Check</li><li>#32 Steam Generator Feedwater Supply Check</li><li>#33 Steam Generator Feedwater Supply Check</li><li>#34 Steam Generator Feedwater Supply Check</li></ul>
Normal Function	Normally open to supply main feedwater to the S/Gs. Provide a passive means to prevent backflow from the S/G's into the feedwater system while the main boiler feed pumps are not operating.	
Safety Function:	Closes on a main feedw	vater isolation to ensure auxiliary feedwater is delivered to the S/G's.
Testing Requirement:	EC	
CS Justification:	During normal power of Closure verification can required.	operations these valves are open to supply main feedwater to the S/Gs. n only be performed during a back leakage test when main feedwater is not

# **Cold Shutdown Justifications**

#### <u>CSJ-13</u>

System:	FW	
Drawing:	ISI-20193	
Components:	BFD-67 BFD-68 BFD-69 BFD-70	Aux. Feed Pump Discharge To #32 Steam Generator Check Aux. Feed Pump Discharge To #31 Steam Generator Check Aux. Feed Pump Discharge To #33 Steam Generator Check Aux. Feed Pump Discharge To #34 Steam Generator Check
Normal Function	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.	
Safety Function:	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.	
<b>Testing Requirement:</b>	EO	
CS Justification:	During power operation, exercising these values to their open position would require operating each motor driven ABFP and injecting cold water into the steam generators. This could result in thermal shock to the feedwater supply piping and steam generator nozzles.	
		CSJ-14 (Augmented)
System:	FW	
Drawing:	ISI-20193	
Components:	FCV-417 FCV-427 FCV-437 FCV-447	<ul> <li>#31 Steam Generator Main Feedwater Control</li> <li>#32 Steam Generator Main Feedwater Control</li> <li>#33 Steam Generator Main Feedwater Control</li> <li>#34 Steam Generator Main Feedwater Control</li> </ul>
Normal Function	Operate in conjunction with the MBFP speed control system to maintain S/G levels	
Safety Function:	Closes automatically to mitigate certain accidents.	
Testing Requirement:	A-EC, A-FST-C	
CS Justification:	During normal power c Closure verification can required.	pperations these valves are open to supply main feedwater to the S/Gs. a only be performed during a stroke test when main feedwater is not

# **Cold Shutdown Justifications**

#### <u>CSJ-15</u>

System:	SW	
Drawing:	ISI-20333	
Components:	SWN-1-1 SWN-1-2 SWN-1-3 SWN-1-4 SWN-1-5 SWN-1-6	<ul> <li>31 Service Water Pump Discharge Check</li> <li>32 Service Water Pump Discharge Check</li> <li>33 Service Water Pump Discharge Check</li> <li>34 Service Water Pump Discharge Check</li> <li>35 Service Water Pump Discharge Check</li> <li>36 Service Water Pump Discharge Check</li> </ul>
Normal Function	Normally open to pro headers and heat load backup service water	ovide flowpaths from the respective pumps to the various service water ds. Close to prevent backflow of service water through idle pumps and the headers.
Safety Function:	Open to provide flow heat loads.	paths from the respective pumps to the various service water headers and
Testing Requirement:	EO	
CS Justification:	A full flow exercise test of these valves requires a major realignment of the service water system. Performing such an evolution during plant operation would constitute an unreasonable burden of the plant staff and could result in upsetting the thermal equilibrium of operating equipment.	
		<u>CSJ-16</u>
System:	SW	
Drawing:	ISI-20333	
Components:	SWN-100-1 SWN-100-2	34, 35, &36 Service Water Pump Header to Nuclear Services 31, 32, &33 Service Water Pump Header to Nuclear Services
Normal Function	Normally open to provide flowpaths from the respective pumps to the various service water headers and heat loads. Close to prevent backflow of service water through idle pumps and the backup service water headers.	
Safety Function:	Open to provide flowpaths from the respective pumps to the various service water headers and heat loads.	
Testing Requirement:	EO	
CS Justification:	A full flow exercise te and probably the oper evolution during plan could result in upsettin	est of these valves requires a major realignment of the service water system ation of three service water pumps in each train. Performing such an t operation would constitute an unreasonable burden on the plant staff and ng the thermal equilibrium of operating equipment.

### **Cold Shutdown Justifications**

#### <u>CSJ-17</u>

System:	RHR	
Drawing:	ISI-27203	
Components:	730 731	RHR Supply from RCS RHR Supply from RCS
Normal Function	Closed to provide a pressure boundary between the RCS and RHR systems whenever RCS pressure and temperature is above the RHR system design conditions.	
Safety Function:	Close to provide a pressure boundary between the RCS and RHR systems whenever RCS pressure and temperature is above the RHR system design conditions. Open to provide flowpaths for reactor coolant to the suctions of the RHR pumps to effect shutdown cooling recirculation from the RCS to the RHR heat exchangers.	
Testing Requirement:	EO, A-EC	
CS Justification:	These valves are electrically interlocked to prevent opening at reactor pressures above 450 psig and will automatically close if system pressure exceeds 550 psig.	

#### <u>CSJ-18</u>

System:	RHR	
Drawing:	ISI-27203	
Components:	741	RHR Pump discharge to heat exchanger,
Normal Function	Normally closed to serve as a containment isolation valve.	
Safety Function:	Open to provide a flowpath for reactor coolant from the RHR pumps to the RHR heat exchangers.	
Testing Requirement:	EO	
CS Justification:	The only practical met reactor coolant system; RCS pressure.	hod of opening this valve is by operating an RHR pump with flow to the however during normal plant operation the RHR pumps cannot overcome

# **Cold Shutdown Justifications**

#### <u>CSJ-19</u>

System:	SI	
Drawing:	ISI-27353	
Components:	838A 838B 838C 838D	RHR Return Low Head Injection Loop 1 RHR Return Low Head Injection Loop 2 RHR Return Low Head Injection Loop 3 RHR Return Low Head Injection Loop 4
Normal Function	The check valves shal interface whenever Re allow flow delivery to	Il provide passive means to isolate the system/RCS pressure boundary CS pressure is at or above the system operating pressure. The valves also the RCS when RCS pressure is below system pressure.
Safety Function:	The check valves shall provide passive means to isolate the system/RCS pressure boundary interface whenever RCS pressure is at or above the system operating pressure. The valves also allow flow delivery to the RCS when RCS pressure is below system pressure.	
Testing Requirement:	EO	
CS Justification:	The only practical method of opening these valves is by operating a RHR pump with flow to th reactor coolant system; however, at normal system pressures the RHR pumps cannot overcome RCS pressure.	
		<u>CSJ-20</u>
System:	SI	
Drawing:	ISI-27353	
Components:	838A 838B 838C 838D	RHR Return Low Head Injection Loop 1 RHR Return Low Head Injection Loop 2 RHR Return Low Head Injection Loop 3 RHR Return Low Head Injection Loop 4
Normal Function	The check valves shall provide passive means to isolate the system/RCS pressure boundary interface whenever RCS pressure is at or above the system operating pressure. The valves also allow flow delivery to the RCS when RCS pressure is below system pressure.	
Safety Function:	The check valves shall interface whenever RC allow flow delivery to	provide passive means to isolate the system/RCS pressure boundary CS pressure is at or above the system operating pressure. The valves also the RCS when RCS pressure is below system pressure.
Testing Requirement:	EC	
CS Justification:	The only positive mean impractical during plat	ns of verifying valve closure is to perform a back leakage test, which is nt operation.

