NEXTera ENERGY
SEABROOK

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U. S. Nuclear Regulatory Commission
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Seabrook Station

NextEra Energy Seabrook, LLC Inservice Testing Program for the Third 10-Year Interval

Pursuant to 10 CFR 50.55a(f), NextEra Energy Seabrook, LLC (NextEra) updated the Seabrook Inservice Testing (IST) Program for the third 10-year interval, which commenced on August 18, 2010. A subsequent review determined that NextEra had not submitted the IST plan to the NRC. Therefore, NextEra is submitting the attached IST program description in accordance with section ISTA-3200 of the ASME OM Code.

The IST program document identifies the inservice testing that will be performed at Seabrook to meet the requirements of 10 CFR 50.55a during the third 10-year interval. The ASME Code for Operation and Maintenance (OM) of Nuclear Power Plants applicable to Seabrook's third interval IST program is the 2004 Edition.

No new or revised commitments are included in this submittal.

Any questions regarding this submittal should be directed to Michael Ossing, Licensing Manager, at 603-773-7512.

E. McCartney

Eric McCartney
Site Vice President
NextEra Energy Seabrook, LLC

Attachment

cc w/o attachment: NRC Regional Administrator
NRC Resident Inspector
NRC Project Manager

A047
NRR

SEABROOK STATION

REFERENCE MANUAL

Inservice Testing Reference

SORC Review: N/A Date: N/A

Effective Date: 08/18/2010

SITR
Rev. 23

Manual Owner:
T. E. Couture

INSERVICE TESTING REFERENCE
(SITR)

Table of Contents

Table of Contents

PART I

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING (IST) PROGRAM PLAN

1.0 INTRODUCTION

1.1 OBJECTIVE

This document presents the third Ten Year Interval Program Plan for Inservice Testing (IST) of Pumps and Valves at Seabrook Station in compliance with the requirements of 10CFR50.55a(f) and Seabrook Station Technical Specification 4.0.5. This program plan was prepared in accordance with the rules of the ASME OM Code "Code for Operation and Maintenance of Nuclear Power Plants", Sections ISTA, ISTB, ISTC and applicable appendices, 2004 Edition.

The NextEra Energy, Seabrook, LLC 3rd Ten Year Interval is currently scheduled to begin August 18, 2010.

This document:

1. Establishes content of the Seabrook Station third interval Inservice Test Plan (ISTP) as required by the code.
2. Documents the Seabrook Station Licensing and Design bases for inclusion or exclusion of components within the scope of the IST Program Plan.

1.2 DEFINITIONS

The terms below, when used in the Inservice Testing Program Plan, are defined as follows:

Quarterly:	An interval of 92 days for testing components which can be tested during normal plant operation.
Cold Shutdown: (See Note)	Testing that cannot be performed when the plant is operating. Testing shall commence within 48 hours of achieving cold shutdown, and shall continue until the testing is complete or until the plant is ready to return to power. Some Cold Shutdown Testing at Seabrook Station is performed in Modes 2, 3 and 4 in order to develop sufficient system temperature or pressure to conduct the test. Most of the other Cold Shutdown tests are performed in Mode 5 or below. Reference Section 6.0.
Refueling:	Testing deferred to refueling will be performed during the normal scheduled refueling shutdown before returning to power operation.
Leakage Test Pressure Isolation:	Any valve which acts as an isolation boundary between the high pressure Reactor Coolant System and a system having a lower operating or design pressure with a specified leakage rate (see Section 5.5.2).

Leakage Test Containment Isolation:	Any valve which performs a containment isolation function and is included in the Appendix J Containment Leakage Rate Test Program (see Section 5.5.1 and References 2.3 and 2.4).
Active:	Any valve which is required to change position to accomplish its safety-related function.
Passive:	Any valve which is not required to change position to accomplish its safety-related function.

NOTE

The above definition of cold shutdown testing applies unless otherwise specified. For example, pressure isolation valves are leakage rate tested at cold shutdown intervals defined by Seabrook Station Technical Specification 4.4.6.2.2.

1.3 ORGANIZATION

The Pump and Valve Inservice Testing Program Plan is organized into various sections and is in accordance with the program plan requirements outlined in OM Section ISTA-3110:

(a) the edition and addenda of this section that apply to the required tests and examinations;
(b) the classifications of the components and the boundaries of system classification;
(c) identification of the components subject to test and examination;
(d) the Code requirements for each component and the test or examination to be performed;
(e) the Code requirements for each component that are not being satisfied by the tests or examinations; and justification for substitute tests or examinations;
(f) Code Cases proposed for use and the extent of their application; and
(g) test or examination frequency or a schedule for performance of tests and examinations, as applicable.

Figure F1 contains Technical Positions and F3 contains General Relief Requests for Code requirements found to be impractical for Seabrook Station.

Figures F2 and F4 deal specifically with the Pump and Valve Test Tables, respectively, which detail the identification, classification, requirements, tests, and frequency of testing for each applicable component.

Where valve quarterly testing has been found to be impractical, a justification for delay of test to cold shutdown, or if necessary, to scheduled refueling outages, is provided in Figure F4 following the applicable system Valve Test Table. If a particular Code requirement for a pump is impractical, a specific relief request is provided with the Pump Test Table in Figure 2.

Figure F5 contains the Program Administrative General Relief Requests for Code requirements of Section ISTA which were found to be impractical for Seabrook Station.

1.4 RESPONSIBILITIES

The Engineering Support Department, Component Engineering and Test Group personnel are responsible for this Program Plan and maintaining the Pump and Valve Inservice Testing (IST) Program. The department is organized into functional groups, one of which is the Component Engineering and Test Group, responsible for maintenance of the Program Plan and the Inservice Testing (IST) Program. The Component Engineering and Test Group is also responsible for performing certain IST surveillance activities as specified in applicable Engineering Department procedures (See Reference 2.7, ES1804.055, Inservice Testing Pump and Valve Program). The System Engineers within the Plant Engineering Department are responsible for periodically reviewing the test results.

The Operations Department is responsible for performing certain quarterly, cold shutdown and refueling outage frequency surveillance activities as specified in applicable Operations Department procedures.

Work Management is responsible for scheduling the applicable IST surveillance activities in accordance with MA 9.1, Preventive Maintenance Program. The Component Engineering and Test Group also assist in scheduling certain activities, such as, relief valve setpoint verification tests and check valve disassembly activities.

The Maintenance Department is responsible for specifying the appropriate post-maintenance retest activities on corrective maintenance work documents for components within the scope of the IST Program or the augmented test program for components important to safety, as directed in MA 3.5, Post Maintenance Testing. Assistance by the Component Engineering and Test Group will be provided, as required, to specify the appropriate activity.

2.0 REFERENCES

1. ASME OM Code, Sections ISTA, ISTB, ISTC, Appendix I, Appendix II, 2004 Edition.

2. 10 CFR 50.55a(f), Inservice Testing Requirements, Guidance for Preparing Pump and Valve Testing Program Descriptions and Associated Relief Requests.

3. 10 CFR 50 Appendix J, Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors.

4. Technical Requirements Manual (SSTR).

    a. Technical Requirement 6, Containment Isolation Valves.

    b. Technical Requirement 18, Reactor Coolant System Pressure Isolation Valves.

    c. Other sections as noted in the Basis Section of the individual component test data sheets.

5. Technical Specifications, North Atlantic Energy Service Corporation, Seabrook Station:

    a. Section 4.0.5, Limiting Conditions for Operation and Surveillance Requirements.

    b. Other sections as noted in the Basis Section of the individual component test data sheets.

6 DCR 00-0001, Assessment of Revision to Active Valve List in the UFSAR

7. ES1804.055, Inservice Testing Pump and Valve Program.

8. North Atlantic Energy Service Corporation P&ID's as noted on the individual component data sheets.

9. 1-NHY-250000, Data Sheets for Motor & Air Operated Valves & Dampers.

10. Leakage Testing Reference (SLTR).

11. Procedure EX1804.044, Relief Valve Setpoint Pressure and Leakage Test.

12 Procedure EX1804.041, Main Steam Safety Valve In-Place Setpoint Verification.

13. Procedure EX1850.015, Check Valve Condition Monitoring Program.

14 Procedure OX1456.81, Operability Testing of IST Valves

15 Procedure OX1456.86, Operability Testing of IST Pumps

16 EDS-39140, Engineering Design Standard, 'Measurement Uncertainty'

17 IST Calculations:

    a. CBS C-S-1-50008
    b. CC C-S-1-50006
    c. CS C-S-1-50007
    d. CS C-S-1-50016
    e. FW C-S-1-50009
    f. RH C-X-1-50019
    g. SI C-S-1-50013
    h. SW C-S-1-50014
    i. SW C-S-1-50015
    Design Change MMOD 99-611
    Design Change DCR 99-36
    Condition Reports 03-06458 / 00-11336

18 Predictive Maintenance Monitoring Procedures

    a. ES1850.002 Vibration Program
    b. ES1807.020 Lube Oil (Machinery Oil Analysis)
    c. ES1807.016 Thermography Program

19 SBK-L-09193 dated October 13, 2009 which submitted Inservice Test Program Relief Request PR-1.

20 SBK-L-09194 dated October 13, 2009 which submitted Revision to Inservice Test Program Relief Request PR-2.

21 LS0564.34 4160 Volt Static Motor Testing (Baker Testing)

22 LS0564.38 4160 Volt Dynamic Motor Testing (Baker Testing)

23 TAC ME 2416 NRC Letter dated June 3, 2010 and SBK-L-09193 Letter dated October 13, 2009

24 TAC ME 2412 NRC Letter dated June 11, 2010 and SBK-L-09194 Letter dated October 13, 2009.

25 EE 10-011, SITR Technical Positions

26 EE 12-005, Service Water Ocean Pump Vibration Monitoring

3.0 SCOPE

3.1 OBJECTIVE

This document:

1. Establishes the contents of the IST Program Plan as described in Section 1; and
2. Documents the licensing and design bases which support inclusion or exclusion of pumps and valves in the IST Program Scope.

As stated in Section 1, the IST program plan has been developed to meet the scope and content as specified in ISTA-3110, Test and Examination Program Plans, of the OM Code. Specific plan content for pumps and valves is contained in Sections ISTB-9200, Pump Test Plans and ISTC-9200, Valve Test Plans, respectively.

The specific ASME OM code requirements applicable to pump and valve testing are summarized in this chapter along with an analysis of their applicability to Seabrook Station.

The methodology utilized for including or excluding individual pumps and valves in the IST Program is discussed in the following sections. The basic code required scope statements are provided below:

Pumps (ISTA-1100)

The pumps covered are those, provided with an emergency power source, that are required in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

Valves (ISTA-1100)

The active or passive valves covered are those that are required to perform a specific function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. The pressure relief devices covered are those for protecting systems or portions of systems that perform a required function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition or in mitigating the consequences of an accident.

3.2 SAFE SHUTDOWN

Per UFSAR 5.4.7.2.i, the Seabrook Station safe shutdown design basis is Hot Standby.

The Seabrook Station IST program scope has been developed to include systems, portions of systems and associated pumps and valves required to achieve and maintain safe shutdown consistent with the plant licensing basis described in the below referenced UFSAR Sections and the NRC SER:

Per UFSAR 5.4.7.2.i, the Seabrook Station safe shutdown design basis is Hot Standby. However, the cold shutdown capability has been evaluated to determine how the plant can be brought to a cold shutdown condition using only safety grade equipment following a:

1. safe shutdown earthquake
2. loss of offsite power, and
3. most limiting single failure.

Per UFSAR 7.4, the minimum required system portions and components needed to establish and maintain safe shutdown of the reactor under non-accident conditions were evaluated and are identified in UFSAR Table 7.4-1. The evaluation of safe shutdown capability in UFSAR Section 7.4, as well as the listed systems and components described in UFSAR Section 5.4.7, include the capability to achieve cold shutdown subject to the criteria noted above. These evaluations and the basis for acceptance are also reflected in the associated NRC SER NUREG 0896, Sections 5.4.7 and 7.4.

3.3 ACCIDENT MITIGATION

Design basis accidents are described and analyzed in UFSAR Section 15, "Accident Analyses". This chapter includes a description of the systems, structures and components assumed to be available for accident mitigation, as well as minimum system and component performance criteria utilized in the analyses. Each safety system evaluated in the various chapter 15 accident analyses is also described in its own UFSAR Section. In addition to these sections of the UFSAR, safety system operability and surveillance requirements are specified in plant Technical Specifications.

In addition to the specific analyses described in UFSAR Section 15, other potentially adverse events described in the UFSAR, such as pipe rupture in Section 3.6 and flooding in Section 9.3.3 have been reviewed to identify components required to mitigate these events, and which should be included in the Seabrook Station IST Program.

Other documents, including: Design Basis Summary Documents, P&IDs, Engineering Evaluations and calculations, also contain design basis information which describes system and component safe shutdown and accident mitigation functional requirements.

3.4 COMPONENT SELECTION

Using the OM Code IST pump and valve scope descriptions, and various plant design and licensing basis documents, certain ASME III Code Class 1, 2, or 3 pumps and valves that perform these functions were identified and listed in Figures F2 and F4. See Section 3.11 for testing associated with certain pumps and valves which are not included in the IST Program scope.

Fire scenarios were not included in this evaluation, as they were included separately under the 10CFR50, Appendix R Report, Fire Protection of Safe Shutdown Capability. Appendix R evaluations are generally considered as outside the scope of IST programs.

3.5 EXCLUSION JUSTIFICATION

Selected pumps and valves that do not perform an ISTA-1100 function, or that were specifically excluded by ISTB-1200 or ISTC-1200, are documented in the Exclusion Justification Document (see Part II, Figure F6).

3.6 LEAKAGE RATE TESTING (ISTC Category A or A/C)

Components that require leakage testing (designated Category A) are either under the Appendix J, 10CFR50 Containment Isolation Valve Leakage Test Program, or Reactor Coolant Pressure Isolation Valve Leakage Test Program. If specific leakage rates are identified as part of a design basis review, verification or revision process, then the applicable valves will be added to the IST Program Plan.

The Containment Isolation Valve Program (e.g., Type C Test Program) is in accordance with References 2.3 and 2.10. This program is administratively separate from the IST Program in accordance with ISTC-3620, Containment Isolation Valves.

Technical Specification Surveillance Requirement 4.4.6.2.2 and Technical Requirement, Chapter 2, TR-18 define the Pressure Isolation Valve Leakage Test Program.

3.7 SKID-MOUNTED COMPONENTS

Skid-mounted valves and pumps and component subassemblies are excluded from Subsections ISTB and ISTC provided they are adequately tested as part of the major component. Skid-mounted components which have been determined to perform an ISTA-1100 function at Seabrook Station have been evaluated for testing adequacy with the major component. Examples of such components are those associated with the Emergency Diesel Generator and various pump lubricating system components. These components are identified in this plan document as being adequately tested with the major components or separately tested in accordance with the applicable code requirements. See Section 3.11 for testing associated with certain pumps and valves which are not included in the IST Program scope.

3.8 COLD SHUTDOWN/ REFUELING TESTING RATIONALE

The ASME OM Code requires quarterly exercise testing for power operated valves and check valves unless it is not practicable to do so. This program plan specifies quarterly testing of pumps and valves unless it has been determined that such testing would:

1. Cause a reactor scram, turbine trip or increase the likelihood of a plant transient;
2. Require significant deviations from normal operations;
3. Require entry into inaccessible areas, ALARA;
4. Increase the possibility of an inter-system LOCA or of an accident;
5. Require a system intrusion; or
6. Require significant resources (e.g., non-intrusive testing at quarterly intervals versus at cold shutdown / refueling intervals) without substantial safety benefit.

Each component excluded from quarterly testing has been analyzed to determine when appropriate testing may be performed. If operation of a power operated valve, for example, is not practicable during station operation, the Code allows part-stroke exercising, if practicable, during normal station operation and full-stroke exercising at cold shutdown or refueling.

Since the Code allows testing at cold shutdown or scheduled refueling outages, this program does not request relief for those valves for which testing is delayed until cold shutdown or refueling outages. The valve IST Program Plan does provide a justification for the delay of testing until cold shutdown or scheduled refueling outages. These justifications are prepared in a format similar to relief requests. They are designated CSJ-XX or RJ-XX, where XX is a sequential number in the system. Cold shutdown and refueling justifications are referenced in the valve test data sheets and are included in Figure F4.

It may be necessary to perform repairs, replacement or maintenance of IST Program components while the plant is on-line to correct identified component deficiencies or degradation (corrective maintenance) or as part of a planned maintenance schedule to preserve continued acceptable operation of a component (preventive maintenance). These type activities would require post-maintenance retesting as determined by the Code and MA 3.5 prior to the component's return to service.

Preventive maintenance activities which involve component repair, replacement or maintenance of IST Program components and may affect IST Program test parameters <u>should not</u> be performed on a routine or periodic basis on-line. These types of activities should only be performed if there is a compelling reason to initiate the maintenance and if the ability exists to perform post-maintenance testing which meets the requirements of the ASME Code and MA 3.5. Performance of routine or periodic preventive maintenance type activities could place the plant in a condition where the required post-maintenance retests cannot be performed or the risks associated with the retest outweigh the benefits of performing the maintenance activity. Additional considerations for review prior to initiation of preventive maintenance activities on IST components are the potential Technical Specification implications (e.g., entry into action statements) and the potential adverse effects on other plant programs (e.g., MOV, Maintenance Rule and Unavailability Time). The responsible IST Program personnel should be consulted prior to the initiation of these types of maintenance activities and the review should be documented on the appropriate work document or in the OLM (On-line Maintenance Assessment), as applicable.