# Cold Shutdown Justifications <u>CSJ-21</u>

System:	SI		
Drawing:	ISI-27353		
Components:	856B 856G	High Head Safety Injection to Loop #3 Hot Leg NonBIT Header High Head Boron Injection to Loop #1 Hot Leg BIT Header Stop Valve	
Normal Function	De-energized closed d	uring operation.	
Safety Function:	Opens to provide flowpath from the SIS pumps to the RCS hot leg during hot leg injection. Closed during cold leg injection.		
Testing Requirement:	EO, EC		
CS Justification:	These valves are required to be closed and de-energized during operations per IP3 Technical Specification 3.3.A.3.h.		
		<u>CSJ-22</u>	
System:	SI		
Drawing:	ISI-27353		
Components:	856C 856E 856H 856J	High Head Boron Injection to Loop #4 Cold Leg BIT Header Stop High Head Boron Injection to Loop #1 Cold Leg BIT Header Stop High Head Safety Injection to Loop #3 Cold Leg NonBIT Header Stop High Head Safety Injection to Loop #2 Cold Leg NonBIT Header Stop	
Normal Function	Normally open (throttled for flow balancing) to provide flowpaths from the SIS pumps to the RCS cold legs upon initiation of an injection signal.		
Safety Function:	Maintain their throttled open position to provide flowpaths from the SIS pumps to the RCS cold leg during cold leg injection. Closed for hot leg injection.		
Testing Requirement:	EC		
CS Justification:	These valves are preset During plant operation containment.	t for throttling and require resetting following any stroking operation. this is impractical and undesirable due to the location of the valves inside	

# **Cold Shutdown Justifications**

CSJ-23 (NO LONGER USED)

(NO LONGER USED)		
System:		
Drawing:		
Components:		
Normal Function		
Safety Function:		
Testing Requirement:		
CS Justification:		
		<u>CSJ-24</u>
System:	SI	
Drawing:	ISI-27353	
Components:	895A 895B 895C 895D	<ul> <li>31 SIS Accumulator Discharge Valve</li> <li>32 SIS Accumulator Discharge Valve</li> <li>33 SIS Accumulator Discharge Valve</li> <li>34 SIS Accumulator Discharge Valve</li> </ul>
Normal Function	The check valves shall provide passive means to isolate the system/RCS pressure boundary interface whenever RCS pressure is at or above the system operating pressure and minimize RCS backleakage to the accumulators to prevent dilution of the borated water contained in these tanks. The valves also allow flow delivery to the RCS when RCS pressure is below system pressure.	
Safety Function:	The check valves shall provide passive means to isolate the system/RCS pressure boundary interface whenever RCS pressure is at or above the system operating pressure and minimize RCS backleakage to the accumulators to prevent dilution of the borated water contained in these tanks. The valves also allow flow delivery to the RCS when RCS pressure is below system pressure.	
Testing Requirement:	PEO	
CS Justification:	Exercising these values to the open position requires overcoming the pressure of the reactor coolant system. This cannot be done during normal plant operation since the maximum accumulator pressure is considerably less than that of the reactor coolant system.	

# **Cold Shutdown Justifications**

#### <u>CSJ-25</u>

System:	SI	
Drawing:	ISI-27353	
Components:	895A 895B 895C 895D	<ul> <li>31 SIS Accumulator Discharge Valve</li> <li>32 SIS Accumulator Discharge Valve</li> <li>33 SIS Accumulator Discharge Valve</li> <li>34 SIS Accumulator Discharge Valve</li> </ul>
Normal Function	The check valves shall provide passive means to isolate the system/RCS pressure boundary interface whenever RCS pressure is at or above the system operating pressure and minimize RCS backleakage to the accumulators to prevent dilution of the borated water contained in these tanks. The valves also allow flow delivery to the RCS when RCS pressure is below system pressure.	
Safety Function:	The check valves sha interface whenever R backleakage to the ac The valves also allow	Ill provide passive means to isolate the system/RCS pressure boundary CS pressure is at or above the system operating pressure and minimize RCS commulators to prevent dilution of the borated water contained in these tanks. If flow delivery to the RCS when RCS pressure is below system pressure.
Testing Requirement:	EC	
CS Justification:	The only positive means of verifying valve closure is to perform a back leakage test, which is impractical during plant operation.	
		<u>CSJ-26</u>
System:	SI	
Drawing:	ISI-27353	
Components:	897A 897B 897C 897D	High Head/Low Head to Loop #1 Cold Leg High Head/Low Head to Loop #2 Cold Leg High Head/Low Head to Loop #3 Cold Leg High Head/Low Head to Loop #4 Cold Leg
Normal Function	The check valves shall provide passive means to isolate the system/RCS pressure boundary interface whenever RCS pressure is at or above the system operating pressure and minimize RCS backleakage to the accumulators to prevent dilution of the borated water contained in these tanks. The valves also allow flow delivery to the RCS when RCS pressure is below system pressure.	
Safety Function:	The check valves shal interface whenever R( backleakage to the acc The valves also allow	Il provide passive means to isolate the system/RCS pressure boundary CS pressure is at or above the system operating pressure and minimize RCS cumulators to prevent dilution of the borated water contained in these tanks. flow delivery to the RCS when RCS pressure is below system pressure.
Testing Requirement:	EC, PEO	
CS Justification:	The only positive mea impractical during pla	ns of verifying valve closure is to perform a back leakage test, which is int operation.

# **Cold Shutdown Justifications**

#### <u>CSJ-27</u>

System:	CVCS	
Drawing:	ISI-27363	
Components:	201 202	Letdown Containment Isolation Letdown Containment Isolation
Normal Function	Normally open to prov flow.	ide a pathway from the RCS to the CVCS for normal letdown and charging
Safety Function:	Close for containment isolation.	
Testing Requirement:	EC, FST-C	
CS Justification:	Closure of any of these valves would disrupt CVCS flow and thermal balance and could possibly result in pressurizer level and charging header pressure transients as well as thermal stress to the reactor coolant system piping.	
		<u>CSJ-28</u>
System:	CVCS	
Drawing:	ISI-27363	
Components:	205 226	Charging Containment Isolation Charging Containment Isolation
Normal Function	Normally open to provi flow.	ide a pathway from the RCS to the CVCS for normal letdown and charging
Safety Function:	Close for containment isolation.	
Testing Requirement:	EC	
CS Justification:	Closure of any of these result in pressurizer lev reactor coolant system p	valves would disrupt CVCS flow and thermal balance and could possibly yel and charging header pressure transients as well as thermal stress to the piping.
# **Cold Shutdown Justifications**

# <u>CSJ-29</u>

#### (Augmented)

System:	CVCS	
Drawing:	ISI-27363	
Components:	204A 204B	Charging Line Loop 1 Cold Leg Isolation Charging Line Loop 2 Hot Leg Isolation
Normal Function	Normally one valve is	open and one valve is closed.
Safety Function:	These values open to provide charging and emergency boration flowpaths from the charging pumps to two RCS loops.	
Testing Requirement:	A-EO, A-FST-O	
CS Justification:	These values are normally aligned with the "A" value closed and the "B" value open. Routine opening of the A value would subject the associated charging line piping to unnecessary thermal cycling and the potential for damage to the piping.	
		<u>CSJ-30</u>
System:	CVCS	
Drawing:	ISI-27363	
Components:	210A 210C	Charging Line Loop 2 Hot Leg Check Charging Line Loop 2 Hot Leg Check
Normal Function		
Safety Function:	These valves open to p pumps to two RCS loop	rovide charging and emergency boration flowpaths from the charging ps.
Testing Requirement:	EO	
CS Justification:	Exercising these valves Routine opening of the thermal cycling and the	s requires that valve 204A be opened to establish flow to RCS Loop 2. A valve would subject the associated charging line piping to unnecessary e potential for damage to the piping.

# **Cold Shutdown Justifications**

#### <u>CSJ-31</u>

System:	CVCS	
Drawing:	ISI-27363	
Components:	222 250A 250B 250C 250D 441 442 443 444	RCP Seal Water Return Isolation 31 RCP Seal Injection Containment Isolation 32 RCP Seal Injection Containment Isolation 33 RCP Seal Injection Containment Isolation 34 RCP Seal Injection Containment Isolation 31 RCP Seal Injection Containment Isolation 32 RCP Seal Injection Containment Isolation 33 RCP Seal Injection Containment Isolation 34 RCP Seal Injection Containment Isolation
Normal Function	Open to provide a pathway from the RCP seals to the CVCS system to allow for seal injection, leakoff, and cooling.	
Safety Function:	These valves close to limit the loss of RCS inventory and for containment isolation.	
Testing Requirement:	EC	
CS Justification:	Closing any of these valves during plant operation would disrupt RCP seal injection flow which could result in damage to the reactor coolant pump seals and an associated seal LOCA.	
		<u>CSJ-32</u>
System:	CVCS	
Drawing:	ISI-27363	
Components:	290	Charging Pump Suction From Refueling Water Storage Tank
Normal Function	Closed to prevent backflow from the charging pump suction header to the refueling water storage tank.	
Safety Function:	Opens to allow the charging pumps to take suction directly from the refueling water storage tank	
Testing Requirement:	EO	
CS Justification:	Exercising this valve v (RWST). During plan undesirable reactor po	would require drawing water from the Refueling Water Storage Tank it operation, this would add negativity into the reactor core and result in wer and temperature transients.