3.9 VALVE POSITION INDICATION TESTING AUGMENTED BY SYSTEM PARAMETER OBSERVATION

ISTC-3700 of the OM Code requires that valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated. Where practicable, this local observation should be supplemented by other indications such as the use of flow meters or other suitable instrumentation to verify obturator position. These observations need not be concurrent.

The basis for this recommendation is that ASME had a concern that a stem that has separated from the disc could go undetected. Thus, they provided a recommendation to augment the valve position check with system parameter observations to confirm the obturator is still attached. Interpretation 99-9 asked, "If it is practicable, is it a requirement of (the ASME OM Code) that a local observation of stem movement be supplemented by other indications to verify obturator position? The response was **NO**. The OM Code also does not require the documentation of specific cases when observation of these system parameters are considered impracticable.

Seabrook Station's position on this subject is that this recommendation will not be implemented. This recommendation is not practicable based on the current IST surveillance structure. The position indication tests (PIT) are performed at least once every 2 years. This test generally falls within the refueling outage when systems are not in service and running. Most of the valve strokes (e.g., at quarterly, Cold shutdown, or refueling outages) are static strokes, unless associated with a pump, such as a mini-flow valve that closes/opens based on a flow value. Check Valve bi-directional testing is really needed to confirm the obturator is functioning satisfactorily. The 1996 Addenda to the ASME OM Code initiated changes for check valve testing which resulted in substantial changes to ISTC to achieve bi-directional testing. One position of the valve could be determined in some of the activities but not both. Additional instrumentation would be needed to obtain the other position. Having test personnel located in the field to observe these partial tests (one direction only), and to then administratively control when and how each test is done, becomes a burden that does not support the implementation of the recommendation.

Credit for the operation of certain valves is taken in the Emergency Operation Procedures. If a particular event did not occur, then the alternate action (e.g., closing or opening the power-operated valve) would be taken and assumed to function satisfactorily. Not all of the EOP power operated valves are included in the IST Program, so, reliance on other means is needed to assure the desired

opening or closing function has and will occur when called upon. Seabrook Station relies on some of the methods listed below to verify each valve functions when called upon. Some of these activities presently used will determine if the obturator has become separated from the valve stem. **A separate listing of activities that could be used to confirm each power operated valve is <u>not</u> maintained.**
The activities are:

Appendix J Local Leakage Rate Testing – used for Containment Isolation valves and SOV position testing at present
Pressure Isolation Valve Testing
System Performance Monitoring (including system overpressurization events)
System walkdowns by Operations personnel and System Engineers during operation
Periodic maintenance of other components which requires venting and draining and using the power operated valve as a boundary valve or periodic maintenance (stem replacement, or disassembly for leakage issues) on the power operated valve itself.
Power operated valve programs (e.g., MOV/AOV Program diagnostic tests, disassembly)
Flow balance and pump testing
Vendor service bulletins, notifications, Operation Experience reviews to determine the likely candidates for obturator separation and Corrective Action programs – followup on other similar valves.

Discussions with several other licensees were held to determine their position on this subject. In summary, none of the licensees contacted have made this a steadfast requirement of their IST Programs. Some valves are verified by other methods when practicable, but systems normally out of service (static strokes) are not placed in service, scheduling is not impacted, re-sequencing of testing activities is not performed and test or special instrumentation is not installed, solely to perform this recommendation.

3.10 RELIEF REQUEST RATIONALE

Where it has been determined that implementation of code testing requirements is not practicable for a particular component, due to original plant system design configuration or unique operating restrictions, a specific relief request has been prepared. Each relief request provides the rationale for not performing the Code required testing and provides alternative testing requirements applicable to the unique situation. They are designated as PR-XX for the pumps and VR-XX for valves, where XX is a sequential number in the Pump Table (Figure F2) or in the System Valve Table (Figure F4).

In addition to specific component relief requests, general relief requests which address specific Code requirements, applicable to all valves or pumps or groups of valves or pumps and which have been determined to be impractical for implementation at Seabrook Station. These relief requests are designated as PG-XX for pumps or VG-XX for valves, where XX is a sequential number within the particular section (Figure F3).

Technical Positions will also be provided to address specific Code requirements found to need further clarification for their application at Seabrook Station. These technical positions are designated as TP-XX, where XX is a sequential number within the particular section (Figure F1)

Figure F5 contains the Program Administrative General Relief Requests for Code requirements of Section ISTA which were found to be impractical for Seabrook Station. They are designated as AG-XX, where XX is a sequential number in Figure F5.

3.11 TESTING OF NON-CODE PUMPS AND VALVES OR SKID-MOUNTED COMPONENTS

Certain Non-Code pumps and valves, certain skid-mounted components or certain components used to achieve or maintain the Cold Shutdown operating condition will be adequately tested commensurate with their importance to safety in accordance with an approved Appendix B test program. See MA 3.5, Figure 5.7 for a listing of these components.

Examples of some skid-mounted components are discussed in Section 3.7.

Examples of some applicable Non-Code valves include a portion of the relief valves mentioned in Reference 2.14.c, Condition Report 97-0282.

An example of an applicable Non-Code pump would be the Startup Feedwater Pump, FW-P-113.

Examples of components used to achieve or maintain Cold Shutdown conditions are typically some of those components listed in the Exclusion Justification Document, Figure F6, which may be important to safety but do not perform a safety function as specified in ISTA-1100 (such as, Spent Fuel Pumps and CGC sample or RHR slipstream valves).

4.0 PUMPS

This section describes the method to establish pump reference values and the different limits used to determine test acceptability. The pumps requiring inservice testing and their frequencies are listed in the Pump Test Table of this program plan. Pump selection criteria are described in Section 3.0.

NOTE

Pump testing shall be performed in the as-found condition when possible. Preconditioning or grooming shall not be performed unless it is deemed prudent by sound engineering practice or there are personnel/equipment safety issues. The NAWM 8.0, Work Control Practices on Preconditioning policy shall be consulted for acceptability of preconditioning prior to pump surveillances. Maintenance schedules for lubrication and packing adjustment/readjustment need to be coordinated with the surveillance schedule to minimize pump starts, yet still be able to detect degrading conditions.

Subsection ISTB establishes 2 pump groups as defined below:

Group A pumps- pumps that are operated continuously or routinely during normal operation, cold shutdown or refueling operations

Group B pumps- pumps in standby systems that are not operated routinely except for testing.

Testing requirements are specified for Groups A and B on a quarterly basis. If practicable, Group A and B tests are performed at flow rates within +/- 20% of the pump's design flow rate. If the +/-20% value is not practicable, the reference flow rates are established at the highest practical flow rate. Comprehensive Tests, which must be performed at flow rates within +/- 20% of the pumps design flow, are performed biennially, unless specific code relief is obtained.

Each pump within the scope of the code has been categorized and documented as either Group A or Group B on Figure F2, Pump Test Table, and will be tested in accordance with the requirements for that group, except where specific relief has been requested. Pumps that meet both Group A and Group B definitions have been categorized as a Group A pump (e.g. the RHR pumps and Charging pumps).

4.1 REFERENCE VALUES

Reference values (r) are defined in ISTB-3300 and are comprised of hydraulic and mechanical condition parameters.

Initial reference values shall be obtained from the results of preservice testing meeting the requirements of ISTB-3100, or from the results of the first inservice test.
New or additional reference values shall be established as required by ISTB-3310, ISTB-3320 or ISTB-6200, subject to the following clarifications:

Development of baseline pump curves for centrifugal pumps, including vertical pumps, in systems where resistance can be varied, shall be required (1) for new pumps, as a preservice test activity, before implementing inservice testing as described in ISTB-3100, or (2) following a major repair or replacement activity to existing pumps, where this activity has been determined to have a potential impact on the hydraulic performance of the pump as described in ISTB-3310. Alternatively, the pre-maintenance reference values may be reconfirmed by a comprehensive or Group A test run before the pump is declared operable.

- Additional sets of reference values will be established, if required, for reasons other than those stated in ISTB-3310, per the requirements of ISTB-3320 using either the baseline curve for new or refurbished pumps, or from the results of the first inservice test for pumps already in service. For example, reference values for the comprehensive test required by ISTB-5123 must be determined for several existing pumps for which baseline pump curves, meeting the requirements of the code, do not exist. For these pumps, the initial comprehensive test reference values will be determined from the results of the first inservice test when the pump is known to be operating acceptably, and at a point of operation readily duplicated during subsequent tests, per ISTB-3300.

- New reference values - For cases where the pump's test parameters are within the alert or required action ranges and the pump's continued use at the changed values is supported by an analysis, a new set of reference values may be established per ISTB-6200. This analysis shall include verification of the pump's operational readiness at both a pump level and a system level, the cause of the change in pump performance, and an evaluation of all trends indicated by available data. Development of a baseline pump curve is not required to establish the new reference values. The baseline curve would be developed, if required, only after repair or replacement to correct the degraded condition. Note that new reference values will not be established to accept test data outside the acceptable range which are known to result from systematic errors as described in ISTB-6300. For these cases, the test will be rerun after correcting the systematic error.

4.2 ESTABLISHING LIMITS / ANALYSIS

Unless otherwise stated in an applicable specific (PR) or generic (PG) relief request, the parameters in ASME OM subsection ISTB, Table ISTB-3000-1 shall be measured or determined.

Reference values are defined in ISTB-3300. They are determined when the equipment is known to be operating acceptably. All subsequent test results are compared to these reference values. Any deviations from these reference values are compared to the maximum range limits contained in Tables ISTB-5121-1, ISTB-5221-1, ISTB-5321-1and ISTB-5321-2.

Pump Reference Data Sheet (RDS) forms, with applicable range limit multipliers, are contained in OX1456.86, Operability Testing of IST Pumps, Reference 2.15. These data sheets contain the reference values, the alert and action ranges for each pump within the scope of the code. Unless a restricted range limit is applied (e.g., Technical Specification limit) or a specific relief request is obtained, the range limits of the above referenced tables are used to determine test acceptance, the alert condition or required action limits. The range limits are multipliers that are applied to the reference value parameters to determine upper and lower limits. Test acceptance limits and required action limits are contained in the pump test procedures. The test procedures provide on-the-spot acceptance determination.

TABLE ISTB-3000-1

Quantity	Preservice Test	Group A Test	Group B Test	Comprehensive Test	Remarks
Speed ,N	X	X	X	X	If variable speed
Differential Pressure, ΔP	X	X	X (Note 1)	X	Centrifugal pumps including vertical line shaft pumps
Discharge Pressure, P	X	X		X	Positive Displacement pumps
Flow rate, Q	X	X	X (Note 1)	X	
Vibration Displacement, Vd Velocity, Vv	X	X		X	Measure either Vd - Peak to peak or Vv - Peak

Note 1: For positive displacement pumps, flow rate shall be measured or determined; for all other pumps, differential pressure or flow rate shall be measured or determined.

Flow and Differential Pressure

As stated in ISTB-5100 for centrifugal and ISTB-5200 for vertical line shaft pumps, the system resistance shall be varied until either the measured flow rate or the differential pressure equals the corresponding reference value. Generally, Seabrook Station IST pump procedures set or establish the flow rate as the independent variable, then measure differential pressure (as the dependent variable). Test data is compared to the limits.

If flow rate is the independent variable, then range limits would be applied to differential pressure.

If differential pressure is to be used as the independent variable, then range limits would be applied to flow rate.

For positive displacement pumps, the system resistance is varied until the discharge pressure equals the reference point. The flow rate is then measured or determined and compared with its reference value.

Vibration

Mechanical condition parameters (e.g., vibration) are required to be taken per Table ISTB-3000-1. Vibration acceptance criteria (range limits) are specified in Table ISTB-5121-1. Vibration reference values are established at the chosen reference operating point per ISTB-3100.

Drivers (e.g., motors or steam turbines) are excluded from vibration monitoring per ISTB-1200 except when the pump and driver form an integral unit, or when the pump is a vertical line shaft pump. An example of an integral unit is the Boric Acid Transfer Pump. Examples of the vertical line shaft pumps are the Residual Heat Removal and Service Water Pumps. For these drivers, points on the motor are monitored in accordance with ISTB-3540, or as per the applicable relief request. Drivers which are excluded from this program are included in a separate monitoring program (see Reference 2.24.b, MA 8.1, Vibration Monitoring and Analysis).

4.3 PUMP INSTRUMENTATION

Except when otherwise stated in applicable specific (PR) or generic (PG) relief requests, the requirements of ISTB-3500 and Table ISTB-3510-1shall be followed.

Design Engineering has prepared calculations for the instruments used for IST. These calculations detail the requirements and are used by the I&C Maintenance Technicians when calibrating the instruments. See References 2.17 and 2.18.

Range / Accuracy

- The full scale range of each analog instrument shall be three times the reference value or less (not applicable to vibration instruments)

- Digital instruments shall be selected such that the reference value does not exceed 70% of the calibrated range of the instrument (not applicable to vibration instruments)

- The frequency response range of vibration measuring transducers and their readout systems shall be from 1/3 minimum pump shaft rotational speed to at least 1000 Hz

- Instrument accuracy shall be as specified in Table ISTB-3510-1 unless specific relief is granted.

Table ISTB-3510-1
Required Instrument Accuracy

Quantity	**Group A & B Tests**	**Comprehensive and Preservice Tests**
Pressure	±2%	±1/2%
Flow Rate	±2%	±2%
Speed	±2%	±2%
Vibration	±5%	±5%
Differential Pressure	±2%	±1/2%

Instrument Location

The sensor locations are established such that they are appropriate for the parameter being measured. The same locations are used for each test. Instruments that are position sensitive are permanently mounted or provisions have been made to duplicate their location during each test.

Fluctuations

Symmetrical damping devices or averaging techniques may be used to reduce instrument fluctuations. Hydraulic instruments may be damped by using gage snubbers or by throttling small valves in instrument lines.

Gage lines

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 have been provided to ensure or determine the presence or absence of liquid as required for the static correction used. For example, instrument lines may be manually vented to purge air from the lines and ensure they are liquid-filled.

Differential Pressure

When determining differential pressure across a pump, a differential pressure gage or a differential pressure transmitter that provides direct measurement of pressure difference or the difference between the pressure at a point in the inlet and the pressure at the discharge pipe are used, unless specific relief is granted. Alternate means may be provided where the inlet pressure is determined by measuring the level of water above the pump inlet.

4.4 TRENDING (ISTB-6100)

All required test parameters except for fixed values shall be trended. Refer to Section 7.0 for a description of the Seabrook Station IST data trending guidelines.

4.5 CORRECTIVE ACTION (ISTB-6200)

When the measured test parameter falls within the Alert range (ISTB-6200 (a)), the specified test frequency shall be doubled until the cause of the deviation is determined and the condition is corrected, unless specific relief is granted.

When the measured test parameter falls within the Required Action range (ISTB-6200 (b)), the pump shall be declared inoperable until either the cause of the deviation has been determined and the condition is corrected, or an analysis of the pump is performed and new reference values are established.

5.0 VALVES

5.1 POWER OPERATED VALVES

This section describes all the different limits and requirements used to determine test acceptability. The valves requiring stroke time testing and their frequencies are listed in the Valve Test Table (Figure F4) of this program plan.

NOTE

Valve stroke time testing activities for normally scheduled surveillances shall be performed in the "as-found" condition when possible. With the exception of already approved deviations, the NAWM 8.0 , Work Control Practices on Preconditioning of Equipment policy shall be consulted for acceptability of preconditioning prior to valve testing surveillances.

5.1.1 Reference Stroke Time (RST) (ISTC-3300)

The full stroke time is that time interval from initiation of the actuating signal to the indication of the end of the operating stroke (e.g., switch-to-light, etc.). One or more independent full stroke time values of a power operated valve can be obtained when the valve is known to be operating acceptably. Different reference stroke times may be specified for different system conditions or stroke directions. Full stroke time can also be measured using diagnostic equipment which generates a time trace signature of various switch settings, current, thrust measurements, etc.

1. A fixed reference stroke time will be used to determine test acceptability. These reference values are to be determined from the results of inservice testing or from previous baseline (preservice) testing.

    a. These tests should be performed under conditions as near as practicable to those expected during subsequent inservice testing.

    b. Several reference values may be specified for an inservice test if system conditions are expected to change.

    c. If a particular stroke time being measured can be significantly influenced by other related conditions (e.g., voltage, air pressure, flow rate of system or air supply), then these conditions shall be analyzed.

    d. Reference values will be established in accordance with the provisions of Reference 2.8, ES1804.055, Inservice Testing Pump and Valve Program.

2. During the IST review of maintenance activities performed on power-operated valves (ISTC-3310), the post-maintenance stroke time test is compared to the pre-maintenance test IST reference value, and the following evaluations are completed, as applicable.

   a. Evaluate if a new IST valve reference stroke time is required or reconfirm the previous value.

   b. Evaluate deviations between the previous and the new set of stroke times. Document verification that the new set of reference values stroke times represent acceptable valve operation.

   c. Revise the IST reference value based on the new stroke times. The basis for declaring operability is based on meeting the specified limiting value (see References 2.9 and 2.14). The revised IST reference values are then determined and incorporated into the applicable Station procedures.

3. If it is necessary or desirable (e.g., dual train control switches, nitrogen/air supply, etc.) to establish additional reference stroke times for the same valve (ISTC-3320), perform a test at the existing set of reference values, or if impractical, at the conditions for which the new reference values are required, and analyze the results. If operation is acceptable a second test shall be performed under the new conditions. The results of the second test shall establish the additional reference values. Document the additional set of valve reference stroke times and the reasons for creating the new values.