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# **Cold Shutdown Justifications**

# CSJ-33

#### (Augmented)

System:	CVCS	
Drawing:	ISI-27363	
Components:	333	Emergency Boration Valve
Normal Function	Closed to isolate the charging pump suction header from the boric acid transfer pumps' discharge header.	
Safety Function:	Opens to provide a flowpath from the boric acid transfer pumps' discharge header to the charging pump suction header for emergency boration.	
Testing Requirement:	A-EO	
CS Justification:	Exercising this valve would allow concentrated boric acid to flow into the suctions of the charging pumps. During plant operation this would add significant negative reactivity into the reactor core and result in undesirable reactor power and temperature transients.	
		<u>CSJ-34</u>
System:	CVCS	
Drawing:	ISI-27363	
Components:	LCV-112B	Charging Pump Suction From Refueling Water Storage Tank
Normal Function	Closed to prevent backflow from the charging pump suction header to the RWST during emergency boration.	
Safety Function:	Opens to allow the charging pumps to take suction directly from the refueling water storage tank.	
Testing Requirement:	EO	
CS Justification:	Exercising this valve we (RWST). During plant result in undesirable rea	ould require drawing water from the Refueling Water Storage Tank operation, this would add negative reactivity into the reactor core and ctor power and temperature transients.

# **Cold Shutdown Justifications**

#### <u>CSJ-35</u> (Augmented)

System:	CVCS	
Drawing:	ISI-27363	
Components:	LCV-112C	Volume Control Tank Outlet Isolation Valve
Normal Function	Open to provide a flo proper NPSH for the	wpath from the volume control tank to the charging pumps and maintains pumps.
Safety Function:	Closes on low level in the volume control tank to prevent nitrogen gas from entering the suctions of the charging pumps.	
Testing Requirement:	A-EC	
CS Justification:	Exercising this valve would require drawing water from the Refueling Water Storage Tank (RWST). During plant operation, this would add negative reactivity into the reactor core and result in undesirable reactor power and temperature transients. Additionally, this could cause a level and pressure transient in the Volume Control Tank (VCT), whereas, the VCT relief valve could be challenged.	
		<u>CSJ-36</u>
System:	CVCS	
Drawing:	ISI-27363	
Components:	LCV-459 LCV-460	Letdown Line Isolation Valve Letdown Line Isolation Valve
Normal Function	Open to provide a letdown flowpath from the RCS.	
Safety Function:	Closes on low level in the pressurizer to conserve RCS inventory.	
Testing Requirement:	EC, FST-C	
CS Justification:	Closure of these valves would disrupt CVCS flow. This could possibly induce level transients in the pressurizer, as well as, undesirable pressure and thermal stress to the RCS/CVCS piping.	

# **Cold Shutdown Justifications**

#### <u>CSJ-37</u>

System:	RCS		
Drawing:	ISI-27473		
Components:	652 653 654 655	RX Vessel Head Vent Valve RX Vessel Head Vent Valve RX Vessel Head Vent Valve RX Vessel Head Vent Valve	
Normal Function	Closed to maintain th	Closed to maintain the RCS pressure boundary.	
Safety Function:	Opened as needed to vent non-condensable gases trapped in the reactor vessel head to the pressurizer relief tank.		
Testing Requirement:	EO		
CS Justification:	These reactor vessel head vent valves are closed and de-energized during plant operation to prevent inadvertent operation that could result in a small break LOCA in containment.		
		<u>CSJ-38</u>	
System:	RCS		
Drawing:	ISI-27473		
Components:	PCV-455C PCV-456	Power Operated Relief Valve Power Operated Relief Valve	
Normal Function	Closed to maintain the RCS pressure boundary.		
Safety Function:	Protect the RCS from over-pressurization when the reactor vessel is cooled down (LTOP).		
Testing Requirement:	EO,EC		
CS Justification:	Should a PORV fail to leakage barrier of the r	close after exercising to the open position, it would eliminate a significant reactor coolant system.	

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# **Cold Shutdown Justifications**

#### <u>CSJ-39</u>

System:	SI	
Drawing:	ISI-27503	
Components:	842 843	Safety Injection Pump Miniflow Isolation Valve Safety Injection Pump Miniflow Isolation Valve
Normal Function	Open to provide minin	num pump flow during low flow operation of the safety injection pumps.
Safety Function:	Closed during long term cold leg recirculation to prevent recirculation from the discharge of the SIS pumps back to the refueling water storage tank.	
Testing Requirement:	EC	
CS Justification:	These valves must remain open during plant operation in accordance with Technical Specification 3.3.A.3.J. Closure of either of these valves would prevent minimum flow from all of the high head SIS pumps, thus causing them to become inoperable, defeating the HHSI safety function.	
		<u>CSJ-40</u>
System:	SI	
Drawing:	ISI-27503	
Components:	846	Refueling Water Storage Tank Isolation Valve
Normal Function	Open to provide a flowpath from the refueling water storage tank to the safeguard system pumps.	
Safety Function:	In the event it becomes necessary, during recirculation, to pump with the RHR pumps to the suction of the SIS pumps while bypassing the RHR heat exchangers, this valve must be closed to prevent refilling the refueling water storage tank.	
Testing Requirement:	EC	
CS Justification:	This valve must remain the emergency core coor injection system inoper	n open and de-energized during plant operation to ensure the operability of pling systems. Closing this valve renders all high head and low head safety rable.

# **Cold Shutdown Justifications**

#### <u>CSJ-41</u>

System:	SI	
Drawing:	ISI-27503	
Components:	847	Safety Injection Supply From Refueling Water Storage Tank Check Valve
Normal Function	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.	
Safety Function:	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.	
Testing Requirement:	EC	
CS Justification:	Verifying closure of this valve requires isolation of the safety injection flowpaths. This is not permitted while the plant is operating at power, as it would render the safety function inoperable.	
		<u>CSJ-42</u>
System:	SI	
Drawing:	ISI-27503	
Components:	876A 876B	Spray Additive Tank Isolation Valve Spray Additive Tank Isolation Valve
Normal Function	Closed. Precludes inadvertent contamination of the containment spray and safety injection systems (RWST) with sodium hydroxide.	
Safety Function:	Opens to provide a flowpath from the Spray Additive Tank to the Containment Spray pump eductors.	
Testing Requirement:	EC, EO, FST-O	
CS Justification:	Opening either of thes Injection system with s	e valves could result in contaminating the Containment Spray and Safety sodium hydroxide.

# **Cold Shutdown Justifications**

#### <u>CSJ-43</u>

System:	SI	
Drawing:	ISI-27503	
Components:	882	RHR Pump Suction
Normal Function	Open to provide a flow pumps for low pressure	vpath from the refueling water storage tank to the suction of the RHR re safety injection.
Safety Function:	Closed to isolate the suction of the RHR pumps and the containment recirculation sump from the RWST and SIS pump suctions during alignment for RHR decay heat removal or in the post-LOCA long term cold leg recirculation cooling mode.	
Testing Requirement:	EC	
CS Justification:	This valve must remain open and de-energized during plant operation per IP3 Technical Specification 3.3.A.3.I.	
		<u>CSJ-44</u>
System:	SI	
Drawing:	ISI-27503	
Components:	883	RHR Pump Discharge to SIS Isolation Valve
Normal Function	Closed with power removed from its operator to prevent opening and defeating the safety injection function of the RHR pumps.	
Safety Function:	In the course of an acc mode (alternate to the discharge header to the	ident, if it becomes necessary to use the RHR pumps in a recirculation recirculation pumps) this valve must be opened to align the RHR pump suction of the safety injection pumps.
Testing Requirement:	EO	
CS Justification:	This valve is closed wi Technical Specification	th power removed from its operator during plant operation as required by a 3.3.A.3.1.

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# **Cold Shutdown Justifications**

#### <u>CSJ-45</u>

System:	SI	
Drawing:	ISI-27503	
Components:	885A 885B	Containment Sump RHR Suction Isolation Valve Containment Sump RHR Suction Isolation Valve
Normal Function	Closed for containment isolation and to provide isolation to prevent the accidental draining of the RCS or RWST to the containment sump.	
Safety Function:	Opened to align the RHR pumps to take suction from the containment sump for post-accident long-term recirculation as a backup for the recirculation pumps.	
Testing Requirement:	EO	
CS Justification:	These two valves are in series and valve 885A is inside minicontainment and thus inaccessible during operation. Opening these valves could result in inadvertent draining of the RWST to the containment sump. During power operation this would be an unacceptable transient.	
		<u>CSJ-46</u>
System:	SI	
Drawing:	ISI-27503	
Components:	888A 888B	Low Head to High Head SI Recirculation Stop Valve Low Head to High Head SI Recirculation Stop Valve
Normal Function	Closed for containment isolation.	
Safety Function:	Opened to provide a flowpath from the recirculation pumps to the safety injection pumps during long term recirculation.	
Testing Requirement:	EC, EO	
CS Justification:	Opening 888A/B has the potential to overpressurize the low pressure HHSI suction piping. In order to avoid opening the suctions to all 3 of the high-head SIS pumps to the RHR system while cycling valves 888A&B, valves 1869 A&B both are required to be closed. Having both of these valves closed renders both RHR pumps inoperable by isolating their miniflow path through 1870 and 743.	