5.1.2 Specified Limiting Value (SLV) (ISTC-5113 (b))

The SLV is the maximum allowable stroke time for a power operated valve. The value is specified in 1-NHY-250000, Data Sheets for Motor & Air Operated Valves & Dampers (Reference 2.10) for the applicable valves. The reference stroke time cannot exceed the specified limiting value.

5.1.3 Stroke Time Acceptance Criteria (ISTC-5122)

Test results shall be compared to the established referenced values. Table 1 identifies the allowable change in stroke times when compared with the referenced stroke time. The stroke time of all power operated valves shall be measured to at least the nearest second. (ISTC-5113 (c))

TABLE 1
VALVE STROKE TIME LIMIT TABLE

Reference Stroke Time (RST) Range	Valve Type	Required Action Limit
≤ 10 Seconds	Motor Operated	±25% or ±1sec, whichever is greater
≤ 10 Seconds (Note 1)	Other Power Operated	±50%
> 10 Seconds	Motor Operated	±15%
> 10 Seconds	Other Power Operated	±25%
≤ 2 Seconds (Note 1)	Rapid Acting	>2 seconds

Note 1: As a guideline, power operated valves with reference stroke times ≤ 1.3 seconds should be classified as rapid acting valves with a required action limit of 2 seconds as defined in ISTC-5114 (c), ISTC-5122 (c), ISTC-5132 (c) and ISTC-5142 (c).

Solenoid operated valves with stroke times less than 2 seconds (rapid-acting SOV's) will have stroke times measured using diagnostic equipment capable of measuring valve stroke times to a fraction of a second, in lieu of less accurate stopwatch timing. This testing will permit trending of the actual performance of the valves, as well as the actuating and valve position indication circuits, thereby providing for identification of adverse trends and implementation of corrective action before the maximum allowable stroke time is exceeded.

Valves with fail safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power (ISTC-3560). Control valves that have a control station (e.g., manual/auto controller, or control switch), and that have a required fail-safe position, shall be tested to all the <u>applicable</u> requirements (e.g., full-stroke exercise, stroke time, position indication and fail-safe). These requirements shall be met during the fail-safe test. The valve will be exercised to the non-fail-safe position with the stroke time being measured during the fail-safe test. See Valve Technical Position TP-6 for further information.

5.1.4 Corrective Action (ISTC-5123)

If a valve fails to exhibit the required change of position or exceeds the SLV of full stroke time, then the valve shall be immediately declared inoperable.

Valves with measured stroke times that do not meet the acceptance criteria in Table 1 shall be immediately retested or declared inoperable. See Reference 2.14, OX1456.81, Operability Testing of IST Valves, for further direction concerning corrective action.

Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation, and the valve shown to be operating acceptably. The analysis shall be documented.

Before returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed.

5.1.5 Position Verification Testing (ISTC-3700)

Valves with remote position indicators or status lights (RPI/SL) shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated. Remote position indicators or status lights with an inaccurate indication shall be declared inoperable and corrective action taken, or the correct position determined.

Where practicable, the local observation should be supplemented by other indications such as use of flow meters or other suitable instrumentation to verify obturator position. These observations need not be concurrent. Where local observation is not possible, other indication shall be used for verification of valve operation (See Section 3.9 for further discussion).

A single valve may have more than 1 RPI/SL verified during each 2-year interval. The RPI/SL used for IST stroke time testing is the only light required to be verified per ISTC-3700 Position Indicator Verification Testing. If the IST RPI/SL is providing an inaccurate indication, the other RPI/SL (in addition to the local indication) may be used to status the correct position. The faulty RPI/SL shall then be corrected, and the IST re-performed.

5.1.6 Exercising Requirements (ISTC-3520)

- Active category A and B valves shall be tested nominally every three months.
- Valves shall be full stroke tested during plant operation to the position(s) required to fulfill their function(s).

- If full stroke exercising during plant operation is not practicable, it may be limited to part-stroke during plant operation and full-stroke during cold shutdown.

- If exercising during plant operation is not practicable, it may be limited to full-stroke exercising during cold shutdown.

- If exercising is not practicable during plant operation and full-stroke testing during cold shutdown is also not practicable, it may be limited to part-stroke during cold shutdown, and full-stroke during refueling outages.

- If exercising is not practicable during plant operation or cold shutdowns, it may be limited to full stroke during refueling outages.

- Valves exercised at shutdowns shall be exercised at each shutdown, except as noted below. Such exercising is not required if the interval since the previous exercise is less than 3 months.

- Valve exercising performed during cold shutdown shall commence within 48 hours of achieving cold shutdown and continue until all testing is complete or the plant is ready to return to power. For extended outages, testing need not be commenced within 48 hours if all valves required to be tested during cold shutdown will be tested before plant startup. It is not the intent of this requirement, however, to keep the plant in cold shutdown to complete cold shutdown testing.

- All valve testing required to be performed during a refueling outage shall be completed before returning the plant to operation.

5.2 CHECK VALVES

This section discusses the methods to be used for exercising check valves. The check valves that require exercising, and their frequencies, are listed in the Valve Test data sheets of this program plan. Exercising is the demonstration, based on direct or indirect visual or other positive indication, that the moving parts of a check valve function satisfactorily. These valves are typically self-actuating in response to some system characteristic, such as flow direction.

Each check valve exercise test shall include both open and close tests regardless of the required safety function direction of the valve. Open and close tests need only be performed at an interval when it is practicable to perform both tests. Open and close tests are not required to be performed at the same time if they are both performed within the same interval.

5.2.1 Valve Obturator Movement (ISTC-3530)

- A valid full stroke exercise by flow requires that the flow through the valve be known. Knowledge of only the total flow through multiple parallel lines does not provide verification of flow rates through the individual valves and is not a valid full stroke exercise. Confirmation that the disk moves away from the seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observation of substantially free flow through the valve as indicated by appropriate flow or pressure indications in the system, or by other positive means. The required flow or design basis acceptance criteria are obtained from various plant documents. That required flow or design basis acceptance criteria is documented, as well as, the source documents from which that required flow rate is obtained.

- Check valves that have a safety function in both the open and closed direction shall be exercised by initiating flow and observing that the obturator has traveled to the full open position or the position required to perform its intended function, and verify that on cessation or reversal of flow, the obturator has traveled to the seat. Observations shall be made by observing a direct indicator (e.g., a position-indicating device) or by other positive means (e.g., changes in system pressure, flow rate, level, temperature, seat leakage testing or non-intrusive testing results).

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

- Check valves that have a safety function in only the closed direction shall be exercised by initiating flow and observing that the obturator has traveled to at least the partially open position corresponding to normal or expected system flow, and verify that on cessation or reversal of flow, the obturator has traveled to the seat.

- A manual mechanical exerciser may be used to move the valve obturator subject to the requirements of ISTC-5221 (b).

- If the valve exercising methods specified in ISTC-5221 (a), and summarized above are impractical for certain check valves, or if sufficient flow cannot be achieved or verified, then a sample disassembly examination program shall be used to verify valve obturator movement as described in ISTC-5221 (c).

5.2.2 Non-Intrusive Testing

- Non-intrusive testing can be used as a positive means of determining that a valve disk will full-stroke exercise open and/or closed.

- Check valves shall be tested in a manner that proves through analysis that the disk travels fully open or fully closed, or both fully open and closed depending on the test requirements.

- During non-intrusive valve testing, the valve is instrumented and disk movement recorded upon initiation and/or cessation of flow. This data is then analyzed and documented.

- Non-intrusive testing provides significantly more information than an IST exercise test. Non-intrusive tests would not routinely be performed quarterly, if non-intrusive testing is all that can be done, unless the valves subject to monitoring are considered high failure rate valves. Non-intrusive testing is primarily used to avoid unnecessary disassembly and examination.

5.2.3 Check Valve Condition Monitoring Program (ISTC-5222)

As an alternative to the testing and examination requirements of ISTC-3510, ISTC-3522, ISTC-3530 and ISTC-3550, Seabrook Station will establish a condition monitoring program for selected check valves. The purpose of this program is both to improve valve performance and to optimize testing, examination and preventive maintenance activities in order to maintain the continued acceptable performance of a select group of check valves. The program will be developed and implemented in accordance with Appendix II of the ASME-OM Code for the selected valves or groups of valves. The modifications specified in the final rule dated November 22, 1999 under 10CFR50, Section 50.55a for use when implementing Mandatory Appendix II of the OM Code in the IST Program shall be included in the implementation of the Appendix II requirements (See Reference 2.13).

5.2.4 Exercising Requirements (ISTC-3520)

- Check valves shall be exercised nominally every 3 months.

- If exercising is not practicable during plant operation, it shall be performed during cold shutdowns.

- If exercising is not practicable during plant operation or cold shutdowns, it shall be performed during refueling outages.

- Valves exercised at shutdowns shall be exercised at each shutdown, except as noted below. Such exercising is not required if the interval since the previous exercise is less than 3 months.

- Valve exercising shall commence within 48 hours of achieving cold shutdown and continue until all testing is complete or the plant is ready to return to power. For extended outages, testing need not be commenced within 48 hours if all valves required to be tested during cold shutdown will be tested before plant startup. It is not the intent of this requirement, however, to keep the plant in cold shutdown to complete cold shutdown testing.

- All valve testing required to be performed during refueling outages shall be completed prior to returning the plant to operation.

5.3 PRESSURE RELIEF SAFETY VALVES

The safety and relief valves to be tested are listed in the Valve Test Tables of this program plan. As specified in ISTC-5240, Category C safety and relief valves shall meet the inservice test requirements of Appendix I to ASME OM. The requirements of Appendix I are summarized in this section along with a brief description of the associated Seabrook Station safety and relief valve testing program elements.

5.3.1 Scope

The scope of safety and relief valves included within the scope of the IST Program is defined in ISTA-1100(b) and Appendix I Section I-1100, and includes those pressure relief devices utilized in systems, which are required to protect systems or portions of systems that perform a specific function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident.

Those safety and relief valves which perform a code required overpressure protection function for systems or portions of systems meeting the above scope definition have been identified in the valve test data sheets. The Seabrook Station Relief / Safety Valve Testing Program which contains the essential testing program elements required by Appendix I is described in procedure EX1804.44 (Reference 2.11). Actual testing is implemented using specific station procedures. The program procedure includes the following information:

- Listing of valves by group- valves of the same manufacturer, type, system, application and service media.
- Vendor model/type/ Manual No. / Drawing No.
- P&ID No.
- Test and repair procedure Nos.
- Valve set pressure
- Set pressure tolerance
- Test media
- Seat leakage acceptance criteria
- Instrument calibration requirements
- Record of test results
- Trending and analysis guidelines

5.3.2 Test Frequencies

<u>Class 1 (I 1.3.3)</u>

Class 1 pressure relief devices are tested at least once every 5 years. A minimum of 20% of the valves from each valve group are tested within each 24 month interval. If the as found set pressure exceeds the acceptance criteria, then two additional valves from the group are tested. If the as found set pressure of any of the additional valves tested exceeds the acceptance criteria, then all remaining valves in the valve group are tested. Seabrook Station's pressurizer safety valves are sent off-site for testing by an approved vendor. The test sequence is in accordance with I-7300. The test methods are in accordance with I-8000. Note that all three of the RCS pressurizer safety valves are replaced with tested valves each refueling outage. The pressurizer power operated relief valves are tested on site.

The Class 2 main steam safety valves are tested to the frequency requirements of Class 1 valves per I-1320.

Any valve not meeting the test acceptance criteria is repaired or replaced and successfully tested prior to returning the valve to service. All test failures are evaluated for cause and effect to identify any generic concerns which could apply to valves in the same or other valve group.

Class 2 & 3 (I-1350)

Class 2 and 3 pressure relief devices (except main steam safety valves) are tested at least once every 10 years. A minimum of 20% of valves in each valve group are tested every 48 months. For each valve tested for which the as found set pressure acceptance criteria are not met, two additional valves from the same group are tested. If the as found set pressure of any of the additional valves tested exceeds the acceptance criteria, then all remaining valves in the valve group are tested.

Any valve not meeting the test acceptance criteria is repaired or replaced and successfully tested prior to returning the valve to service. All test failures are evaluated for cause and effect to identify any generic concerns which could apply to valves in the same of other valve groups.

Class 2 and 3 nonreclosing pressure relief devices are replaced every 5 years unless historical data indicates a requirement for more frequent replacement.

Instrumentation (I-1410)

Test equipment used to determine valve set pressure, has an overall combined accuracy of not greater than ±1% of the indicated (measured) set-pressure.

5.4 MANUAL VALVES (ISTC-3540)

Certain active manual valves (e.g., CGC, CS, and RMW) are included in this program plan if they are within the IST scope as defined in ISTC-1100. These valves will be full stroke exercised. Certain Category A manual valves (e.g., included in the Appendix J Type C leakage rate test program [see Reference 2.3]) are included in this program plan.

5.5 VALVE LEAKAGE RATE TESTS (ISTC-3610)

Category A valves are valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their function. Type C tests are intended to measure primary reactor containment system isolation valve leakage rates, as required by 10CFR50, Appendix J. Pressure Isolation Valves (PIVs) are typically two normally closed valves in series that isolate the Reactor Coolant System (RCS) from an attached low pressure system.

5.5.1 10CFR50, Appendix J Type C Leakage Rates

Individual containment isolation valve leakage rate values, test pressures and intervals are in accordance with References 2.3 and 2.10.

5.5.2 Pressure Isolation Valve Leakage Rates (See Reference 2.4.b)

Individual pressure isolation valve (PIV) leakage rate values and test pressures are in accordance with Technical Specification LCO 3.4.6.2, Technical Specification Surveillance Requirement 4.4.6.2.2, and the table contained in Technical Requirement Chapter 2, TR-18.

5.6 CATEGORIES OF VALVES (ISTC-1300)

1. Category A - Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function(s).
2. Category B - Valves for which seat leakage in the closed position is inconsequential for fulfillment of their required function(s).
3. Category C - Valves which are self actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of their required function(s).
4. Category D - Valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosively actuated valves.

5.7 VALVE TESTING REQUIREMENTS (ISTC-3500)

Active and Passive valves in the above defined categories shall be tested in accordance with Table ISTC 3500-1 below:

INSERVICE TESTING REQUIREMENTS

Category	**Function**	**Leakage Test Procedure And Frequency**	**Exercise Test Procedure And Frequency**	**Special Test Procedure** (Note 1)	**Position Indication Verification And Frequency**
A	Active	ISTC-3600	ISTC-3510	None	ISTC-3700
A	Passive	ISTC- 3600	None	None	ISTC-3700
B	Active	None	ISTC-3510	None	ISTC-3700
B	Passive	None	None	None	ISTC-3700
C (Safety & Relief Note 3)	Active	None (Note 2, 3)	ISTC -5230, ISTC-5240	None	ISTC-3700
C (Check Note 4)	Active	None (Note 3)	ISTC-3510	None	ISTC-3700
D	Active	None (Note 3)	None	ISTC-5250, ISTC-5260	None

NOTES:

1. Additional requirements exist for fail-safe valves per ISTC-3560
2. Leak Test as required for Mandatory Appendix I.
3. When more than one distinguishing category characteristic is applicable, all requirements of each of the individual categories are applicable, although duplication or repetition of common testing requirements is not necessary.
4. If a check valve used for a pressure relief device is capacity certified, then it shall be classified as a pressure or vacuum relief device. If a check valve used to limit pressure is not capacity certified, then it shall be classified as a check valve.

The following inspection and or test codes are included on the individual valve test data sheets in Figure F4:

Valve Test and Examination Codes

Code	**Description**
DI	Disassembly and Inspection - applies to check valves and is conducted in accordance with ISTC-5221 (c)
FE	Full Stroke Exercise Test (ISTC-3520, ISTC-3521)
FS	Fail Safe Test (ISTC-3560)
LJ	Leakage Test per 10CFR50 Appendix J (CIVs)
LK	Leakage Test per ISTC-3600 (PIVs)
PE	Partial Stroke Exercise Test (ISTC-5221)
PI	Remote Position Indication Verification (ISTC-3700)
RT	Relief Valve Test (Appendix I)
ST	Stroke Time Test (ISTC-5114, ISTC-5122, ISTC-5132, ISTC-5142, ISTC-5152)
CME	Check Valve Condition Monitoring Program (ISTC-5222)

6.0 COLD SHUTDOWN TESTING

Cold Shutdown Testing (see definition in Section 1.2) of valves shall be conducted as follows:

1. Testing may commence prior to or as soon as the cold shutdown condition is achieved but no later than 48 hours after achieving cold shutdown, and testing will continue until all testing is complete or the plant is ready to return to power. For planned cold shutdowns, where ample time is available for testing all valves identified for the cold shutdown test frequency, exception to the 48 hours may be taken.

2. Completion of all valve testing is not a prerequisite to return to power.

3. Any testing not completed during one cold shutdown should be performed during any subsequent cold shutdowns starting from the last sequenced test performed at the previous cold shutdown.

4. Power operated relief valves RC-PCV-456A/B shall be tested each cold shutdown and when relied upon for Low Temperature Over Pressurization (LTOP) protection, but do not need to be tested more often than once every 92 days.

5. Testing shall commence with the valve having the oldest indicated performed test date and proceed in an ascending order by test date.

6. If a valve in the group being tested is skipped, for whatever reason, that valve should be satisfactorily tested prior to returning the plant to power. Valves may be tested in Modes 3 & 4, if desired.

7. For cold shutdown intervals of less than 3 months (frequent cold shutdowns), these valves need not be tested more often than once every 3 months.

8. All valves shall be tested during refueling outages.

9. For a valve in a system declared inoperable or not required to be operable, the test schedule need not be followed. Within 3 months prior to return of the system to operable status, the valves shall be tested and the testing schedule resumed.

10. Completion of an activity (e.g., all the valves in a group) is not a prerequisite to return to power.

11. The Main Steam Isolation Valves (MSIVs), Main Feedwater Isolation Valves (FWIVs), and Main Feedwater Check Valves are tested at frequencies other than cold shutdown due to their applicable Technical Specifications and required plant conditions (Modes 3 & 4).

7.0 IST TRENDING ANALYSIS

The following discussion outlines IST Trending Analysis which assists in predicting component degradation and/or failure by historically monitoring and analyzing test results.

1. <u>Analysis of Inservice Test Results</u> - The analysis consists of the review of data against allowable ranges of performance parameter variations specified in ASME OM Subsection ISTB and ISTC for pumps and valves, respectively, or as modified in this program plan.

    a. Hard copies of logs and data sheets shall be generated and placed in the appropriate record of test files and/or logs as applicable. These logs will be periodically reviewed by the Plant Engineering Department System Engineers.

    b. When a valve or its control system has been replaced, repaired or has undergone maintenance that could affect its performance prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters that could be affected by the replacement, repair, or maintenance are within acceptable limits.

2. <u>Analysis of Pump and Valve Test Results</u> - The analysis of IST results consists of a review of the collected data against the allowable limits as specified on the applicable data sheets and logs. Required test parameters shall be reviewed at the time of performance for acceptability as specified in the surveillance procedure.

3. <u>Pumps</u>

    a. If during this review, the test results show deviations greater than allowed, then the pump shall be declared inoperable except as provided below. Applicable Technical Specification requirements shall be initiated at this time.

    b. As per OX1456.86, Operability Testing of IST Pumps, Reference 2.15, if a test is underway (regardless of whether test data has been recorded) and it is obvious that a gage is malfunctioning, the test may be halted. The instrument shall be promptly recalibrated and the test rerun. If it is not clear that the problem is with the instrument, then the pump should be declared inoperable before the evaluation and investigation is conducted.

4. <u>Valves</u>

    a. If a valve fails to exhibit the required change of valve stem or disk position or exceeds its Stroke Time Required Action Limit, then the valve shall be declared inoperable.

    b. Valves with measured stroke times that do not meet the acceptance criteria in Section 5.1.3 Table 1 shall be immediately retested or declared inoperable.

For components that do not have a historical data file, trending of the data should start with the second inservice data set and continue until a "Trend" is evident

1. A trend can be established with as little as three data sets, however, some investigative work may be started with the collection of the second set.

2. The nature of the trend is the goal of the analysis. Examples of expected trend tendencies are:

   a. Straight line

   b. Curve slightly

   c. Sudden and marked step change

   d. Indeterminate due to excessive data scatter

3. Once the trend assumes a somewhat predictable tendency, the tabular log of test results can be used to review each new data set, although graphical presentation may be a preferred means of data analysis.

4. Various graphical techniques may be employed to analyze the data. This technique is not intended to be a formal documented process, but a review process possibly leading to some additional measures. Graphical reviews may be performed:

   a. In conjunction with establishing a new reference value, confirming an existing value, or establishing an additional set of reference values.

   b. Whenever a sudden or marked change has occurred.

   c. Whenever a component is in an "Alert" or on an increased frequency test schedule.

5. Significant test data fluctuations should be investigated to determine their cause, and eventually reduced to an acceptable fluctuation limit.

   a. Excessive data scatter complicates the establishment of the trend tendency.

   b. Excessive data scatter reduces the allowable test margin. Until proven otherwise, the point is considered valid indicating component degradation when in fact the scatter might be due to instrumentation anomalies or inconsistencies of personnel taking data.

   c. Excessive data scatter can place a component in and out of an increased frequency category without actual degradation occurring.

d. Excessive fluctuations are possible indications of instrumentation concerns related to poor location (e.g., taps too close to turbulent flow areas such as at elbows, at valves, or air entrapment in sensing lines due to partial system drainage between tests/usage, etc.).

e. Pumps - Possible options to correct data fluctuations would be to increase calibration frequency or require calibration prior to or immediately following the IST, use of temporary test equipment to improve readout or to eliminate devices exhibiting excessive drift. Any change in an instrument and/or its location should be reviewed against the baseline criteria to determine if there is an impact.

f. Valves - Data fluctuations could be related to different response characteristics of the data taker or to various related influences such as air header pressure. Additional parameters may have to be monitored to determine the impact of these influences.

6. A sudden and marked change in results is typically caused by another activity. Examples include:

   a. System lineup

   b. Tide level

   c. System pressure/temperature

   d. Periodic instrument calibration

   e. Component repair or adjustment

   f. Change in related parameter or influence on the test

7. Until identified and another test is run to prove the anomaly, the point is assumed to represent component condition.

8. Components that exhibit erratic behavior or that fail the surveillance test may require that a Work Request (WR) be initiated to correct the condition.

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FIGURE F1

TECHNICAL POSITIONS

Technical Position: TP-1: Testing of Dual Train Solenoid Actuation Valves

Component: SB-V9, SB-V10, SB-V11 and SB-V12

Category: B

Code Class: 2

Function: Containment Isolation Valves

Test Requirements Active Valve: Exercise, Fail-Safe-Closed, Stroke Time – Closed Direction only and Position Indication Test

Basis for Position: The outboard SB isolation valves are fail closed, air operated valves which are controlled by independent A-train and B-train pilot solenoid valves. Closure of the blowdown lines is accomplished by air-operated valves that close on various signals that actuate one or both of the solenoids. Present testing uses a dual train control switch to actuate both solenoids at the same time. This does not account for individual train operation.

The incorporation of train related solenoid testing will provide a more complete test for the unique requirements of these valves on a Cold Shutdown frequency.

Recommendations: Use of the Dual Train Switch along with individually plugging each solenoid to obtain a train specific stroke time test for each solenoid at a Cold Shutdown interval.

FIGURE F1
TECHNICAL POSITIONS

Technical Position:	TP-2: System Leakage
Component:	Valves with Consequential Leakage
Category:	A
Code Class:	1 and 2
Function:	Valves with seat leakage limited to a specific maximum amount in the closed position in fulfillment of their safety function.
Test Requirement:	Category A Valve Leak Testing
Basis For Position:	A review of the IST Program Valves existing design basis information (e.g. UFSAR Sections, Design Based Documents, etc,) regarding valve specific leakage criterion. Containment Isolation Valves and Reactor Coolant System Pressure Isolation Valves are the only valves classified as Category A components. The containment isolation valves in Appendix J, 10CFR50 Program are classified as Category A Valves however, these are tested in accordance with the Appendix J Program and not in the IST Program.
Recommendations:	This is a continuation of existing practices. The Technical Position was developed to clarify the applicability of Category A Leak Rate Testing. No additional actions are recommended.

FIGURE F1

TECHNICAL POSITIONS

Technical Position:	TP-3: Reference Accuracy of Test Equipment
Components:	Instrumentation that Supports IST Pump Surveillance Testing
Category:	NA
Code Class:	NA
Function:	Establish and Monitor Pump Testing Parameters
Test Requirements:	Meet Accuracy Requirements Established by the Code
Basis for Position:	The purpose of the test instrumentation is to verify the pump performance is not degrading and to ensure the pump performance meets the limiting hydraulic system requirements as postulated in the safety analysis. This is accomplished by establishing periodic test surveillances under well defined and repeatable test conditions. ASME instrument code accuracy applies to the Reference Accuracy of an instrument as established by the manufacturer. There are other uncertainties that need not be considered when establishing the reference accuracy of an instrument. These uncertainties include conditions that would exist during a design based accident like temperature, humidity and radiation along with process effects such as power supply variations, instrument drift and static pressure.
Recommendations:	Revised IC Design Calculations will be used to validate the appropriate loop accuracy values to use for IST.

FIGURE F1
TECHNICAL POSITIONS

Technical Position: TP-4: Smooth Running Pumps

Components:
Comprehensive Test Only:
RH-P-8A/B, SI-P-6A/B and SW-P-110B
Comprehensive and Quarterly:
CC-P-11A/B/C/D, SW-P-41A/B/C and CS-P-3A/B

Category: Group A and B

Code Class: 2 and 3

Function: To monitor pump degradation during periodic test surveillances with vibration instrumentation.

Test Requirements: Vibration limits as established by the Code.

Basis for Position: One or more bearings on a pump running at a vibration of <0.05 inches per second will put that pump in the "smooth running pump" category. This can place the pump in the unique situation where small increases in vibration can result in the exceedance of the ALERT criterion based on the Code requirements.

The ASME OM Code applies both a relative multiplier and an absolute value (whichever is less) to the vibration baseline reference value for each monitored point. When the relative multiplier is applied to a small reference value, there is only a small window for variations before you reach the ALERT value.

A pump will require it's testing to occur twice as often if it reaches the ALERT criterion, despite its relatively low value. Corrective actions would need to be performed before the pump testing could be restored to its original test frequency.

Recommendations: These pumps should be flagged as potential ALERT candidates and designated as low margin components. If an adverse trend is identified, corrective actions should be established to address any degradation.

FIGURE F1
TECHNICAL POSITIONS

Technical Position: TP-5: Flow Tolerance When Setting the Reference Value

Components: Safety Related Pumps

Category: Group A and B

Code Class: 2 and 3

Function: Establishing periodic test surveillances under well defined and repeatable test conditions.

Test Requirements: The resistance of the system shall be varied until the flow rate equals the reference point.

Basis for Position: The Code refers to the desired testing parameter as the reference point. The establishment of a exact value is a very difficult task especially when there are system and instrument fluctuations that can impact the ability to meet the criteria. Additional guidance has been provided to test personnel for establishing repeatable test conditions.

The Inservice Test Group has established a +/- 2% criteria when setting a specified flow for testing. This was based on a specific range established in the First Code Interval. "Symmetrical dampening devices or averaging techniques may be used to reduce instrument fluctuations to within 2% of the observed reading". Since low end fluctuations can not be eliminated, fluctuation band is conservatively accounted for in the test acceptance criteria. Reference OX1456.86.

Recommendations: Continue the precedent of providing test flow conditions within +/-2% of the established reference value.

FIGURE F1

TECHNICAL POSITIONS

Technical Position:	TP-6: Fail Safe Valve Testing
Valves:	Fail Safe Valves
Category:	A and B
Code Class:	1, 2 and 3
Function:	(Active) With the loss of actuator power, the valve must stroke to its fail safe position.
Test Requirements:	ISTC-3560, Valves with fail-safe actuators shall be tested by observing the operation of the valve actuator upon loss of actuating power.
Basis for Position:	Solenoid valves which control the air supply to air-operated valves and direct solenoid-operated valves must stroke to their fail-safe position upon interruption of their electric supply. It is not practical to interrupt power by actuation of the circuit breaker, as some circuits contain multiple valves. Actuation of valves in these circuits, other than the specific valve under test, may place the plant in an undesired condition during operation. De-energizing the solenoid valve has the same effect as a loss of electrical power or control air. The process of interrupting power for the fail-safe test will be performed by using the control switch to de-energize the solenoid valve instead of actuating the circuit breaker. This method has the identical effect as a loss of electrical power or control air and provides a functionally equivalent fail-safe test as required by the Code.
Recommendations:	Exercise and fail safe testing will be achieved during the stroke time test.

FIGURE F1
TECHNICAL POSITIONS

Technical Position:	TP-7: SW Ocean Pump Vibration Data Acquisition
Pumps:	SW-P-41A, SW-P-41B, SW-P-41C, SW-P-41D
Code Class	3
Function	Pumps are required to perform a function in shutting down the reactor or in mitigating the consequences of an accident, and are provided with an emergency power source.

Test Requirements:

- Table ISTB-3510-1 requires vibration instrumentation loop accuracy to be +/- 5%.
- ISTB 3510 (e) states: The frequency response range of the vibration-measuring transducer and their readout systems shall be from one-third minimum pump shaft rotational speed to at least 1000 Hz.
- ISTB-5221 (d) states: Vibration measurements shall be broad band (unfiltered).

Basis for Position:

The Code requires that vibration data be taken broad band (unfiltered), at +/-5% accuracy within a frequency response range of one third pump speed to at least 1000 Hz. The service water ocean pumps have the slowest operating speed at 885 rpm. One third of that value is 295 rpm.

Seabrook Station uses the CSI 2130 for data acquisition of the Service Water Ocean Pumps. Calibration is performed with the CSI 2130 in the Digital Mode. This allows the Metrology Laboratory technicians to perform the calibration in incremental sections, which provides a higher resolution, verifying the accuracy criteria specified in the Code. It is capable of accurately obtaining vibration data in the frequency response range of 60 rpm (1 Hz.). This is well below the one-third of minimum pump shaft rotational speed of 4.91 Hz. (295 rpm).

Analog integration is selected when overall readings are taken for surveillances. Overall Mode selection is used in the Broadband mode which acquires broadband waveform data for the entire frequency range, and calculates the overall as the RMS value of the waveform. This ensures all possible modes of degradation are detected.

Recommendations:

The CSI 2130 or equivalent will be used for vibration data acquisition for IST Surveillances on the SW ocean pumps.

Figure F2
Pump Test Table

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

Figure F2
Pump Test Table

Introduction

This section presents the program plan for inservice testing of certain pumps at Seabrook Station in compliance with the requirements of 10CFR50.55a. This program plan has been prepared to the requirements of the ASME OM Code, 2004 Edition.

The pump program plan specifies Inservice testing requirements for certain pumps provided with an on site emergency power source, and which are required for safety-related system operation. The pump, test circuit, and associated instrumentation were investigated to determine whether Inservice testing could be performed. For pumps where Code requirements are determined to be inappropriate, a specific relief request has been prepared. The specific relief requests are referenced on the Pump Test Table. Each specific relief request provides justification for deviation from the OM Code specified testing, and proposes appropriate alternate testing.

Code Interpretation

A number of items in ISTB of the Code are subject to interpretation. The interpretations of a number of general items encountered in preparing the Pump Test program plan are provided below.

Scope of Tests (ISTB-5000)

ISTB-5000 requires that each inservice test measure and observe all the quantities in Table ISTB 3000-1. The Code assumes that each pump installation can be instrumented to obtain the specified quantities. In some installations it is not possible to provide instrumentation to obtain Code specified quantities. For example, submerged pumps cannot be instrumented to measure inlet pressure. In some cases, it is possible to substitute an alternate method. For example, inlet pressure for a submerged pump can be calculated by measuring the head of water relative to the pump suction. Explanatory notes and/or relief requests are included in the Pump Test Table when OM Code required testing is not possible due to pump design.

Figure F2

Pump Test Table

Pump Table Nomenclature

The following abbreviations have been used in the Pump Test Table:

N = Rotative Speed

ΔP = Differential Pressure

Q_f = Flow Rate

V = Vibration Amplitude

X = Measurement/Observation per ISTB

PG = Pump General Relief Request

PR = Pump Relief Request

Figure F2
Pump Test Table

Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	ΔP (2)	Q_f	V	Remarks
CBS-P9A Containment Spray Pump	1-CBS-D20233	2 (A-12)	A	Fixed	(1)	X	X	X	PR-1, PR-2
CBS-P9B Containment Spray Pump	1-CBS-D20233	2 (A-9)	A	Fixed	(1)	X	X	X	PR-1, PR-2
CC-P11A Component Cooling Water Pump	1-CC-D20205	3 (C-7)	A	Variable	(1)	X	X	X	
CC-P11B Component Cooling Water Pump	1-CC-D20211	3 (C-11)	A	Variable	(1)	X	X	X	
CC-P11C Component Cooling Water Pump	1-CC-D20205	3 (C-11)	A	Variable	(1)	X	X	X	
CC-P11D Component Cooling Water Pump	1-CC-D20211	3 (C-7)	A	Variable	(1)	X	X	X	
CS-P2A Centrifugal Charging Pump	1-CS-D20725	2 (A-9)	A	Fixed	(1)	X	X	X	
CS-P2B Centrifugal Charging Pump	1-CS-D20725	2 (C-10)	A	Fixed	(1)	X	X	X	
CS-P3A Boric Acid Transfer Pump	1-CS-D20729	3 (C-12)	A	Variable	(1)	X	X	X	

Figure F2
Pump Test Table

Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	ΔP (2)	Q_f	V	Remarks
CS-P3B Boric Acid Transfer Pump	1-CS-D20729	3 (C-7)	A	Variable	(1)	X	X	X	
FW-P37A Emergency Feedwater Pump	1-FW-D20688	3 (C-6)	A	Fixed	X	X	X	X	The pump classification as a Group A pump is a conservative decision based on the risk significance of the pump. Classification of this pump as a Group A pump is voluntary by the station to ensure that the more conservative test data for a Group A pump is obtained.
FW-P37B Emergency Feedwater Pump	1-FW-D20688	3 (B-9)	A	Fixed	(1)	X	X	X	The pump classification as a Group A pump is a conservative decision based on the risk significance of the pump. Classification of this pump as a Group A pump is voluntary by the station to ensure that the more conservative test data for a Group A pump is obtained.
RH-P8A Residual Heat Removal Pump	1-RH-D20662	2 (C-11)	A	Fixed	(1)	X	X	X	
RH-P8B Residual Heat Removal Pump	1-RH-D20663	2 (C-11)	A	Fixed	(1)	X	X	X	

Figure F2
Pump Test Table

Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	ΔP (2)	Q_f	V	Remarks
SI-P6A Safety Injection Pump	1-SI-D20446	2 (F-10)	B	Fixed	(1)	X	X	X	
SI-P6B Safety Injection Pump	1-SI-D20446	2 (A-10)	B	Fixed	(1)	X	X	X	
SW-P41A Service Water Pump	1-SW-D20794	3 (H-6)	A	Variable	(1)	X	X	X	
SW-P41B Service Water Pump	1-SW-D20794	3 (G-6)	A	Variable	(1)	X	X	X	
SW-P41C Service Water Pump	1-SW-D20794	3 (G-6)	A	Variable	(1)	X	X	X	
SW-P41D Service Water Pump	1-SW-D20794	3 (F-6)	A	Variable	(1)	X	X	X	
SW-P110A SW Cooling Tower Pump	1-SW-D20794	3 (B-8)	A	Variable	(1)	X	X	X	
SW-P110B SW Cooling Tower Pump	1-SW-D20794	3 (B-6)	A	Variable	(1)	X	X	X	

Figure F2
Pump Test Table

NOTES

1. Table ISTB -3000-1 requires measurement of variable speed devices only.

2. Differential pressure will be determined by using inlet (or level information) and discharge pressure measurements as opposed to measuring it directly from differential pressure instrumentation (Reference ISTB-3520(b)).