# **Cold Shutdown Justifications**

#### <u>CSJ-47</u>

System:	SI	
Drawing:	ISI-27503	
Components:	1810	Refueling Water Storage Tank Outlet Isolation Valve
Normal Function	Open to permit SI pur	nps to draw suction from the RWST.
Safety Function:	Open to provide a flowpath from the refueling water storage tank to the SIS pumps, and close to permit post-LOCA high head recirculation, isolating the flowpath back to the RWST.	
Testing Requirement:	EC	
CS Justification:	This valve must remain open and de-energized during plant operation per IP3 Technical Specification 3.3.A.3.I.	
		<u>CSJ-48</u>
System:	SI	
Drawing:	ISI-27503	
Components:	1838A 1838B	Spray Additive to Eductor 31 Spray Additive to Eductor 32
Normal Function	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.	
Safety Function:	The check valves shall provide passive means to isolate nonoperating sections of the system whenever a negative pressure gradient exists across the valve. In addition, the check valves shall also allow system flow when a positive pressure gradient is present.	
Testing Requirement:	EO	
CS Justification:	The system lineup and defeating the spray add	preparations required for opening either of these valves would require litive feature of the containment spray system.

# **Cold Shutdown Justifications**

#### <u>CSJ-49</u>

System:	RHR	
Drawing:	ISI-27513	
Components:	738A 738B	RHR Pump Discharge Check Valve RHR Pump Discharge Check Valve
Normal Function	Close to prevent back	-flow through an inactive RHR pump.
Safety Function:	Open to provide a flow piping. Close to preva recirculation phase of	vpath from each of the RHR pumps to the RHR discharge header and ent back flow through an inactive RHR pump during the injection or a LOCA.
Testing Requirement:	EO	
CS Justification:	Full stroke exercising of these valves requires operating the RHR pumps with flow to the RCS. This is not possible during operation since the RHR pumps are not capable of overcoming RCS pressure.	
		<u>CSJ-50</u>
System:	RHR	
Drawing:	ISI-27513	
Components:	743	RHR Pump Recirculation Line Isolation Valve
Normal Function	Open to provide a flow pump is operating at o	vpath for RHR pump minimum flow to afford pump protection when a r near shutoff head.
Safety Function:	During an accident sce containment isolation	mario there may be occasion where it is desirable to close these values for or cold leg recirculation and then reopen for accident recovery.
Testing Requirement:	EO, EC	
CS Justification:	This valve must remain Specification 3.3.A.3.n	n open and de-energized during plant operation per IP3 Technical

# **Cold Shutdown Justifications**

#### <u>CSJ-51</u>

System:	RHR	
Drawing:	ISI-27513	
Components:	744	RHR Pump Discharge to RHR Heat Exchanger Isolation
Normal Function	Open to provide a flowpath from the RHR pumps to the RHR heat exchangers during cold leg recirculation and LPCI.	
Safety Function:	Closed for containment isolation and to isolate the RHR pump discharge header when the recirculation pumps are in operation during cold leg recirculation.	
Testing Requirement:	EO, EC	
CS Justification:	IP3 Technical Specification 3.3.A.3.i requires that this value be open with its power supply de- energized during plant operation.	
		<u>CSJ-52</u>
System:	CCW	
Drawing:	ISI-27513	
Components:	756A 756B	Charging Pump CCW Supply Isolation Charging Pump CCW Return Isolation
Normal Function	Open to provide a flowpath for cooling water circulation through the charging pump coolers.	
Safety Function:	In the event that the charging pumps are required to operate during an accident when CCW is unavailable, these valves would be closed to allow using the city water supply for cooling.	
Testing Requirement:	EC	
CS Justification:	Closing either of these damage rendered to the	valves isolates cooling water to the charging pumps. This could result in e operating charging pump(s).

# **Cold Shutdown Justifications**

#### <u>CSJ-53</u>

System:	CCW	
Drawing:	ISI-27513	
Components:	769	RCP Seal & Bearing Coolers & Vessel Cooling Support Block CCW
	797	RCP Seal & Bearing Coolers & Vessel Cooling Support Block CCW Supply Isolation
Normal Function	Open to provide a flo	wpath for cooling water to the reactor coolant pumps.
Safety Function:	Containment isolation values that can also be positioned to isolate non-essential cooling loads under conditions when emergency containment cooling is required and to limit the loss of cooling water should the cooling water piping inside containment rupture.	
Testing Requirement:	EC	
CS Justification:	Closing these valves d with the potential for o	uring plant operation would disrupt cooling to the reactor coolant pumps damaging the pumps due to overheating.
		<u>CSJ-54</u>
System:	CCW	
Drawing:	ISI-27513	
Components:	784	RCP Bearing Coolers & Vessel Cooling Support Block CCW Return
	786	RCP Bearing Coolers & Vessel Cooling Support Block CCW Return Isolation
Normal Function	Open to provide a flowpath for cooling water to the reactor coolant pumps.	
Safety Function:	Close to isolate the non-missile-protected sections of component cooling water piping in containment thus precluding the gross loss of component cooling water inventory as a result of pipe rupture inside the containment building.	
Testing Requirement:	EC	
CS Justification:	Closing these valves du with the potential for d	uring plant operation would disrupt cooling to the reactor coolant pumps amaging the pumps due to overheating.

# **Cold Shutdown Justifications**

#### <u>CSJ-55</u>

System:	CCW	
Drawing:	ISI-27513	
Components:	789 FCV-625	RCP Seal CCW Return Isolation RCP Seal CCW Return Isolation
Normal Function	Open to provide a flo	wpath for cooling water to the reactor coolant pumps.
Safety Function:	Close automatically ( containment to limit t thermal barriers ruptu of reactor coolant outs exchanger.	phase B) to isolate the RCP thermal barrier cooling piping inside he loss of cooling water should the cooling water piping serving the RCP re. Additionally they automatically close on high flow to limit the release side containment in the event of a tube rupture in a thermal barrier heat
Testing Requirement:	EC	
CS Justification:	Closing these valves d with the potential for a	uring plant operation would disrupt cooling to the reactor coolant pumps damaging the pumps due to overheating.
		<u>CSJ-56</u>
System:	CCW	
Drawing:	ISI-27513	
Components:	810 814	Non Regenerative Heat Exchanger Cooling Water Supply/Return Isolation Non Regenerative Heat Exchanger Cooling Water Supply/Return Isolation
Normal Function	Open to provide a flowpath for cooling water supply and return to and from the non-regenerative heat exchanger.	
Safety Function:	Closed to isolate the heat exchanger to reduce heat loads during post accident cooling. During operation with only one CCW pump the non-regenerative heat exchanger must be isolated to prevent pump runout.	
Testing Requirement:	EC	
CS Justification:	Closing these valves re exchanger. This in tur exchangers and possible result in unacceptable p	sults in securing cooling water flow through the non-regenerative heat n would require stopping letdown flow to preclude damaging the ion ly overheating other CVCS system components. Such an evolution would pressurizer level transients and a possible plant trip.

# **Cold Shutdown Justifications**

#### <u>CSJ-57</u>

System:	CCW		
Drawing:	ISI-27513		
Components:	1870	RHR Pump Mini Flow Isolation	
Normal Function	Open to provide a flo pump is operating at c	wpath for RHR pump minimum flow to afford pump protection when a or near shutoff head.	
Safety Function:	During an accident scenario there may be occasion where it is desirable to close this valve for containment isolation or cold leg recirculation and then reopen for accident recovery.		
Testing Requirement:	EC, EO		
CS Justification:	This valve must remain open and de-energized during plant operation per IP3 Technical Specification 3.3.A.3.m.		
		<u>CSJ-58</u>	
System:	HVAC		
Drawing:	ISI-40223		
Components:	FCV-1170 FCV-1171 FCV-1172 FCV-1173	Containment Building Purge Inside Supply Valve Containment Building Purge Outside Supply Valve Containment Building Purge Outside Supply Valve Containment Building Purge Inside Supply Valve	
Normal Function	Normally closed for containment isolation. Opened to provide flowpaths for supplying and exhausting air to and from the containment building to reduce radioactivity during shutdowns.		
Safety Function:	Closed for containmen	Closed for containment isolation.	
Testing Requirement:	EC, FST-C		
CS Justification:	These valves must rem with Technical Specific	ain closed in all modes except cold shutdown and refueling in accordance cation 3.6.D.	