FIGURE F2
PUMP TEST TABLE

Relief Request:	PR-1
Pumps:	CBS-P9A, CBS-P9B
Code Class:	2
Function:	Pumps required to perform a function in shutting down the reactor or in mitigating the consequences of an accident, and are provided with an emergency power source.

Test Requirements:

ISTB 3300 Reference Values

(e) Reference values shall be established in a region(s) of relatively stable pump flow.

(1) Reference values shall be established within +/-20% of pump design flow rate for the Comprehensive test.

(2) Reference values shall be established within +/-20% of pump design flow rate for Group A and Group B test, if practicable. If not practicable, the reference point flow rate shall be established at the highest practical flow rate.

Basis For Relief:

Relief is requested pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative will provide an acceptable level of quality and safety.

The Containment Building Spray (CBS) system is designed to remove the energy discharged to the containment following a loss-of-coolant accident (LOCA) or main steam line break (MSLB) to prevent the containment pressure from exceeding design pressure and to reduce and maintain containment temperature and pressure within acceptable limits. The CBS pumps are motor-driven, horizontal, centrifugal pumps. The subject pumps are designed to take suction from either the Refueling Water Storage Tank (RWST) in the Emergency Core Cooling System (ECCS) injection mode or the containment recirculation sump in the ECCS recirculation mode. The CBS pump discharges the flow back into the containment through the containment spray nozzles. Each train of the CBS system includes one 100% capacity pump.

As such, the CBS pumps are required to be inservice tested in accordance with Subsection ISTB of the 2004 Edition, of American Society of Mechanical Engineers (ASME) Code for the Operation and Maintenance of Nuclear Power Plants (OM Code). Subsection ISTB 3300(e)(1) of the OM Code requires that comprehensive tests reference values be established within ± 20% of pump design flow.

The flow path used to perform both the biennial comprehensive pump test and the quarterly Group A test are the same. The CBS pumps take suction from the Refueling Water Storage Tank (RWST) through a series of manual valves and a suction check valve and discharge water back to the RWST. The pump discharge flow path contains a piping run to a heat exchanger (CBS-E-16A or CBS-E-16B) and then continues to the containment spray ring header penetration(s) (X-14 and X-15). Upstream of this penetration is the return line to the RWST. In the return line, there is an air-operated valve (AOV) (open/close type) specific to each train (CBS-V31 and CBS-V32) with no remote throttling capability. The return lines for each train tie together into a common line that utilizes a similar type AOV (CBS-V33). This common line then connects to the RWST, which is located downstream. The Safety Injection pumps also utilize this common return line to the RWST. CBS pump flow is measured utilizing a flow indicator (FI-2340) located in the common return line to the RWST. Due to the design of the valves, there is no practical method to vary the resistance of test path to adjust flow. IST testing is performed at this fixed reference condition.

During the pre-operational test period, a test (PT 1-12.1) was performed to verify CBS system performance. PT 12.1 was performed utilizing a temporary manual throttle valve installed in a spool piece (for a temporary strainer) in the common RWST return line. This spool piece still exists as a bolted joint but the manual valves and strainer have been removed. Installation of a similar temporary throttle valve with the plant on-line to achieve additional flow points for the subject pumps is impractical due to the use of this line by other pumps such as the Safety Injection pumps. Installation of a temporary manual throttle valve during shutdown periods would require extensive and intrusive modifications.

Alternative means to vary system resistance in order to provide additional test data were evaluated. The local manual throttling of either CBS-V31, CBS-V32 or CBS-V33 was eliminated as an option due to the potential for valve damage since these valves incorporate a soft seat type design. Additionally, local manipulation of these valves at power would over ride the automatic signals that these valves receive to close to protect the containment spray flow path to containment.

The potential to vary system resistance utilizing a manual valve located in the pump suction lines was also evaluated. This option was eliminated due to the potential to cavitate the pumps and reduce net positive suction head (NPSH) margin for the pumps. As a result, the Containment Spray Pumps (CBS-P9A, CBS-P9B) can only be tested on a recirculation flow path which is sized for approximately 63% (1900 GPM) of the Best Efficiency Point (BEP) Flow of 3000 GPM and approximately 68% of the required design flow of 2808 GPM.

Full flow testing would require system alignment to the containment spray headers and subsequent discharge to the containment. In order to perform full flow testing without alignment to the spray headers, temporary piping would be required to recirculate water to/from the ECCS Containment Sumps. This was performed one time previously, to verify CBS pump curve data (pre-operational test 1-PT-11, Containment Recirculation Sump Operability Demonstration). 1-PT-11 required modification of the sump by means of building a 2 to 3 foot high steel dyke around the top of the sump (at –26' elev. floor level) in order to hold the volume of water required to achieve the necessary pump NPSH without flooding the containment. The spray header piping would also require modification by means of removing the spool pieces downstream of valves CBS-V13 and CBS-V19 and connecting temporary pipe (minimum 8" diameter) from the 25' elevation in containment to the ECCS Sumps at –26' elevation. Recent (OR12) installation of the sump modifications under DCR 06-002, Debris Interceptors, has installed flow interceptors, further reducing the available volume of the sump for testing. Performing these temporary modifications to the CBS system or enlarging the recirculation piping and components to achieve 80% design flow is not warranted since there will be no improvement in our ability to detect pump degradation.

Alternate Testing:

Testing of the subject pumps utilizing the recirculation flow path provides for substantial flow testing in a stable region of the pump curve, well above the minimum continuous flowrate specified by the pump manufacturer. Testing the CBS pumps at reference values established in this region of the pump curve will not cause damage to the pumps and will provide meaningful data to assess pump operational readiness.

In order to compensate for testing the subject pumps at a reduced flow rate during the comprehensive pump test, as required by ISTB 3300(e)(1), the CBS pumps are included in the Predictive Maintenance Monitored Equipment Program. This program includes thermography, enhanced vibration monitoring and analysis of the pump and periodic sampling and analysis of the lube oil. Station personnel will also perform Static Motor Testing using the Baker Advanced Winding Analyzer Series IV (AWAIV) equipment and Dynamic Motor Monitoring utilizing the Baker EXP3000 equipment. On-line testing using the EXP3000 utilizes a multitude of tests to determine the power quality, motor operating conditions, motor performance, and load originated issues.

If additional measured parameters are found to outside of the normal operating range or were determined to be trending toward an unacceptably degraded condition, corrective actions are required. These corrective actions include monitoring additional pump parameters, review of relevant data to determine the cause of the deviation, and potential removal from service.

Reference values for testing the Containment Spray pumps will be established and pump testing will be performed while operating on the installed recirculation loop. This program contains testing and analysis requirements beyond those required by the 2004 Edition of the ASME OM Code. (Reference 2.23) See TAC ME 2416 NRC Letter dated June 3, 2010 and SBK-L-09193 Letter dated October 13, 2009.

FIGURE F2
PUMP TEST TABLE

Relief request:	PR-2
Pumps:	CBS-P9A, CBS-P9B
Code Class:	2
Function:	Pumps required to perform a function in shutting down the reactor or in mitigating the consequences of an accident, and are provided with an emergency power source.
Test Requirements:	ISTB Table 5121-1 requires an Alert Range of >2.5Vr to 6 Vr, or > 0.325 to 0.7 in./sec for centrifugal pumps that operate at ≥ 600 RPM.

Basis For Relief:

1. Pump casing resonance amplification causes the CBS-P-9-B pump bearing vibration to exceed the ISTB Table 5121-1, Centrifugal Pump Tests Acceptance Criteria Alert Range absolute limit.
2. Pump casing resonance amplification causes the CBS-P-9-A pump bearing vibration to approach the ISTB Table 5121-1, Centrifugal Pump Tests Acceptance Criteria Alert Range absolute limit leaving very little room for test repeatability.

The ASME Code provides both a relative multiplier on the reference value, or an absolute limit. The lower of the relative multiplier or the absolute limit is used to define test acceptance criteria. The Code established that the absolute limit for the ALERT limit will be applied to all of the bearings. Based on the forcing function (e.g. pump casing resonance caused by the four vane impeller) being the same on both CBS-P-9-A and CBS-P-9-B, the absolute limit of 0.325 ips needs to be increased to 0.350 ips to provide test margin.
The cause of the vibration is well understood and is a result of our original pump design and the sizing of our re-circulation line. It is not the result of any material degradation from the original installation. An impeller design change would be required to obtain vibration test margin; however, this design change would not fix any material degradation or restore lost margin.
The pump casing resonance amplification issue impacts both pumps, although only the CBS-P-9-B pump has gone into the ALERT condition. The corresponding vibration levels on Containment Spray Pump CBS-P-9-A are similar but have not reached the Alert Range.

CBS pump design uses a wide, four-vane impeller that is susceptible to elevated vane pass vibration. This induced vibration amplitude, along with casing resonance near vane pass frequency, results in elevated overall vibration levels. There are no corrective actions to minimize this condition without replacing the pump impeller, or to modify the stiffness of the pump bearing housings. Implementing either of these design changes to prevent entering the Alert Range, would require extensive work and testing, with no improvement to equipment reliability.

Pump bearing housing resonance amplification results in testing challenges due to the lack of any margin between our reference value and the ISTB Table 5121-1, Centrifugal Pump Tests Acceptance Criteria Alert Range absolute limit. Exceedance of the 0.325 ips Alert limit would result in additional testing. Reduced interval testing does not provide any compensating increase in the level of quality and safety. The pumps are infrequently run, on the order of 200 hours for an 18 month cycle.

Increasing the ISTB Table 5121-1 Alert Range Absolute Limit from 0.325 ips to 0.350 ips for all of the pump bearing limits on both 1-CBS-P-9-A and 1-CBS-P-9-B, will provide adequate margin for test repeatability.

Additional vibration data collection and analysis identified high pump vane pass spectral responses. Pump casing resonance testing identified that the pump has a resonance frequency similar to that of pump vane pass. This condition results in vibration amplitude amplification that is responsible for much of the vibration magnitude. A review of past pump history, including plant pre-operational test data identified similar pump vane pass vibration amplification.

Pump bearing resonance test results and vibration spectrum analysis are consistent with tests performed during initial plant startup (1986). These results identify that the casing resonance contributes to the overall vibration amplitude. Continued pump operation at these levels is acceptable. Additionally, high resolution vibration data analysis has not found any indications of bearing wear or degradation.

As part of the Second Ten Year Interval PR-3 alternative testing, Seabrook Station committed to the use of proven Condition Based Monitoring techniques. The implementation of the Predictive Maintenance Monitored Equipment Program which includes the industry recognized techniques of Infrared, Lube Oil Sampling, and Vibration Spectrum Analysis are used in determining the operational readiness of the CBS pumps.

Seabrook Station has also recognized the impact of the Silica Removal Program that will periodically be using the CBS pumps to recirculate the RWST for the removal of silica. The CBS Pumps were considered Category B pumps during the Second Interval. The CBS pumps have already been classified as Category A pumps and now have vibration data taken on a quarterly basis. The increased frequency of testing will provide a larger and more frequent sample of trend data to be used in analysis of the pumps performance.

Both CBS pumps are challenging the Alert Range of >0.325 ips established in Table 5121-1. If a pump were to exceed the Alert limit, it would be tested at an accelerated frequency (6 weeks) until the condition could be corrected. To address these requirements, Seabrook Station will again be requesting the NRC for relief to establish an absolute Alert Limit of >0.35 ips for each bearing.

Based on this test history, and the current vibration values, an ISTB 5121-1 Alert Range Absolute Limit increase of the lower vibration limit from 0.325 ips to 0.350 ips for the pump vibration readings is warranted. The bases for the 0.350 ips are to simply provide some margin for test repeatability and to define a limit for additional actions.

Alternate Testing:

- Using the 0.350 ips as the absolute limit for all pump bearings will provide adequate indication of pump performance.
- The CBS Pumps will be subject to additional testing, trending, and diagnostic analysis as required by the Seabrook Station Predictive Maintenance Program. This program employs predictive monitoring techniques that go beyond the vibration monitoring and analysis required by ISTB. These techniques also now include thermography and lube oil sampling and analysis. Station personnel will also perform Static Motor Testing using the Baker Advanced Winding Analyzer Series IV (AWAIV) equipment and Dynamic Motor Monitoring utilizing the Baker EXP3000 equipment. On-line testing using the EXP3000 utilizes a multitude of tests to determine the power quality, motor operating conditions, motor performance, and load originated issues. If the measured parameters were found to be outside the normal operating range or were determined to be trending toward an unacceptable degraded state, then appropriate actions would be taken. These actions include monitoring additional parameters, review of specific information to identify cause, and potential removal of the pump from service to perform necessary maintenance.
- Increase the ISTB Table 5121-1, Centrifugal Pump Tests Acceptance Criteria Alert Range Absolute limit from 0.325 ips to 0.350 ips for all pump bearing absolute limits on both 1-CBS-P-9-A and 1-CBS-P-9-B.

(Reference 2.24) See TAC ME 2412 NRC Letter dated June 11, 2010 and SBK-L-09194 Letter dated October 13, 2009.

FIGURE F3
GENERAL RELIEF REQUEST

There are no General Relief Request for the Third Interval

FIGURE F4
VALVE TEST TABLES

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FIGURE F4
VALVE TEST TABLES

Introduction

This section presents the program plan for inservice testing of valves at Seabrook Station in compliance with the requirements of 10CFR50.55a. This program plan has been prepared to the requirements of the ASME OM Code, 2004 Edition.

This test program plan was developed to assess the operational readiness of valves in safety-related systems. The valves addressed are those whose operability is essential to safety-related system operation. Inservice testing is then specified for each of these valves to verify individual valve operational readiness.

Valves are selected for inclusion in the test program based on a review of all Station systems. These valves are investigated to determine whether Inservice Testing can be performed during normal operation. Those valves for which quarterly testing is determined to be inappropriate are analyzed further to determine if Code allowed cold shutdown testing is possible. If so, a justification for delay of testing to cold shutdown is provided following the appropriate Valve Test Tables. Justification for further delay of testing to refueling outages has been prepared for valves which cannot be tested quarterly or during cold shutdown, and are provided following the appropriate Valve Test Tables. Any specific valve relief requests describing appropriate alternative testing when Code requirements are found to be inappropriate are provided following the appropriate Valve Test Tables.

Code Interpretation

A number of items in Subsection ISTC of the Code are subject to interpretation. Any interpretations encountered in preparing the valve test program plan are provided below, if applicable.

No interpretations are applicable, at this time.

1. Relief Valves:

The Code requires testing of safety and relief valve set pressure in accordance with Appendix I. The relief valves designated for test are those which perform a specific ISTA-1100 function. Certain thermal relief valves are included if they are called upon to perform their function for other than maintenance functions. Certain thermal relief valves have been included in the IST Program for containment penetration overpressure protection.

2. Passive Valves:

The reference Code excludes valves from testing that are used only for operating convenience and/or maintenance. This program defines passive valves as those which do not have to change position to accomplish their safety-related function. Passive valves with remote position indication and/or leakage test requirements will be tested in accordance with ISTC-3700 and/or ISTC-3600 requirements, respectively.

3. Control Valves:

The reference Code excludes valves which perform system control functions (such as pressure regulating valves). See ISTC-1200(b).

4. Automatic Power Operated Valves:

Power operated valves which receive an automatic signal on system initiation are included in the program.

5. Remote Power Operated Valves:

The program includes power operated valves activated by remote switches if they are required to change position to align a system for safety-related operation, or if they provide containment isolation.

6. Dual Function Valves:

Valves (excluding check valves) which provide more than one function are tested for their safety-related function only. Valves with multiple safety-related functions are tested for each function.

7. Simple Check Valves:

This program plan considers any check valve to be a simple check valve if it has no means of changing position other than by fluid flow. Simple check valves are tested to verify operability in both directions. Check valves with both open and closed direction safety functions are tested to verify full opening or required position for intended function with forward flow and that the obturator has traveled to the seat on cessation or reversal of flow. Check valves with only an open direction safety function are tested to verify full opening or required position for intended function with forward flow and verify closure. . Check valves with only a closed direction safety function are tested to initiate flow and verify at least partial opening and that the obturator has traveled to the seat on cessation or reversal of flow. Some check valves have been included in the IST Program for containment overpressure protection (e.g., all PIVs which already had open safety functions).

8. Pump Discharge Check Valves:

Pump discharge check valves in safety-related systems will be forward flow exercised. In addition, reverse flow closure will be verified as a closed direction safety function when failure of the valve to close could result in a reduction of system performance. Such a potential exists with parallel pumps connected to common suction and discharge headers. If the check valve on the idle pump fails to close, system flow could be diverted back through the idle pump to the suction header.

9. Check Valve Full/Partial Stroke:

As used in this program, the term full stroke refers to the ability of the valve to pass maximum accident condition flow, or the full mechanical stroking of a valve. Forward flow full stroke operability testing will be by any method that verifies the valve is capable of passing maximum accident condition flow or by periodic demonstration that the valve has achieved a full stroke. Tests that verify less than maximum accident condition flow capability or tests where reduced flow has not achieved a full stroke will be considered as partial stroke tests. The partial open position should correspond to the normal or expected system flow.

10. Category A (Containment Isolation Valve) Leakage Testing:

Valves specified for Appendix J Type C leakage rate testing are included in the Valve IST Program as Category A valves and are tested in accordance with ISTC-3620. The program plan reflects the current list of valves receiving Appendix J testing. Any valve that is added to or deleted from the Appendix J Type C Program will be incorporated into the Valve IST Program.

11. Category A (Pressure Isolation Valve) Leakage Testing:

Valves which perform a pressure isolation function between the Reactor Coolant System and a low pressure system are included in the Valve IST Program as Category A valves. These valves will be tested to the requirements specified in ISTC-3600.

12. Category A (Containment and Pressure Isolation Valve) Leakage Testing:

Valves which perform both a containment isolation and a pressure isolation function are included in the Valve IST Program Plan as Category A Valves. These valves will be tested to requirements of both Appendix J and ISTC-3630.

13. Valve Timing:

The required maximum stroke times based on system performance requirements have been established and incorporated into separate design documents and procedures (See References 2.10 and 2.22).

14. Valve Position Indicator Verification:

ISTC-3700 requires that valves with remote position indicators shall be observed at least once every two years to verify that valve operation is accurately indicated. This program tests both active and passive valves equipped with remote position indicators in accordance with ISTC-3700.

15. Valve Fail Safe Testing:

ISTC-3560 requires proper Station operation of valves equipped with Fail Safe Actuators to be observed. For Seabrook Station, this is generally accomplished by placing the control switch to the position which de-energizes the actuator and observing proper valve operation (see Technical Position-6). In cases where operation of normal valve controls does not de-energize the valve actuator, alternate means will be adopted to simulate loss of actuator power.

FIGURE F4
VALVE TEST TABLES

VALVE TEST TABLE NOMENCLATURE

The following abbreviations have been used in the Valve Test Table:

Valve Type

BFV- Butterfly Valve
BLV- Ball Valve

CHV- Check Valve

DIV - Diaphragm Valve

GLV- Globe Valve
GTV- Gate Valve

PGV- Plug Valve
REV- Relief Valve

SAV- Saunders Weir Valve
SCV- Stop Check Valve
SEV - Safety Valve

TMV- Three Way Valve

Normal Position

O - Open

C - Closed

LO - Locked Open

LC - Locked Closed

TH - Throttled

DE - Normal position depends on system condition

Actuator Type

APA - Air/Piston
ADA- Air/Diaphragm

DIA - Diaphragm

HOA- Hydraulic

MAA- Manual
MOA- Motor

NPA- Nitrogen/Piston
NDA- Nitrogen/Diaphragm

SEA - Self
SOA- Solenoid

Stroke Direction

O - Closed to Open

C - Open to Closed

VALVE TEST TABLE NOMENCLATURE
(Continued)

Test Requirements

CME- Check Valve Condition Monitoring Program

DI - Disassembly and Examination

FE - Full Stroke Exercise Test

FS - Fail Safe Test

LJ - Leakage Test per Appendix J, Type C (containment isolation function only)

LK - Leakage Test per ISTC-3630 (pressure isolation function only)

PE - Partial Stroke Exercise Test

PI - Remote Position Indication Verification

RT - Relief Valve Test

ST - Stroke Time Test

Test Frequency

C - Testing performed during cold shutdown

P - Periodically tested during the time period defined in Appendix I (safety and relief valves)

Q - Once per 92 days (Quarterly)

R - At least once every 2 years unless associated with the Appendix J, 10 CFR 50 Leakage Test Program. LJ-R means tested in accordance with Reference 2.10. Some LJ-R intervals will exceed 2 years.

T - PIVs per Technical Specifications

FIGURE F4
VALVE TEST TABLES

VALVE TEST TABLE FORMAT

Valve Number and Description	Unique number assigned to each valve, and a description of the valve's function within the system.
Class and Coord	The ASME valve classification (Class 1, 2 or 3), and the valve location on the reference drawing.
Valve (CAT.)	Valve category as defined in Sub-article ISTC-1300.
Size (In.) and Type	Valve size is the nominal diameter of the valve in inches. Valve type is the specific type of valve, as abbreviated in "Valve Test Table Nomenclature."
Actu Type	The type of actuator used to operate the valve.
Positions	
NRM	The expected valve position during normal plant operation.
SAF	The valve position when performing its safety-related function.
FAL	The valve position during fail-safe operation.
Tech Pos. Relief Req. C.S. Just. Ref. Just.	Reference number of the Technical Position, Relief Request, Cold Shutdown Justification or Refueling Justification.
IST Program Plan Commitment	
TEST/	The Seabrook Station IST Program Plan test commitments which apply to the valve.
FREQ/	The Seabrook Station IST Program Plan test frequency commitment for the applicable test. Cold shutdown, Refueling Outage or alternate testing which is being performed in lieu of the Code specified quarterly testing.
DIR	The direction in which the valve is required to be Stroke Timed (ST), indicated by "O" for open and "C" for closed.

FIGURE F4
VALVE TEST TABLES

VALVE LIST

	System	P&ID No.	Page No.
1.	Auxiliary Steam (AS)	1-AS-D20569	1-F4.11
2.	Containment Air Handling (CAH)	1-MAH-D20504	1-F4.12
3.	Containment Spray (CBS)	1-CBS-D20233 1-SI-D20446 1-SI-D20447	1-F4.13
4.	Component Cooling Water (CC)	1-CC-D20205 1-CC-D20206 1-CC-D20207 1-CC-D20209 1-CC-D20211 1-CC-D20212 1-CC-D20213 1-CC-D20214	1-F4.22
5.	Combustible Gas Control (CGC)	1-CGC-D20612	1-F4.39
6.	Condensate (CO)	1-CO-D20426	1-F4.44
7.	Containment Online Purge (COP)	1-MAH-D20504	1-F4.45
8.	Chemical & Volume Control (CS)	1-CBS-D20233 1-CS-D20722 1-CS-D20725 1-CS-D20726 1-CS-D20729 1-RC-D20843 1-SI-D20447	1-F4.46
9.	Diesel Generator (DG)	1-DG-D20459 1-DG-D20460 1-DG-D20461 1-DG-D20464 1-DG-D20465 1-DG-D20466	1-F4.63

FIGURE F4
VALVE TEST TABLES

VALVE LIST
(Continued)

	System	P&ID No.	Page No.
10.	Demineralized Water (DM)	1-DM-D20349 1-DM-D20352	1-F4.66
11.	Fire Protection (FP)	1-FP-D20271	1-F4.67
12.	Feedwater (FW)	1-CO-D20426 1-FW-D20686 1-FW-D20687 1-FW-D20688	1-F4.68
13.	Instrument Air (IA)	1-IA-D20640 1-IA-D20643 1-IA-D20644 1-IA-D20645	1-F4.75
14.	Leak Detection (LD)	1-LD-D20864	1-F4.76
15.	Main Steam (MS)	1-MS-D20580 1-MS-D20581 1-MS-D20582 1-MS-D20583 1-MS-D20587	1-F4.77
16.	Nitrogen Gas (NG)	1-NG-D20136	1-F4.89
17.	Reactor Coolant (RC)	1-RC-D20841 1-RC-D20843 1-RC-D20844 1-RC-D20845 1-RC-D20846 1-SS-D20518	1-F4.91
18.	Residual Heat Removal (RH)	1-RH-D20662 1-RH-D20663	1-F4.100
19.	Reactor Makeup Water (RMW)	1-CS-D20725 1-CS-D20729 1-RMW-D20360	1-F4.108
20.	Service Air (SA)	1-SA-D20652	1-F4.109
21.	Steam Generator Blowdown (SB)	1-SB-D20626	1-F4.110

FIGURE F4
VALVE TEST TABLES

VALVE LIST
(Continued)

	System	P&ID No.	Page No.
22.	Spent Fuel Pool Cooling and Cleanup (SF)	1-SF-D20482 1-SF-D20483 1-SF-D20484	1-F4.112
23.	Safety Injection (SI)	1-SI-D20446 1-SI-D20447 1-SI-D20450	1-F4.114
24.	Sample (SS)	1-SS-D20520	1-F4.131
25.	Service Water (SW)	1-SW-D20794 1-SW-D20795 1-SW-D20796	1-F4.132
26.	Vent Gas (VG)	1-VG-D20780	1-F4.141
27.	Waste Processing Liquid Drains (WLD)	1-WLD-D20218 1-WLD-D20219 1-WLD-D20221 1-WLD-D20222	1-F4.142

VALVE RELIEF REQUEST

There is no Valve Specific Relief Request for the Third Interval

SYSTEM: **AS**

FIGURE F4

IST VALVE TEST TABLE

P&ID No.: **D20569**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
AS-V175	3 (D5)	B	12.0 Gate	Motor	O	C	-			X					X		X	

Auxiliary steam Train A isolation valve. This valve is normally open and will close following a HELB in the PAB.
References: P&ID D20569, UFSAR Section 7.6.10.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Closed

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
AS-V176	3 (D-5)	B	12.0 Gate	Motor	O	C	-			X					X		X	

Auxiliary steam Train B isolation valve. This valve is normally open and will close following a HELB in the PAB.
References: P&ID D20569, UFSAR Section 7.6.10.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Closed

FIGURE F4

SYSTEM: **CAH**

IST VALVE TEST TABLE

P&ID No.: **D20504**

Valve Number	Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CAH-FV6572	Containment gas & particulate monitor (RM-6526) supply line solenoid operated isolation valve.- ORC- CIV for penetration X-52A- subject to Appendix J Type C LLRT. This valve is normally open when the rad. monitor is in service, and receives a "T" isolation closure signal. References: P&ID D20504, UFSAR Table 6.2-83.	2 (G-7)	A	0.5 Gate	Solenoid	O	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CAH-FV6573	Containment gas & particulate monitor (RM-6526) supply line solenoid operated isolation valve.- IRC- CIV for penetration X-52A- subject to Appendix J Type C LLRT. This valve is normally open when the rad. monitor is in service, and receives a "T" isolation closure signal. References: P&ID D20504, UFSAR Table 6.2-83.	2 (G-7)	A	0.5 Gate	Solenoid	O	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CAH-FV6574	Containment gas & particulate monitor (RM-6526) return line solenoid operated isolation valve.- ORC- CIV for penetration X-52B- subject to Appendix J Type C LLRT. This valve is normally open when the rad. monitor is in service, and receives a "T" isolation closure signal. References: P&ID D20504, UFSAR Table 6.2-83.	2 (G-8)	A	0.5 Gate	Solenoid	O	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CAH-V12	Containment gas & particulate monitor (RM-6526) return line check valve- IRC- CIV for penetration X-52B- subject to Appendix J Type C LLRT. This valve is normally open when the rad. monitor is in service, and closes to perform the containment isolation function for X-52B. References: P&ID D20504, UFSAR Table 6.2-83.	2 (F-7)	A/C	0.5 Check	Self	O	C	-					X						X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CBS**

IST VALVE TEST TABLE

P&ID No.: **D20233**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	Test Freq / Dir
CBS-V2 Containment spray pump A RWST suction isolation valve. This valve is normally open, remains open during the injection phase of system operation (S signal), and is closed by operator action during the sump recirculation phase of system operation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Section 6.2.2, Engineering Evaluation 94-031.	2 (B-11)	B	12.0 Gate	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
CBS-V3 Containment spray pump A RWST suction check valve. This valve opens during the injection phase of system operation, and is closed during the recirculation phase of system operation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Section 6.2.2,	2 (B-11)	C	12.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CBS-V5 Containment spray pump B RWST suction isolation valve. This valve is normally open, remains open during the injection phase of system operation (S signal), and is closed by operator action during the sump recirculation phase of system operation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Section 6.2.2, Engineering Evaluation 94-031.	2 (C-8)	B	12.0 Gate	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
CBS-V7 Containment spray pump B RWST suction check valve. This valve opens during the injection phase of system operation, and is closed during the recirculation phase of system operation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Section 6.2.2,	2 (B-8)	C	12.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CBS-V8 Containment Recirc sump Tank 101A suction isolation valve. This valve is normally closed and opens to initiate ECCS/CBS sump recirculation. This containment isolation valve is exempt from Appendix J Type C LLRT. References: P&ID D20233, UFSAR Section 6.2.2, UFSAR Table 6.2-83.	2 (C-6)	B	16.0 Gate	Motor	C	O/C	-	CBS-CSJ-1		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **CBS**

IST VALVE TEST TABLE

P&ID No.: **D20233**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	Remarks	IST Program Plan Commitment Commitment
CBS-V9	2 (B-10)	C	12.0 Check	Self	C	O/C	-											X	Containment spray pump A sump suction check valve. This valve is normally closed and opens during the sump recirculation phase of system operation. Closure is required to prevent diversion of CBS pump suction flow to the RHR pump during the injection phase of system operation. References: P&ID D20233, UFSAR Section 6.2.2.	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CBS-V11	2 (F-6)	A	8.0 Gate	Motor	C	O/C	-			X		X			X		X		Containment spray discharge X14 ORC isolation valve Train A. This valve is normally closed and opens on a containment spray signal (P signal) to admit CBS pump discharge to the containment spray headers. Remote manual closure may be required for containment isolation. This CIV is subject to Appendix J Type C LLRT. References: P&ID D20233, UFSAR Section 6.2.2, UFSAR Table 6.2-83.	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
CBS-V12	2 (F-5)	A/C	8.0 Check	Self	C	O/C	-					X						X	Containment spray discharge X14 IRC isolation check valve Train A. This valve is normally closed and opens to admit CBS pump discharge to the containment spray headers. Closure may be required for containment isolation. This CIV is subject to Appendix J Type C LLRT. References: P&ID D20233, UFSAR Section 6.2.2, UFSAR Table 6.2-83	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CBS-V14	2 (D-6)	B	16.0 Gate	Motor	C	O/C	-	CBS-CSJ-1		X					X		X		Containment recirc. sump Tank 101B suction isolation valve. This valve is normally closed and opens to initiate ECCS/CBS sump recirculation. This containment isolation valve is exempt from Appendix J Type C LLRT. References: P&ID D20233, UFSAR Section 6.2.2, UFSAR Table 6.2-83.	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
CBS-V15	2 (B-7)	C	12.0 Check	Self	C	O/C	-											X	Containment spray pump B sump suction check valve. This valve is normally closed and opens during the sump recirculation phase of system operation. Closure is required to prevent diversion of CBS pump suction flow to the RHR pump during the injection phase of system operation. References: P&ID D20233, UFSAR Section 6.2.2.	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CBS**

IST VALVE TEST TABLE

P&ID No.: **D20233**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CBS-V17	2 (E-6)	A	8.0 Gate	Motor	C	O/C	-			X		X			X		X	
CBS-V18	2 (E-5)	A/C	8.0 Check	Self	C	O/C	-					X						X
CBS-V25	2 (A-7)	C	16.0 Check	Self	C	O/C	-											X
CBS-V26	2 (A-11)	C	16.0 Check	Self	C	O/C	-											X
CBS-V31	2 (E-6)	B	4.0 Butterfly	Air/Piston	C	C	C			X	X				X		X	

CBS-V17

Containment spray discharge X15 ORC isolation valve Train B. This valve is normally closed and opens on a containment spray signal (P signal) to admit CBS pump discharge to the containment spray headers. Remote manual closure may be required for containment isolation. This CIV is subject to Appendix J Type C LLRT. References: P&ID D20233, UFSAR Section 6.2.2, UFSAR Table 6.2-83.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

CBS-V18

Containment spray discharge X15 IRC isolation check valve Train B. This valve is normally closed and opens to admit CBS pump discharge to the containment spray headers. Closure may be required for containment isolation. This CIV is subject to Appendix J Type C LLRT. References: P&ID D20233, UFSAR Section 6.2.2, UFSAR Table

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

CBS-V25

RHR pump B containment sump suction check valve. This valve is closed during the injection phase of ECCS operation, and opens upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed periodically per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. References: P&ID D20233, DCR 87-311,

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

CBS-V26

RHR pump A containment sump suction check valve. This valve is closed during the injection phase of ECCS operation, and opens upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed periodically per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. References: P&ID D20233, DCR 87-311,

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

CBS-V31

Containment spray pump B min-flow to RWST isolation valve. This valve will close on a containment spray signal, if open, and remains closed for the duration of the accident mitigation period. There is no seat leakage limit on this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Section 6.2.2, Engineering Evaluation 94-031.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

FIGURE F4

SYSTEM: **CBS**

IST VALVE TEST TABLE

P&ID No.: **D20233**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CBS-V32	2 (E-6)	B	4.0 Butterfly	Air/Piston	C	C	C			X	X				X		X	
Containment spray pump A min-flow to RWST isolation valve. This valve will close on a containment spray signal, if open, and remains closed for the duration of the accident mitigation period. There is no seat leakage limit on this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Section 6.2.2, Engineering Evaluation 94-031.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
CBS-V33	2 (E-6)	B	4.0 Butterfly	Air/Piston	C	C	C			X	X				X		X	
Containment spray pump min-flow to RWST common isolation valve. This valve will close on a containment spray signal, if open, and remains closed for the duration of the accident mitigation period. There is no seat leakage limit on this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Section 6.2.2, Engineering Evaluation 94-031.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
CBS-V38	2 (G-10)	B	6.0 Gate	Motor	C	O	-			X					X		X	
Spray Additive Tank outlet isolation. This valve opens on a containment spray signal to allow SAT NaOH solution to flow to the RWST mixing chamber. Reference: P&ID D20233, UFSAR Section 6.2.2.										Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open								
CBS-V43	2 (G-10)	B	6.0 Gate	Motor	C	O	-			X					X		X	
Spray Additive Tank outlet isolation. This valve opens on a containment spray signal to allow SAT NaOH solution to flow to the RWST mixing chamber. Reference: P&ID D20233, UFSAR Section 6.2.2.										Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open								
CBS-V55	2 (B-12)	C	12.0 Check	Self	C	O/C	-											X
RHR pump A RWST suction check valve. This valve opens on SI actuation and remains open during the injection phase of operation, and closes upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed periodically per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. There is no seat leakage requirement during the sump recirculation mode of ECCS operation per Engineering Evaluation 94-031. References: P&ID D20233, DCR 87-311, EX1804.20,21, Engineering Evaluation 94-031.										Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:								