# **Cold Shutdown Justifications**

#### <u>CSJ-59</u> (Augmented)

System:	FW	
Drawing:	ISI-20193	
Components:	FCV-417L FCV-427L FCV-437L FCV-447L	<ul> <li>#31 Steam Generator Main Feedwater Low Flow (Bypass) Control</li> <li>#32 Steam Generator Main Feedwater Low Flow (Bypass) Control</li> <li>#33 Steam Generator Main Feedwater Low Flow (Bypass) Control</li> <li>#34 Steam Generator Main Feedwater Low Flow (Bypass) Control</li> </ul>
Normal Function	Regulate feed flow to the S/Gs during low power conditions. Normally closed during power operation.	
Safety Function:	Closes automatically to mitigate certain accidents.	
Testing Requirement:	A-EC, A-FST-C	
CS Justification:	During normal power performed during a str	operations these valves are closed. Closure verification can only be oke test when main feedwater is not required.

# INSERVICE TESTING PROGRAM #8

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Appendix D

REFUELING OUTAGE JUSTIFICATIONS

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# **Refueling Outage Justifications**

### <u>ROJ-1</u>

System:	MS		
Drawing:	ISI-20173		
Components:	MS-41 MS-42	#32 ABFP Steam Supply From 32 Main Steam Line #32 ABFP Steam Supply From 33 Main Steam Line	
Function:	These stop check valv to prevent uncontrolle piping associated with closure of each valve.	es open to admit steam to the auxiliary feedwater pump turbine. They close d blowdown of steam generators 32 & 33 in the event a steam leak occurs in one of these steam generators. A handwheel is provided to allow manual	
RO Justification:	The only practical method of verifying proper full-stroke operation of these valves in the open direction is to operate the turbine-driven auxiliary feedwater pump at full rated flow with one of the valves manually closed.		
	During power operation cold water into the ste piping or the steam ge	on, full stroke exercising these valves as stated would require injection of am generators. This could result in thermal shock to the feedwater supply nerator nozzles, which is highly undesirable.	
	Partial stroke exercising can be performed by operation of the pump in the recirculation mode.		
	During a normal shutdown period steam is not available for operation of the steam-driven auxiliary feedwater pump. The full flow test is impractical to perform during startup from every cold shutdown because the test causes a plant cooldown which significantly delays the startup of the plant. Full flow testing is only required once every two years by technical specifications. Thus, since full flow operation of this pump is the only practical way of exercising this valve to the full-open position, cold shutdown testing is impractical.		
	Since there are no position, there is no pr handwheel.	ition indicating devices on these stop check valves for determining disc actical method of verifying full closure without operation of the valve	
Alternate Testing:	During normal plant operation, on a quarterly frequency, these valves will be partial stroke exercised to the open position by operation of the pump in the recirculation mode and exercised closed using the installed handwheel.		
	Every refueling outage during the 2 year Tech	both the MS-41 and MS-42 valves will be full stroke exercised open nical Specification 4.8.1.a, Auxiliary Feedwater Pump 32 full flow testing.	
	During each reactor re and manually exercised are inspected during su prove to be inoperable outage, the other valve	fueling outage, at least one of these valves will be disassembled, inspected, d closed to verify operability. The schedule will be rotated such that valves accessive outages. During these inspections, should a disassembled valve (i.e. incapable of performing its safety function), then, during the same will be disassembled, inspected, and exercised to verify operability.	

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# **Refueling Outage Justifications**

### <u>ROJ-2</u>

System:	COND	
Drawing:	ISI-20183	
Components:	CT-26 CT-29-2 CT-32	<ul><li>#31 Aux. Feed Pump Suction from CST</li><li>#32 Aux. Feed Pump Suction from CST</li><li>#33 Aux. Feed Pump Suction from CST</li></ul>
Function	These check valves op feedwater pumps. The to the AFW pumps.	en to provide a flowpath from the Condensate storage tank to the auxiliary ey close to prevent backflow to the CST when city water is used as a supply
RO Justification:	Exercising these valve pressurize downstream valves. The use of city and sampling during to contaminated.	s closed requires performing a qualitative leak test. City water is used to a of the check valves while back leakage is checked upstream of the check water requires removing the pumps from service with extensive flushing est restoration to ensure the Condensate system is not chemically
Alternate Testing	These valves will be ex Specification 4.8.1.c C	kercised closed every refueling outage during the 2 year Technical ity Water Valve test.
		<u>ROJ-3</u>
System:	COND	
Drawing:	ISI-20183	
Components:	CT-29-2	#32 Aux. Feed Pump Suction from CST
Function	This check valve opens feedwater pump. It clo the AFW pump.	s to provide a flowpath from the Condensate storage tank to the auxiliary uses to prevent backflow to the CST when city water is used as a supply to
RO Justification:	During power operation the steam-driven auxili could result in thermal which is highly undesin	n, exercising this value to the full-open position would require operating ary feedwater pump injecting cold water into the steam generators. This shock to the feedwater supply piping and the steam generator nozzles, rable.
	During a normal shutd auxiliary feedwater pur cold shutdown because the plant. Full flow tes Thus, since full flow op the full-open position, o	own period steam is not available for operation of the steam-driven np. The full flow test is impractical to perform during startup from every the test causes a plant cooldown which significantly delays the startup of sting is only required once every two years by technical specifications. Deration of this pump is the only practical way of exercising this valve to cold shutdown testing is impractical.
Alternate Testing	During quarterly testing stroke tested via the mi	g of the turbine-driven auxiliary feedwater pump this valve will be partial- nimum flow recirculation line.
	Every refueling outage Auxiliary Feedwater Pu	this valve will be full stroke exercised open, during the 2 year #32 ump full flow testing required by Technical Specifications 4.8.1.a.

# **Refueling Outage Justifications**

#### <u>ROJ-4</u>

System:	COND	
Drawing:	ISI-20183	
Components:	PCV-1187 PCV-1188 PCV-1189	#31 AFWP City Water Makeup Isolation #32 AFWP City Water Makeup Isolation #33 AFWP City Water Makeup Isolation
Function	These valves are of supplement to the the city water from	opened to provide a supply of city water to the suction of the AFW pumps as a contents of the Condensate storage tank. They are normally closed to isolate m the Condensate system.
RO Justification:	These values are normally closed to isolate the city water system from the Condensate system. They are only opened in the unlikely event that steam generator makeup is required via the auxiliary feedwater system and the contents of the Condensate storage tank is exhausted.	
	Opening any of the adverse effect on the required to perfort or cold shutdown	hese valves exposes the Condensate system to contaminates that would have an the Condensate and feedwater system chemistry. Following this, it would be m an extensive flushing operation to ensure cleanliness. During plant operation conditions such a test would result in an unreasonable burden on the plant staff.
Alternate Testing	Every refueling or Technical Specific	utage PCV-1187 through PCV-1189 will be exercised open during the 2 year cation 4.8.1.c City Water Valve test.

# **Refueling Outage Justifications**

### <u>ROJ-5</u>

System:	FW		
Drawing:	ISI-20193		
Components:	BFD-31 BFD-47-1 BFD-47-2 BFD-47-3 BFD-47-4	<ul> <li>#32 Aux. Feed Pump Discharge Check</li> <li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#32 Aux. Feed Pump Flow Control Valve Discharge Check</li> </ul>	
Function	These valves open to p feedwater pump to the backflow through the i	provide flowpaths from the discharge of the turbine-driven auxiliary steam generators. Valves BFD 47-1 through BFD 47-4 close to prevent dle pump when either of the motor-driven pumps is in operation.	
RO Justification:	During power operation, exercising these valves open would require operating the steam-driven auxiliary feedwater pump and injecting cold water into the steam generators. This could result in thermal shock to the feedwater supply piping and the steam generator nozzles, which is highly undesirable.		
	During a normal shutdown period steam is not available for operation of the steam-driven auxiliary feedwater pump. The full flow test is impractical to perform during startup from every cold shutdown because the test causes a plant cooldown which significantly delays the startup of the plant. Full flow testing is only required once every two years by technical specifications. Thus, since full flow operation of this pump is the only practical way of exercising these valves, to the full open position, cold shutdown testing is impractical.		
	Verifying closure of va the motor-operated AF is not practical during	lives BFD-47-1 through BFD-47-4 requires the operation of at least one of W pumps with injection to the steam generators. As discussed above, this normal plant operation at power.	
Alternate Testing	During cold shutdown (CSJ-11).	periods, valves BFD 47-1 through BFD 47-4 will be verified to be closed	
	At a cold shutdown fr exercised to the open p	equency, BFD-31 and BFD-47-1 through BFD-47-4 will be partial-stroke osition (CSJ-9).	
	Every refueling outage open position during th full flow testing.	BFD-31 and BFD-47-1 through BFD-47-4 will be exercised to the fully ne 2 year Technical Specification 4.8.1.a, Auxiliary Feedwater Pump #32	