FIGURE F4

SYSTEM: **CBS**

IST VALVE TEST TABLE

P&ID No.: **D20233**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment .Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CBS-V56	2 (C-7)	C	12.0 Check	Self	C	O/C	-											X
RHR pump B RWST suction check valve. This valve opens on SI actuation and remains open during the injection phase of operation, and closes upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed periodically per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. There is no seat leakage requirement during the sump recirculation mode of ECCS operation per Engineering Evaluation 94-031. References: P&ID D20233, DCR 87-311, EX1804.20,21, Engineering Evaluation 94-031.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
CBS-V94	2 (C-9)	C	0.75 Relief/Safety	Self	C	O	-									X		
CBS heat exchanger B relief valve. In scope per ISTC-1.1. Relieves leaking fluid from the RCS/RHR suction piping to the CBS system piping during Post-LOCA conditions (Ref. 87DCR311) Reference : P&ID D20233.											Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:							
CBS-V96	2 (C-12)	C	0.75 Relief/Safety	Self	C	O	-									X		
CBS heat exchanger A relief valve. In scope per ISTC-1.1. Relieves leaking fluid from the RCS/RHR suction piping to the CBS system piping during Post-LOCA conditions (Ref. 87DCR311) Reference : P&ID D20233.											Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:							
CBS-V145	2 (B-11)	C	12.0 Check	Self	C	O/C	-											X
RHR pump A RWST suction check valve. This valve opens on SI actuation and remains open during the injection phase of operation, and closes upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed periodically per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. There is no seat leakage requirement during the sump recirculation mode of ECCS operation per Engineering Evaluation 94-031. References: P&ID D20233, DCR 87-311, EX1804.20,21, Engineering Evaluation 94-031.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							

FIGURE F4

SYSTEM: **CBS**

IST VALVE TEST TABLE

P&ID No.: **D20233**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CBS-V146	2 (C-8)	C	12.0 Check	Self	C	O/C	-											X
RHR pump B RWST suction check valve. This valve opens on SI actuation and remains open during the injection phase of operation, and closes upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed periodically per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. There is no seat leakage requirement during the sump recirculation mode of ECCS operation per Engineering Evaluation 94-031. References: P&ID D20233, DCR 87-311, EX1804.20,21, Engineering Evaluation 94-031									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:									
CBS-V147	2 (A-11)	C	16.0 Check	Self	C	O/C	-											X
RHR pump A containment sump suction check valve. This valve is closed during the injection phase of ECCS operation, and opens upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed periodically per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. References: P&ID D20233, DCR 87-311, EX1804.20.									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:									
CBS-V148	2 (A-6)	C	16.0 Check	Self	C	O/C	-											X
RHR pump B containment sump suction check valve. This valve is closed during the injection phase of ECCS operation, and opens upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed periodically per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. References: P&ID D20233, DCR 87-311, EX1804.21									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:									
CBS-V149	2 (B-11)	C	0.75 Relief/Safety	Self	C	O	-									X		
RHR pump A RWST suction relief valve. Protects the low pressure suction piping from check valve back leakage during RHR operation- In scope per ISTA-1100. References: P&ID D20233, DCR 87-311, DCR 00-0001.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:									

FIGURE F4

SYSTEM: **CBS**

IST VALVE TEST TABLE

P&ID No.: **D20233**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment										Commitment
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
CBS-V150 RHR pump B RWST suction relief valve. Protects the low pressure suction piping from check valve back leakage during RHR operation- In scope per ISTA-1100. References: P&ID D20233, DCR 87-311, DCR 00-0001.	2 (C-8)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CBS-V151 RHR pump A containment sump suction relief valve. Protects the low pressure suction piping from check valve back leakage during RHR operation- In scope per ISTA-1100. References: P&ID D20233, DCR 87-311, DCR 00-0001.	2 (A-10)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CBS-V152 RHR pump B containment sump suction relief valve. Protects the low pressure suction piping from check valve back leakage during RHR operation- In scope per ISTA-1100. References: P&ID D20233, DCR 87-311, DCR 00-0001.	2 (A-6)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: CBS

IST VALVE TEST TABLE

P&ID No.: D20446

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment	Remarks
CBS-V47	2 (G-12)	B	8.0 Gate	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed	SI pump 6A RWST suction isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and closes during the recirculation phase of ECCS operation. There is no seat leakage limit for this valve during ECCS recirculation per Engineering Evaluation 94-031. References: P&ID D20446, UFSAR Section 6.3, Engineering Evaluation 94-031.
CBS-V48	2 (F-12)	C	8.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	SI pump 6A RWST suction check valve. this valve opens during the injection phase of ECCS operation and closes during the recirculation phase of operation. There is no seat leakage limit for this valve during ECCS recirculation per Engineering Evaluation 94-031. References: P&ID D20446, UFSAR Section 6.3, Engineering Evaluation 94-031.
CBS-V49	2 (F-11)	B	6.0 Gate	Motor	O	O/C	-	CBS-CSJ-2		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed	SI pump A suction isolation valve. This valve is normally open and remains open during all phases of ECCS operation. Closure may be required to isolate long term ECCS passive failures. References: P&ID D20446, UFSAR Section 6.3.
CBS-V51	2 (A-12)	B	8.0 Gate	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed	SI pump 6B RWST suction isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and closes during the recirculation phase of ECCS operation. There is no seat leakage limit for this valve during ECCS recirculation per Engineering Evaluation 94-031. References: P&ID D20446, UFSAR Section 6.3, Engineering Evaluation 94-031.
CBS-V52	2 (A-12)	C	8.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	SI pump 6B RWST suction check valve. This valve opens during the injection phase of ECCS operation and closes during the recirculation phase of operation. There is no seat leakage limit for this valve during ECCS recirculation per Engineering Evaluation 94-031. References: P&ID D20446, UFSAR Section 6.3, Engineering Evaluation 94-031.

FIGURE F4

SYSTEM: **CBS**

IST VALVE TEST TABLE

P&ID No.: **D20446**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req	IST Program Plan Commitment Commitment											Remarks
					NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME		
CBS-V53	2 (A-11)	B	6.0 Gate	Motor	O	O/C	-			X					X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed	SI pump B suction isolation valve. This valve is normally open and remains open during all phases of ECCS operation. Closure may be required to isolate long term ECCS passive failures. References: P&ID D20446, UFSAR Section 6.3.
CBS-V62	2 (B-11)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:	SI Pump common suction relief valve. In scope per ISTA-1100. Provides overpressure protection when providing SI Pump Train separation. Reference: P&ID D20446, UFSAR 6.3.2.5.

P&ID No.: **D20725**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req	IST Program Plan Commitment Commitment											Remarks
					NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME		
CBS-V58	2 (C-8)	C	8.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	Charging pump 2B -RWST Suction line check valve. This valve is normally closed, opens during ECCS injection phase, and is closed during ECCS recirculation phase. Leakage in the closed direction is not limited to a specific value. Reference: UFSAR Section 6.3, Engineering Evaluation 94-31.
CBS-V60	2 (C-8)	C	8.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	Charging pump 2A -RWST Suction line check valve. This valve is normally closed, opens during ECCS injection phase,and is closed during ECCS recirculation phase. Leakage in the closed direction is not limited to a specific value. Reference: UFSAR Section 6.3, Engineering Evaluation 94-31.

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20205**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
CC-TV2171-1 CC heat exchanger E-17A outlet flow control valve. This valve operates in conjunction with the associated HX bypass valve to maintain CC HX outlet temperature at a preset value. Backup air bottles are provided for operation post LOP. This valve fails open on loss of air, directing full CC flow through the HX. References: P&ID D20205, DBD-CC-01, Rev.1.	3 (F-10)	B	24.0 Butterfly	Air/Piston	TH	TH	O	CC-RJ-1		X	X				X		X		Open Test Freq: Refueling Close Test Freq: RV Test Freq: FS Test Dir: Open ST Test Dir: Open
CC-TV2171-2 CC heat exchanger E-17A bypass flow control valve. This valve operates in conjunction with the associated HX outlet valve to maintain CC HX outlet temperature at a preset value. Backup air bottles are provided for operation post LOP. This valve fails closed on loss of air, directing full CC flow through the HX. References: P&ID D20205, DBD-CC-01, Rev.1.	3 (F-10)	B	24.0 Butterfly	Air/Piston	TH	TH	C	CC-RJ-1		X	X				X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V1 CC pump 11C discharge check valve. This valve opens when the CC pump is operating, and closes when the pump is secured to prevent bypass flow from the alternate pump in the same train. References: P&ID D20205	3 (D-10)	C	24.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CC-V4 CC pump 11A discharge check valve. This valve opens when the CC pump is operating, and closes when the pump is secured to prevent bypass flow from the alternate pump in the same train. References: P&ID D20205	3 (D-7)	C	24.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CC-V30 CC return header from CS-P2A oil cooler relief valve-in scope per ISTA-1100. Reference: P&ID D20205.	3 (C-4)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20205**

Valve Number / Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req / C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment / Commitment
CC-V32 CC supply to SF-E15A isolation valve. This valve is normally open and receives a "T" closure signal. Reference: P&ID D20205.	3 (D-6)	B	10.0 Butterfly	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V409 CC return header from EAH-AC-2A relief valve-in scope per ISTA-1100. Reference: P&ID D20205.	3 (E-4)	C	1.5 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V647 CC return header from SF-E-15A relief valve-in scope per ISTA-1100. Reference: P&ID D20205.	3 (C-4)	C	1.5 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V975 CC Loop A radiation monitor RE-6516 inlet isolation valve. This valve is normally open and receives an auto closure signal on low CC surge (head) tank level to isolate the connected NNS piping. References: P&ID D20205, DBD-CC-01, revision 1. This valve was added to the IST program in revision 10 of the SITR due to the non-seismic design of the NNS piping and associated rad monitor skid.	3 (H-11)	B	1.0 Globe	Air/Diaphragm	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20205**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CC-V1277	3 (B-8)	C	0.75 Relief/Safety	Self	C	O	-									X		

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

CC return header cross connect relief valve-in scope per ISTA-1100. DCR 94-045 added cross-connect piping and valves to add operational flexibility when one train of PCCW is out of service during an outage. During future refueling outages when the core is fully off-loaded, both SFP Cooling Heat Exchangers will be required in service to maintain recommended 140 deg F limit in the Standard Review Plan. This cross-connect will allow both Heat Exchangers to be supplied from one train of PCCW. Cross-connect is located in the PAB between the A and B supply and return headers. Additionally, a balancing line (4") is required to eliminate the difference in the 2 head tank levels. A supply, return and head tank outlet line cross-connect are supplied. Each cross-connect line contains 2 normally locked closed isolation valves. This is the thermal relief valve which protects the cross-connect from overpressure. Reference: P&ID D20205.

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CC-V1278	3 (H-9)	C	0.75 Relief/Safety	Self	C	O	-									X		

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

CC supply header cross connect relief valve-in scope per ISTA-1100. DCR 94-045 added cross-connect piping and valves to add operational flexibility when one train of PCCW is out of service during an outage. During future refueling outages when the core is fully off-loaded, both SFP Cooling Heat Exchangers will be required in service to maintain recommended 140 deg F limit in the Standard Review Plan. This cross-connect will allow both Heat Exchangers to be supplied from one train of PCCW. Cross-connect is located in the PAB between the A and B supply and return headers. Additionally, a balancing line (4") is required to eliminate the difference in the 2 head tank levels. A supply, return and head tank outlet line cross-connect are supplied. Each cross-connect line contains 2 normally locked closed isolation valves. This is the thermal relief valve which protects the cross-connect from overpressure. Reference: P&ID D20205.

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CC-V1279	3 (D-8)	C	0.75 Relief/Safety	Self	C	O	-									X		

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

CC surge tank cross connect relief valve-in scope per ISTA-1100. DCR 94-045 added cross-connect piping and valves to add operational flexibility when one train of PCCW is out of service during an outage. During future refueling outages when the core is fully off-loaded, both SFP Cooling Heat Exchangers will be required in service to maintain recommended 140 deg F limit in the Standard Review Plan. This cross-connect will allow both Heat Exchangers to be supplied from one train of PCCW. Cross-connect is located in the PAB between the A and B supply and return headers. Additionally, a balancing line (4") is required to eliminate the difference in the 2 head tank levels. A supply, return and head tank outlet line cross-connect are supplied. Each cross-connect line contains 2 normally locked closed isolation valves. This is the thermal relief valve which protects the cross-connect from overpressure. Reference: P&ID D20205.

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20205**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CC-V1282	3 (B-6)	C	2.0 Check	Self	O	O	-											X
CC-V1298	3 (B-12)	B	1.0 Ball	Air/Piston	O	C	C			X	X				X		X	

CC-V1282

CC supply to CS-P-2A oil cooler check valve. This valve must open to supply CC to the charging / ECCS pump oil cooler. References: P&ID D20205.

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

CC-V1298

CC Loop A radiation monitor RE-6516 outlet isolation valve. This valve is normally open and receives an auto closure signal on low CC surge (head) tank level to isolate the connected NNS piping.
This valve was added to the IST program due to the non-seismic design of the NNS piping and associated rad monitor skid and deletion of the return line check valves per DCR 00-20. References: P&ID D20205, DBD-CC-01, revision 1, DCR00-20.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20206**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CC-V341 CC Train A CS-E4 letdown HX return line isolation valve. This valve is normally open and receives a "T" closure signal to isolate non-essential loads under accident conditions. References: P&ID D20206, DBD-CC-01, revision 1.	3 (B-9)	B	6.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-1		X	X				X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V342 Seal Water Heat Exchanger A (CS-E-5A) relief valve. This line is within safety related boundary of CC piping following isolation of non-safety loads. Therefore, OPP is an issue and this valve is in scope per ISTA-1100.	3 (B-10)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V343 Letdown Heat Exchanger (CS-E-4) relief valve. This line is within safety related boundary of CC piping following isolation of non-safety loads. Therefore, OPP is an issue and this valve is in scope per ISTA-1100.	3 (C-9)	C	2.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V426 CC Train A SC-3-NNS supply line isolation valve to WPB. This valve is normally open and receives a "T" closure signal to isolate non-essential loads under accident conditions. References: P&ID D20206, DBD-CC-01, revision 1.	3 (H-12)	B	20.0 Butterfly	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V427 CC Train A SC-3-NNS return line isolation valve from WPB. This valve is normally open and receives a "T" closure signal to isolate non-essential loads under accident conditions. References: P&ID D20206, DBD-CC-01, revision 1.	3 (B-9)	B	20.0 Butterfly	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20207**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CC-V26 CC return header from SI-P-6A relief valve-in scope per ISTA-1100. Reference: P&ID D20205.	3 (E-9)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V57 CC supply IRC isolation for X20- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Valve fails closed on loss of air and fails as-is on loss of power. Valve will be tested on loss of air only (see technical position TP-6). Reference: P&ID D20207, UFSAR Table 6.2-83.	2 (H-9)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-RJ-3		X	X	X			X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V121 CC return IRC isolation for X21- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Valve fails closed on loss of air and fails as-is on loss of power. Valve will be tested on loss of air only (see technical position TP-6). Reference: P&ID D20207, UFSAR Table 6.2-83.	2 (B-6)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-RJ-3		X	X	X			X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V122 CC return ORC isolation for X21- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Valve fails closed on loss of air and fails as-is on loss of power. Valve will be tested on loss of air only (see technical position TP-6). Reference: P&ID D20207, UFSAR Table 6.2-83.	2 (B-7)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-RJ-3		X	X	X			X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V135 CC return header from CBS-P-9A relief valve-in scope per ISTA-1100. Reference: P&ID D20205.	3 (F-9)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20207**

Valve Number	Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CC-V137	CC outlet from containment spray heat exchanger A. This valve is normally closed and receives a "P" open signal. References: P&ID D20207	3 (G-9)	B	14.0 Butterfly	Motor	C	O	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open
CC-V141	CC return header from RH-P-8A relief valve-in scope per ISTA-1100. Reference: P&ID D20205.	3 (E-9)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V143	CC return header from RH-E-9A relief valve-in scope per ISTA-1100. Reference: P&ID D20205.	3 (D-9)	C	3.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V145	CC outlet from RHR heat exchanger A. This valve is normally closed and receives a "T" open signal. References: P&ID D20207. These valves are throttled open to achieve between 3000 and 5000 gpm PCCW flow through The RHR Hx. See DCR 00-0019.	3 (D-9)	B	16.0 Butterfly	Motor	O	O	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open
CC-V168	CC supply ORC isolation for X20- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Valve fails closed on loss of air and fails as-is on loss of power. Valve will be tested on loss of air only (see technical position TP-6). Reference: P&ID D20207, UFSAR Table 6.2-83.	2 (H-10)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-RJ-3		X	X	X			X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20207**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CC-V407	3 (G-9)	C	1.5 Relief/Safety	Self	C	O	-									X		