# **Refueling Outage Justifications**

### <u>ROJ-6</u>

System:	FW	
Drawing:	ISI-20193	
Components:	BFD-35 BFD-37 BFD-40 BFD-42	<ul> <li>#31 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#31 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#33 Aux. Feed Pump Flow Control Valve Discharge Check</li> <li>#33 Aux. Feed Pump Flow Control Valve Discharge Check</li> </ul>
Function	These check va the motor-drive backflow throug	lves in the auxiliary boiler feedwater piping system open to provide flowpaths from an auxiliary feedwater pumps to the steam generators. They close to prevent gh the system during periods when an AFW pump is idle.
RO Justification:	During power operation, full-stroke exercising these valves would require operating the auxiliar feedwater pumps injecting cold water into the steam generators. This could result in therma shock to the feedwater supply piping and the steam generator nozzles, which is highlundesirable.	
	These valves ha backleakage rec steam generator thermal stress in for operation of perform during significantly del years by technic way of verifying	we no position indication devices and verifying closure of these valves by puires the operation of turbine-driven AFW Pump #32 with full flow directed to the s. During plant operation this is not practical due the potential of unacceptable in the feedwater piping. During a normal shutdown period steam is not available the steam-driven auxiliary feedwater pump. The full flow test is impractical to startup from every cold shutdown because the test causes a plant cooldown which lays the startup of the plant. Full flow testing is only required once every two cal specifications. Thus, since full flow operation of this pump is the only practical g closure of these valves cold shutdown testing is impractical.
Alternate Testing	During cold shu	tdown periods, these valves will be full-stroke exercised open (CSJ-10).
	Every refueling Specification 4.3	outage these valves will be verified closed during the 2 year Technical 8.1.a, Auxiliary Feedwater Pump #32 full flow testing.

# **Refueling Outage Justifications**

# <u>ROJ-7</u>

System:	AIR	
Drawing:	ISI-20363	
Components:	IA-39 PCV-1228	Inboard Containment Isolation Outboard Containment Isolation
Function	These valves are the c building.	containment isolation valves for the instrument air supply to the containment
RO Justification:	Exercising these valv supply to the contain equipment within the the status of the react IA-39 is to perform a	es during operation or cold shutdown requires isolating the instrument air ment building. This would cause multiple failures of instrumentation and containment with accompanying system and plant transients, depending on tor plant. In addition, the only positive means of verifying valve closure of leakage test, which is impractical during a short duration outage.
	NUREG 1482 section Verified Closed by Le render leak rate testin valve IA-39 during re	4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves eak Testing", recognizes that the setup and performance limitations may g impractical during power operation and cold shutdowns and allows testing fueling outages.
Alternate Testing	Every refueling outage PCV-1228 and IA-39 will be exercised, and closure of IA-39 will be verified by leak testing. The Analysis of Leakage Rates and the Corrective Action requirements of OM-10 4.2.2.3(e) and (f) will be complied with. Fail safe testing for PCV-1228 will be performed every refueling outage.	
<u>ROJ-8</u>		
System:	WD	
Drawing:	ISI-27193 SH1	
Components:	1616	N2 Supply to RCDT #31 Isolation Check
Function	This valve is the containt tank.	ainment isolation valve for the nitrogen supply to the reactor coolant drain
RO Justification:	Verifying closure of containment building performance of a lea maintenance outage.	this valve during operation or cold shutdown requires access to the (downstream vent path lineup is in the containment building) and akage test, which is impractical during operation or a short duration
	NUREG 1482 section Verified Closed by Lea render leak rate testing this valve during refue	4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves ak Testing", recognizes that the setup and performance limitations may g impractical during power operation and cold shutdowns and allows testing eling outages.
Alternate Testing	Every refueling outage Analysis of Leakage R will be complied with.	e 1616 will be exercised, and closure will be verified by leak testing. The ates and the Corrective Action requirements of OM-10 $4.2.2.3(e)$ and (f)

# **Refueling Outage Justifications**

### <u>ROJ-9</u>

System:	RHR	
Drawing:	ISI-27203	
Components:	741	RHR Pump Discharge to Heat Exchanger
Function:	This valve opens to p closes for containment	provide a flowpath from the RHR pumps to the RHR heat exchangers and t isolation.
RO Justification:	Verifying closure of the containment building a short duration maint shutdown cooling whi	his valve during operation or cold shutdown requires access to the and performance of a leakage test which is impractical during operation or enance outage. In addition, closure testing requires interruption of ch is also impractical during cold shutdown.
	NUREG-1482 section 4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves Verified Closed by Leak Testing", recognizes that setup and performance limitations may render leak rate testing impractical during power operations and cold shutdowns and allows testing this valve during refueling outages.	
Alternate Testing	Every refueling outage 741 will be exercised and closure will be verified by leak testing. The Analysis of Leakage Rates and the Corrective Action requirements of OM-10 4.2.2.3(e) and (f) will be complied with.	
		<u>ROJ-10</u>
System:	СС	
Drawing:	ISI-27203	
Components:	774A 774B 774C 774D	<ul> <li>#31 RCP Seal Cooler CCW Inlet Check</li> <li>#32 RCP Seal Cooler CCW Inlet Check</li> <li>#33 RCP Seal Cooler CCW Inlet Check</li> <li>#34 RCP Seal Cooler CCW Inlet Check</li> </ul>
Function:	In the event of a thermal barrier tube rupture these check valves close to protect the low pressure cooling water piping and associated containment penetration from over-pressure and gross failure.	
RO Justification:	Verifying closure of these valves requires performance of a backleakage test. Such a test requires containment entry and extensive valve manipulation and lineup changes. This represents a significant and unnecessary burden on the plant staff with no resulting commensurate increase in plant safety.	
Alternate Testing	During each reactor re-	fueling outage these valves will be verified to close.

# **Refueling Outage Justifications**

# <u>ROJ-11</u>

System:	N2	
Drawing:	ISI-27233	
Components:	NNE-1610	Containment N2 Supply Isolation Valve Inside Containment
Function:	This valve is the inbo building.	pard containment isolation valve for the nitrogen supply to the containment
RO Justification:	The only positive mea impractical during pla	ans of verifying valve closure is to perform a leakage test, which is ant operation or short-duration outage.
	NUREG 1482 section Verified Closed by Le render leak rate testin this valve during refut	4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves ak Testing", recognizes that the setup and performance limitations may g impractical during power operation and cold shutdowns and allows testing eling outages.
Alternate Testing	Every refueling outage NNE-1610 will be exercised, and closure will be verified by leak testing. The Analysis of Leakage Rates and the Corrective Action requirements of OM-10 4.2.2.3(e) and (f) will be complied with.	
		<u>ROJ-12</u>
System:	SI	
Drawing:	ISI-27353	
Components:	1802A 1802B	Recirculating Pump Discharge Isolation Valve Recirculating Pump Discharge Isolation Valve
Function:	These valves close to open to provide a recir	isolate the recirculation pumps from the remainder of the RHR system and rculation flowpath to the RHR heat exchangers.
<b>RO Justification:</b>	Exercising these valves during plant operation would result in draining the RHR system piping to the containment sump.	
	During a normal cold RHR heat exchanger to	shutdown when the RHR system is in operation, the stroke test requires one o be isolated which makes this an undesirable operation.
Alternate Testing	These valves will be exoutage.	xercised open and remote position indication verified during each refueling

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# **Refueling Outage Justifications**

### <u>ROJ-13</u>

System:	SI
Drawing:	ISI-27353
Components:	1820 Recirculating Pump Min Flow Line Check Valve
Function:	This valve opens to provide a pathway for minimum flow from the containment recirculation pumps.
RO Justification:	This system is normally maintained in a dry condition except during testing of the recirculation pumps, which is performed during refueling outages. This precludes pump operation during plant operation which is required for testing of this valve.
	The test circuit for testing of the recirculation pumps does not contain permanently installed instrumentation for measuring flow through this valve needed to satisfy NRC Generic Letter 89-04.
	Because these values are never operated except for pump testing each refueling and they are maintained in a dry condition, there is a low probability of deterioration.
Alternate Testing	Every refueling outage the 1820 valve will be full stroke exercised during the 2 year Technical Specification 4.5.B.1.a Recirculation Pump testing.

# **Refueling Outage Justifications**

### <u>ROJ-14</u>

System:	SI	
Drawing:	ISI-27353	
Components:	857A	High Head Safety Injection to Loop #1 Cold Leg NonBIT Header
	857B	High Head Safety Injection to Loop #3 Hot Leg NonBIT Header
	857C	Boron Injection to Loop #4 Cold Leg
	857D	Boron Injection to Loop #2 Cold Leg
	857E	Boron Injection to Loop #1 Cold Leg
	857F	Boron Injection to Loop #3 Cold Leg
	857G	High Head Safety Injection to Loop #1 Cold Leg
	857H	High Head Safety Injection to Loop #3 Hot Leg
	857J	Boron Injection to Loop #4 Cold Leg
	857K	Boron Injection to Loop #2 Cold Leg
	857L	Boron Injection to Loop #1 Cold Leg
	857M	Boron Injection to Loop #3 Cold Leg
	857N	Boron Injection to Loop #1 Hot Leg
	857P	Boron Injection to Loop #1 Hot Leg
	857Q	High Head Safety Injection to Loop #3 Cold Leg
	857R	High Head Safety Injection to Loop #3 Cold Leg
	857S	High Head Safety Injection to Loop #2 Cold Leg
	857T	High Head Safety Injection to Loop #2 Cold Leg
	857U	High Head Safety Injection to Loop #4 Cold Leg
	857W	High Head Safety Injection to Loop #4 Cold Leg
Function:	These valves close a flowpath into the	to provide isolation of the high-head SIS injection system and open to provide reactor coolant loops.
<b>RO</b> Justification:	These valves canno develop sufficient h	t be exercised during plant operation since the safety injection pumps cannot nead to open them against normal operational reactor coolant system pressure.
	During cold shutdo pumps and injection temperature over-pr	wn, exercising these valves would require operation of the safety injection n into the reactor coolant loops. This has the potential of causing low- ressurization of the RCS.
Alternate Testing	During each reactor	r refueling outage these valves will be full-stroke exercised open.
	Every refueling out 4.5.B.2.c leakage te	age valve closure will be verified during 2 year Technical Specification esting (also see Relief Request VR-1).

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# **Refueling Outage Justifications**

### <u>ROJ-15</u>

System:	SI		
Drawing:	ISI-27353		
Components:	886A 886B	Recirculating Pump #31 Discharge Check Valve Recirculating Pump #32 Discharge Check Valve	
Function:	These valves are installed at the discharge of each recirculation sump pump to prevent backflow through an idle pump.		
RO Justification:	This system remains drained during all modes of operation except refueling outages when water is provided to test the recirculation pumps. Because there is no full-flow test line, during these tests a minimal amount of water is recirculated to the sump. This flowrate is capable of only partially stroking the discharge valves.		
	Because these valves a maintained in a dry co	re never operated except for pump testing each refueling and they are ndition, there is a low probability of deterioration.	
Alternate Testing	Every refueling outage direction during the 2	the 886A and 886B valves will be partial stroke exercised in the open year Technical Specification 4.5.B.1.a Recirculation Pump testing.	
	Every refueling outage the 886A and 886B valves will be full stroke exercised in the closed direction during the 2 year Technical Specification 4.5.B.1.a Recirculation Pump testing.		
	During every reactor re manually exercised ope inspected during succe to be inoperable (i.e. in the other valve will be	efueling outage, one of these valves will be disassembled, inspected, and en to verify operability. The schedule will be rotated such that valves are ssive outages. During these inspections, should a disassembled valve prove ncapable of performing its safety function), then, during the same outage, disassembled, inspected, and exercised to verify operability.	

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# **Refueling Outage Justifications**

### <u>ROJ-16</u>

System:	SI	
Drawing:	ISI-27353	
Components:	889A 889B	#32 RHR HX Outlet to Spray Header Stop Valve #31 RHR HX Outlet to Spray Header Stop Valve
Function:	These values isolate the containment spray headers from the RHR heat exchangers during normal operation and open to supply cooled water as required during containment spray operation.	
RO Justification:	During normal plant operation, opening these valves shifts the low head safety injection flow from the reactor coolant system to the containment spray headers; thus, while either of these valves is open, the low-head safety injection system is considered to be inoperable.	
	During a typical short- shutdown cooling mod to preclude discharging	duration outage, the RHR heat exchangers are in operation. While in the le, the containment spray headers must be isolated from the heat exchangers g water into the containment.
Alternate Testing	These valves will be ex	xercised open and closed during each reactor refueling outage.

# **Refueling Outage Justifications**

# <u>ROJ-17</u>

System:	SI	
Drawing:	ISI-27353	
Components:	895A 895B 895C 895D	<ul><li>#31 SIS Accumulator Discharge Valve</li><li>#32 SIS Accumulator Discharge Valve</li><li>#33 SIS Accumulator Discharge Valve</li><li>#34 SIS Accumulator Discharge Valve</li></ul>
Function:	These valves open to p close to provide press accumulators.	provide safety injection flow into the reactor coolant system cold legs and ure isolation between the reactor coolant system and the safety injection
RO Justification:	Exercising these values to the open position requires actuation of safety injection and overcoming the pressure of the reactor coolant system. This cannot be done during normal plant operation since the maximum accumulator pressure is considerably less than that of the reactor coolant system.	
	Full stroking (open) of a de-pressurized reacto cold shutdown is not pr isolation valves (894 A	these valves would require "blowing-down" a pressurized accumulator into or coolant loop. Due to the scope of such an evolution, performance during ractical. Furthermore, due to the slow speed of the accumulator discharge -D) it is unlikely that full flow can be achieved in this line.
	During cold shutdown, pressurized accumulate a valve of this type is in internals will be discov	partial stroke testing can be accomplished by blowing down a slightly or. A partial-stroke test followed by a leakrate test adequately ensures that intact and functioning properly. Any significant deterioration of the valve rered during the leaktest.
Alternate Testing	During each cold shutd leakage test closed (CS	lown each valve will be partial-stroke tested open (CSJ-24) followed by a J-25) as required by Technical Specification 4.5.B.2.d.
	During each reactor ref open testing in accorda	fueling outage, nonintrusive techniques will be used to verify full stroke nce with NUREG-1482, Section 4.1.2.

# **Refueling Outage Justifications**

### <u>ROJ-18</u>

System:	SI	
Drawing:	ISI-27353	
Components:	897A 897B 897C 897D	High Head/Low Head to Loop #1 Cold Leg High Head/Low Head to Loop #2 Cold Leg High Head/Low Head to Loop #3 Cold Leg High Head/Low Head to Loop #4 Cold Leg
Function:	These valves supply injection accumulators during normal plant op	make-up from the RHR/low head safety injection pumps or the safety s to the RCS cold legs and isolate those components from RCS pressure peration.
RO Justification:	Neither the RHR/low head safety injection pumps nor the safety injection accumulators can provide enough pressure to overcome RCS pressure; thus, exercising these valves open during plant operation is not possible. The only practical means of verifying valve closure is by performing a leakrate test, which is not generally practical during plant operation.	
	Testing during cold sh presents a potential saf pressurization of the re	utdown – initiating safety injection by means of the SIS accumulators fety hazard due to the change of causing low-temperature over- eactor coolant system.
Alternate Testing	During each cold shute rate test closed (CSJ-20 refers to the flow requi tested with respect to the	lown each valve will be partial-stroke tested open followed by a leakage 6) required by Technical Specification 4.5.B.2.d. Note that partial-stroke red by injection via the SIS accumulators; the valves are actually full-flow hat associated with the RHR and low-head injection functions.
	During each reactor reactor reactor reactor reactor descent open testing in accordance of the second	fueling outage, noninstrusive techniques will be used to verify full stroke unce with NUREG-1482, Section 4.1.2.

# **Refueling Outage Justifications**

### <u>ROJ-19</u>

System:	RCS	
Drawing:	ISI-27473	· ·
Components:	518	N2 Supply to PRT Containment Isolation
Function:	This valve provides a isolation valve.	pathway for nitrogen to the pressurizer relief tank and acts as a containment
RO Justification:	The only positive mea impractical during a s	ns of verifying valve closure is to perform a leakage test, which is hort-duration outage.
	NUREG 1482 section Verified Closed by Le render leak rate testin, this valve during refue	4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves ak Testing", recognizes that the setup and performance limitations may g impractical during power operation and cold shutdowns and allows testing eling outages.
Alternate Testing	Every refueling outage value 518 will be exercised, and closure will be verified by leak testing. The Analysis of Leakage Rates and the Corrective Action requirements of OM-10 4.2.2.3(e) and (f) will be complied with.	
		<u>ROJ-20</u>
System:	SI	
Drawing:	ISI-27503	
Components:	1838A 1838B	Spray Add. To Educt. #31 Spray Add. To Educt. #32
Function:	These valves open to p eductor. They close to dilute the sodium hydr	provide sodium hydroxide flow to the associated containment spray additive o prevent the flow of water from an idle pump's loop that could effectively oxide solution.
RO Justification:	These are simple check available to verify clos	k valves with no external position indication nor is there a practical method ure of these valves by observing back-leakage.
	These valves are seldo, likely.	m operated; therefore, valve degradation as a result of wear and abuse is not
Alternate Testing	During each reactor re in accordance with NU	fueling outage, noninstrusive techniques will be used to verify valve closure IREG-1482, Section 4.1.2.

# **Refueling Outage Justifications**

# <u>ROJ-21</u>

System:	SI	
Drawing:	ISI-27503	
Components:	847	SIS Pump Suction
Function:	This valve opens to p suction of the safety in	provide a pathway for water from the refueling water storage tank to the jection pump.
RO Justification:	Testing this valve with through the BIT) using no other full-flow test verify that this valve is	a full accident flow will require injection through both pathways (including g two high-head safety injection pumps operating simultaneously. There is loop for the safety injection pumps that would provide sufficient flow to s fully opened.
	During plant operation insufficient to overcom temperature over-press	n this is not possible since the head of the safety injection pumps is ne reactor pressure. While in cold shutdown, provisions related to low- surization concerns preclude safety injection pump operation.
Alternate Testing	This valve will be part reactor refueling outag	ial-stroke exercised quarterly and full stroke exercised open during each
		<u>ROJ-22</u>
System:	SI	
Drawing:	ISI-27503	
Components:	849A 849B 852A 852B	SIS Pump #31 Discharge Isolation Valve SIS Pump #33 Discharge Isolation Valve SIS Pump #32 Discharge Isolation Valve SIS Pump #32 Discharge Isolation Valve
Function:	849A and 852A – The safety injection pumps	ese valves open to provide a pathway for water from the discharge of the directly to the RCS. They close to prevent backflow through an idle pump.
	849B and 852B – The safety injection pumps through an idle pump.	ese valves open to provide a pathway for water from the discharge of the to the RCS via the boron injection tank. They close to prevent backflow
RO Justification:	Full or partial stroke ex and injection into the re 852B) or directly (849A SIS pumps cannot deve condition, operation of over-pressurization of t	A and 852A). During plant operation, testing is not possible because the elop sufficient head to overcome the RCS pressure. In cold shutdown the SIS pumps in this mode could potentially result in low temperature he RCS.
Alternate Testing	Valves 849 A&B and 8 exercised open during e	52 A&B will be partial-stroke exercised open quarterly and full-stroke each reactor refueling outage.

# Refueling Outage Justifications <u>ROJ-23</u>

System:	SI		
Drawing:	ISI-27503		
Components:	867A 867B	Containment Spray Pump #31 Discharge Valve Containment Spray Pump #32 Discharge Valve	
Function:	These valves open to pumps to the containing pump and to provide c	provide pathways for water from the discharge of the containment spray nent spray headers. The valves close to prevent backflow through an idle ontainment isolation.	
RO Justification:	The only test circuit to provide sufficient flow needed for full-stroke exercising of these valves without spraying water into the containment building is while filling the refueling cavity prior to refueling. Spool pieces are installed to redirect the containment spray pump discharge flow to the alternate fill line for the cavity fill. The fill line has orifices installed, which limit the flow to values approximately similar to the spray requirements.		
	In order to verify valve	closure a leakage test must be performed.	
	NUREG 1482 section 4 Verified Closed by Lea render leak rate testing these valves during ref	4.1.4, "Extension of Test Interval to Refueling Outage for Check Valves k Testing", recognizes that the setup and performance limitations may impractical during power operation and cold shutdowns and allows testing ueling outages.	
Alternate Testing	These valves will be pa	urtial-stroke exercised (open) quarterly.	
	The subject valves will be full-stroke exercised open during each refueling outage.		
	Every refueling outage by leak testing. The As 4.2.2.3(e) and (f) will b	the 867A and 867B valves will be exercised, and closure will be verified nalysis of Leakage Rates and the Corrective Action requirements of OM-10 be complied with.	

# **Refueling Outage Justifications**

### <u>ROJ-24</u>

System:	SI		
Drawing:	ISI-27503		
Components:	881	RHR Pump Suction	
Function:	This valve opens to p suction of the residual	rovide a pathway for water from the refueling water storage tank to the heat removal pumps.	
RO Justification:	There is no flow test c valve during normal p	ircuit to provide sufficient flow needed for full-stroke exercising of this lant operation.	
	In cold shutdown, the letdown capability to r	RHR pumps are used for residual heat removal and there is insufficient ecirculate to the RWST, thus, testing this value is not practical.	
Alternate Testing	This valve will be part	ial-stroke exercised open quarterly.	
	This valve will be full-	stroke exercised open during each reactor refueling outage.	
		<u>ROJ-25</u>	
System:	SI		
Drawing:	ISI-27513		
Components:	751A 751B	Cooling Water to RHR HX #31 Cooling Water to RHR HX #32	
Function:	These check valves op headers to the respective	en to provide flowpaths from the component cooling water (CCW) system ve RHR heat exchangers. They close for containment isolation.	
RO Justification:	There are simple check exercising. Thus, the of leakage test. Performin normal plant operation could jeopardize the pla	valves with no external position indication or means of mechanical only practical method of verifying closure is to perform a functional back- ng such a test requires a major realignment of the CCW system. During and cold shutdown conditions placing the plant in such an alignment ant cooling capacity and capability.	
Alternate Testing	During each reactor ref accordance with NURE	fueling outage nonintrusive techniques will be used to verify closure in G-1482, Section 4.1.2.	

# **Refueling Outage Justifications**

#### <u>ROJ-26</u>

System:	CC	
Drawing:	ISI-27513	
Components:	751A 751B	Cooling Water to RHR HX #31 Cooling Water to RHR HX #32
Function:	These check valves o headers to the respect	pen to provide flowpaths from the component cooling water (CCW) system tive RHR heat exchangers. They close for containment isolation.
RO Justification:	During power operation and cold shutdown operation, exercising these valves to the open position involves a significant hardship. Specifically there are butterfly valves inside containment which are set at a prescribed location during refueling outages when it is possible to isolate flows to certain components which are required during power operation (i.e. RCP Pumps). A full flow exercise test of these valves requires a major realignment of the component cooling water system. Performing such an evolution during plant operation or cold shutdown would constitute an unreasonable burden on the plant staff and could result in upsetting the thermal equilibrium of operating equipment.	
Alternate Testing	Thèse valves will be p each refueling outage	partial stroke exercised open quarterly and full stroke exercised open during
## APPENDIX D

## **Refueling Outage Justifications**

## <u>ROJ-27</u>

System:	РАЕН		
Drawing:	N/A		
Components:	CB-1 CB-2 CB-5 CB-6	Personnel Airlock Equalizer Personnel Airlock Equalizer Equipment Hatch Equalizer Equipment Hatch Equalizer	
Function:	These valves are in the personnel and equipment hatch equalizing lines.		
<b>RO Justification:</b>	The only positive means of verifying closure of these valves is to perform a leakage test, which is mpractical during plant operation or a short-duration outage.		
	These valves are contain CB-5 and CB-6) in seri- leak testing or exercising the necessary isolation	These valves are containment isolation valves that are installed in two pairs (CB-1 & CB-2 and CB-5 and CB-6) in series with no test connections between them. This precludes individually eak testing or exercising each valve. In this configuration, only one valve is required to provid ne necessary isolation function.	
NUREG 1482 so Verified Closed render leak rate these valves dur		4.1.4. "Extension of Test Interval to Refueling Outage for Check Valves k Testing", recognizes that the setup and performance limitations may impractical during power operation and cold shutdowns and allows testing ueling outages.	
Alternate Testing	Every refueling outage these valves will be exercised and closure will be verified by leak testing. The Analysis of Leakage Rates and the Corrective Action requirements of OM-10 4.2.2.3(e) and (f) will be complied with.		