CC return header from CBS-E16A relief valve-in scope per ISTA-1100. Reference: P&ID D20205.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

CC-V410	2 (B-6)	A/C	1.5 Relief/Safety	Self	C	O/C	-					X				X		

PCCW containment return Penetration X-21 thermal RV, subject to Appendix J Type C LLRT-in scope per ISTA-1100. Reference: P&ID D20207.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

CC-V845	2 (H-9)	A/C	1.5 Relief/Safety	Self	C	O/C	-					X				X		

PCCW containment supply Penetration X-20 thermal RV, subject to Appendix J Type C LLRT-in scope per ISTA-1100. Reference: P&ID D20207.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20209**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
CC-MM-762 RCP thermal barrier loop head pipe rupture disc. This device provides overpressure protection for the cooling loop following a thermal barrier coil rupture. The IST safety function is OPP for the SC-2 closed loop containment penetration piping for X-48 and X49 following a thermal barrier coil rupture. References: P&ID D20209, DBD-CC-01.	3 (C-5)	D	10.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
CC-MM-763 RCP thermal barrier loop head pipe rupture disc. This device provides overpressure protection for the cooling loop following a thermal barrier coil rupture. The IST safety function is OPP for the SC-2 closed loop containment penetration piping for X-48 and X49 following a thermal barrier coil rupture. References: P&ID D20209, DBD-CC-01.	3 (C-6)	D	10.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
CC-V1092 CC to thermal barrier HX B containment isolation valve (X-48)- exempt from Appendix J Type C LLRT. This valve is normally open and remains open during all plant operating conditions, including accidents. It would be closed only in the event of an abnormality such as penetration leakage. This valve is included in the IST program as a result of the evaluations and commitments contained in 96-TSEV0004. Reference: P&ID D20209, UFSAR Section 9.2.2.2a, UFSAR Table 6.2-83.	2 (A-11)	B	6.0 Butterfly	Motor	O	C	-	CC-RJ-4		X					X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed
CC-V1095 CC to thermal barrier HX B containment isolation valve (X-48)- exempt from Appendix J Type C LLRT. This valve is normally open and remains open during all plant operating conditions, including accidents. It would be closed only in the event of an abnormality such as penetration leakage. This valve is included in the IST program as a result of the evaluations and commitments contained in 96-TSEV0004. Reference: P&ID D20209, UFSAR Section 9.2.2.2a, UFSAR Table 6.2-83.	2 (C-11)	B	6.0 Butterfly	Motor	O	C	-	CC-RJ-4		X					X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed
CC-V1101 CC to thermal barrier HX A containment isolation valve (X-49)- exempt from Appendix J Type C LLRT. This valve is normally open and remains open during all plant operating conditions, including accidents. It would be closed only in the event of an abnormality such as penetration leakage. This valve is included in the IST program as a result of the evaluations and commitments contained in 96-TSEV0004. Reference: P&ID D20209, UFSAR Section 9.2.2.2a, UFSAR Table 6.2-83.	2 (F-11)	B	6.0 Butterfly	Motor	O	C	-	CC-RJ-4		X					X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20209**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CC-V1105 CC containment penetration (X-49), relief valve for Thermal Barrier HX A. This valve is required to open to protect the containment penetration piping boundary from over pressure caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20209, Engineering Evaluation SS-EV-960023, Revision 0.	2 (G-10)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V1109 CC to thermal barrier HX A containment isolation valve (X-49)- exempt from Appendix J Type C LLRT. This valve is normally open and remains open during all plant operating conditions, including accidents. It would be closed only in the event of an abnormality such as penetration leakage. This valve is included in the IST program as a result of the evaluations and commitments contained in 96-TSEV0004. Reference: P&ID D20209, UFSAR Section 9.2.2.2a, UFSAR Table 6.2-83.	2 (G-11)	B	6.0 Butterfly	Motor	O	C	-	CC-RJ-4		X					X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed
CC-V1112 CC containment penetration (X-48), relief valve for Thermal Barrier HX B. This valve is required to open to protect the containment penetration piping boundary from over pressure caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20209, Engineering Evaluation SS-EV-960023, Revision 0.	2 (C-10)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20211**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CC-TV2271-1 CC heat exchanger E-17B outlet flow control valve. This valve operates in conjunction with the associated HX bypass valve to maintain CC HX outlet temperature at a preset value. Backup air bottles are provided for operation post LOP. This valve fails open on loss of air, directing full CC flow through the HX. References: P&ID D20211,	3 (F-10)	B	24.0 Butterfly	Air/Piston	TH	TH	O	CC-RJ-1		X	X				X		X		Open Test Freq: Refueling Close Test Freq: RV Test Freq: FS Test Dir: Open ST Test Dir: Open
CC-TV2271-2 CC heat exchanger E-17B bypass flow control valve. This valve operates in conjunction with the associated HX outlet valve to maintain CC HX outlet temperature at a preset value. Backup air bottles are provided for operation post LOP. This valve fails closed on loss of air, directing full CC flow through the HX. References: P&ID D20211,	3 (F-10)	B	24.0 Butterfly	Air/Piston	TH	TH	C	CC-RJ-1		X	X				X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V295 CC pump 11B discharge check valve. This valve opens when the CC pump is operating, and closes when the pump is secured to prevent bypass flow from the alternate pump in the same train. References: P&ID D20211	3 (D-10)	C	24.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CC-V298 CC pump 11D discharge check valve. This valve opens when the CC pump is operating, and closes when the pump is secured to prevent bypass flow from the alternate pump in the same train. References: P&ID D20211	3 (D-7)	C	24.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CC-V320 Charging Pump CS-P-128 (PDP) oil cooler relief valve. Although PDP is not in safety related scope, this line is within safety related boundary of CC piping following isolation of non-safety loads. Therefore, OPP is an issue and this valve is in scope per ISTA-1100.	3 (D-4)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20211**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CC-V321	3 (C-4)	C	0.75 Relief/Safety	Self	C	O	-									X		
CC-V442	3 (E-4)	C	1.5 Relief/Safety	Self	C	O	-									X		
CC-V986	3 (H-11)	B	1.0 Globe	Air/Diaphragm	O	C	C			X	X				X		X	

IST Program Plan Commitment Commitment

CC-V321

CC return header from CS-P2B oil cooler relief valve-in scope per ISTA-1100. Reference: P&ID D20211.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

CC-V442

CC return header from EAH-AC-2B relief valve-in scope per ISTA-1100. Reference: P&ID D20211.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

CC-V986

CC Loop B radiation monitor RE-6515 inlet isolation valve. This valve is normally open and receives an auto closure signal on low CC surge (head) tank level to isolate the connected NNS piping. References: P&ID D20211, DBD-CC-01, revision 1. This valve was added to the IST program in revision 10 of the SITR due to the non-seismic design of the NNS piping and associated rad monitor skid.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20211**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
CC-V1283 CC supply to CS-P-2B oil cooler check valve. This valve must open to supply CC to the charging / ECCS pump oil cooler. References: P&ID D20211.	3 (B-6)	C	2.0 Check	Self	O	O	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CC-V1301 CC Loop B radiation monitor RE-6515 outlet isolation valve. This valve is normally open and receives an auto closure signal on low CC surge (head) tank level to isolate the connected NNS piping. This valve was added to the IST program due to the non-seismic design of the NNS piping and associated rad monitor skid and deletion of the return line check valves per DCR 00-20. References: P&ID D20205, DBD-CC-01, revision 1, DCR00-20.	3 (A-11)	B	1.0 Ball	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20212**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	Test Frequency / Direction
CC-V171 CC return header from SF-E-15B relief valve-in scope per ISTA-1100. Reference: P&ID D20212.	3 (B-10)	C	1.5 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V445 CC supply to SF-E15B isolation valve. This valve is normally open and receives a "T" close signal. Reference: P&ID D20212.	3 (B-12)	B	10.0 Butterfly	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V447 CC supply to WPB SC-3 / NNS isolation valve. This valve is normally open and receives a "T" close signal to isolate NNS loads under accident conditions. Reference: P&ID D20212.	3 (H-12)	B	20.0 Butterfly	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V448 CC return from WPB SC-3 / NNS isolation valve. This valve is normally open and receives a "T" close signal to isolate NNS loads under accident conditions. Reference: P&ID D20212.	3 (A-9))	B	20.0 Butterfly	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CC-V1168 Seal Water Heat Exchanger B (CS-E-5B) relief valve. This line is within safety related boundary of CC piping following isolation of non-safety loads. Therefore, OPP is an issue and this valve is in scope per ISTA-1100.	3 (D-10)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20213**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CC-V175	2	A	12.0	Air/Piston	O	C	C			X	X	X			X		X	
CC supply ORC isolation for X23- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Valve fails closed on loss of air and fails as-is on loss of power. Valve will be tested on loss of air only (see technical position TP-6). Reference: P&ID D20213, UFSAR Table 6.2-83.	(H-6)		Butterfly					CC-RJ-3		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
CC-V176	2	A	12.0	Air/Piston	O	C	C			X	X	X			X		X	
CC supply IRC isolation for X23- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Valve fails closed on loss of air and fails as-is on loss of power. Valve will be tested on loss of air only (see technical position TP-6). Reference: P&ID D20213, UFSAR Table 6.2-83.	(H-5)		Butterfly					CC-RJ-3		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
CC-V256	2	A	12.0	Air/Piston	O	C	C			X	X	X			X		X	
CC return IRC isolation for X22- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Valve fails closed on loss of air and fails as-is on loss of power. Valve will be tested on loss of air only (see technical position TP-6). Reference: P&ID D20213, UFSAR Table 6.2-83.	(B-5)		Butterfly					CC-RJ-3		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
CC-V257	2	A	12.0	Air/Piston	O	C	C			X	X	X			X		X	
CC return ORC isolation for X22- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Valve fails closed on loss of air and fails as-is on loss of power. Valve will be tested on loss of air only (see technical position TP-6). Reference: P&ID D20213, UFSAR Table 6.2-83.	(B-6)		Butterfly					CC-RJ-3		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
CC-V262	3	C	0.75	Self	C	O	-									X		
CC return header from CBS-P-9B relief valve-in scope per ISTA-1100. Reference: P&ID D20213.	(F-5)		Relief/Safety							Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:								

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20213**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CC-V264 CC return header from CBS-E16B relief valve-in scope per ISTA-1100. Reference: P&ID D20213.	3 (G-4)	C	1.5 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V266 CC outlet from containment spray heat exchanger B. This valve is normally closed and receives a "P" open signal. References: P&ID D20213	3 (G-4)	B	14.0 Butterfly	Motor	C	O	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open
CC-V269 CC return header from RH-P-8B relief valve-in scope per ISTA-1100. Reference: P&ID D20213.	3 (F-5)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V271 CC return header from RH-E9B relief valve-in scope per ISTA-1100. Reference: P&ID D20213.	3 (D-5)	C	3.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CC-V272 CC outlet from RHR heat exchanger B. This valve is normally closed and receives a "T" open signal. References: P&ID D20213. These valves are throttled open to achieve between 3000 and 5000 gpm PCCW flow through the RHR HX. See DCR 00-0019.	3 (D-4)	B	16.0 Butterfly	Motor	O	O	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open

FIGURE F4

SYSTEM: **CC**

IST VALVE TEST TABLE

P&ID No.: **D20213**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
									IST Program Plan Commitment Commitment									
CC-V322	3	C	0.75	Self	C	O	-									X		
CC return header from SI-P-6B relief valve-in scope per ISTA-1100. Reference: P&ID D20213.	(E-5)		Relief/Safety									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	 10 Years 					
CC-V474	2	A/C	1.5	Self	C	O/C	-					X				X		
PCCW Containment return Penetration X-22 thermal RV, subject to Appendix J Type C LLRT-in scope per ISTA-1100. Reference: P&ID D20213.	(B-5)		Relief/Safety									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	 Per Appendix J 10 Years 					
CC-V840	2	A/C	1.5	Self	C	O/C	-					X				X		
PCCW Containment supply Penetration X-23 thermal RV, subject to Appendix J Type C LLRT-in scope per ISTA-1100. Reference: P&ID D20213.	(H-5)		Relief/Safety									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	 Per Appendix J 10 Years 					

FIGURE F4

SYSTEM: **CGC**

IST VALVE TEST TABLE

P&ID No.: **B20612**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CGC-V3	2 (C-9)	B	1.0 Globe	Manual	LC	O	-			X		X						
CGC-V4	2 (C-10)	C	1.0 Check	Self	C	O	-					X						X
CGC-V10	2 (E-9)	B	1.0 Globe	Manual	LC	O	-			X		X						
CGC-V12	2 (E-8)	B	1.0 Globe	Manual	C	O	-			X		X						

IST Program Plan Commitment Commitment

CGC-V3

"A" train hydrogen analyzer return CIV-ORC for penetration X72 / X75- exempt from Appendix J Type C LLRT. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, UFSAR Section 6.2.5, UFSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

CGC-V4

"A" train hydrogen analyzer return IRC CIV for penetration X72 / X75- exempt from Appendix J Type C LLRT. This check valve is normally closed and opens post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, UFSAR Section 6.2.5, UFSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

CGC-V10

"A" train hydrogen analyzer inlet CIV-ORC for penetration X72 / X75- exempt from Appendix J Type C LLRT. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, UFSAR Section 6.2.5, UFSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

CGC-V12

"A" train hydrogen analyzer inlet ORC isolation valve. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, UFSAR Section 6.2.5, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **CGC**

IST VALVE TEST TABLE

P&ID No.: **B20612**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CGC-V13	2 (F-5)	B	1.0 Diaphragm	Manual	C	O	-			X								
CGC-V14	2 (G-9)	A	2.0 Globe	Motor	C	C	-			X		X			X		X	
CGC-V15	2 (G-9)	A	2.0 Globe	Manual	LC	LC	-					X						
CGC-V24	2 (C-9)	B	1.0 Globe	Manual	LC	O	-			X		X						

CGC-V13

"A" train hydrogen analyzer CP-173 inlet isolation valve. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. References: P&ID B20612, UFSAR Section 6.2.5, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

CGC-V14

Containment Purge IRC-CIV for penetration X72 / X75. This valve is normally closed and receives a "T" closure signal. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, UFSAR Section 6.2.5, Table 6.2-83, OS1023.72.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Closed

CGC-V15

Containment Purge ORC-CIV for penetration X72 / X75. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, UFSAR Section 6.2.5, Table 6.2-83, OS1023.72.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

CGC-V24

"B" train hydrogen analyzer return CIV-ORC for penetration X71 / X74- exempt from Appendix J Type C LLRT. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, UFSAR Section 6.2.5, UFSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **CGC**

IST VALVE TEST TABLE

P&ID No.: **B20612**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CGC-V25 "B" train hydrogen analyzer return IRC- CIV for penetration X71 / X74- exempt from Appendix J Type C LLRT. This check valve is normally closed and opens post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, UFSAR Section 6.2.5, UFSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.	2 (C-10)	C	1.0 Check	Self	C	O	-					X						X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CGC-V28 Containment Purge IRC-CIV for penetration X71 / X74. This valve is normally closed and receives a "T" closure signal. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, UFSAR Section 6.2.5, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.	2 (D-9)	A	2.0 Globe	Motor	C	C	-			X		X			X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed
CGC-V32 "B" train hydrogen analyzer inlet CIV-ORC for penetration X71 / X74- exempt from Appendix J Type C LLRT. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, UFSAR Section 6.2.5, UFSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.	2 (D-9)	B	1.0 Globe	Manual	LC	O	-			X		X							Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CGC-V34 "B" train hydrogen analyzer inlet ORC isolation valve. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, UFSAR Section 6.2.5, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.	2 (D-8)	B	1.0 Globe	Manual	C	O	-			X		X							Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CGC**

IST VALVE TEST TABLE

P&ID No.: **B20612**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CGC-V35	2 (C-5)	B	1.0 Globe	Manual	C	O	-			X								

"B" train hydrogen analyzer CP-174 inlet isolation valve. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. References: P&ID B20612, UFSAR Section 6.2.5, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

IST Program Plan Commitment:
Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CGC-V36	2 (D-9)	A	2.0 Globe	Manual	LC	LC	-					X						

Containment Purge ORC-CIV for penetration X71 / X74. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, UFSAR Section 6.2.5, Table 6.2-83, OS1023.72.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CGC-V43	2 (B-8)	A	2.0 Gate	Manual	LC	LC	-					X						

Containment Service Air supply ORC-CIV for penetration X76 / X38. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, UFSAR Section 6.2.5, Table 6.2-83, OS1023.72.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CGC-V44	2 (B-8)	A	2.0 Gate	Manual	LC	LC	-					X						

Containment Service Air supply ORC-CIV for penetration X76 / X38. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, UFSAR Section 6.2.5, Table 6.2-83, OS1023.72.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **CGC**

IST VALVE TEST TABLE

P&ID No.: **B20612**

Valve Number	Class and	Valve	Size (in.) and	Actuator	Positions			Relief Req	IST Program Plan Commitment Commitment									
Remarks	Coord	(CAT)	Type	Type	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CGC-V45	2 (B-8)	A	10.0 Gate	Manual	LC	LC	-					X						

Containment alternate Purge (portable air compressor) supply ORC-CIV for penetration X76 / X38. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, UFSAR Section 6.2.5, Table 6.2-83, OS1023.72.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CGC-V46	2 (B-10)	A/C	10.0 Check	Self	C	C	-					X						

Containment Purge supply IRC-CIV for penetration X76 / X38. This check valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, UFSAR Section 6.2.5, Table 6.2-83, OS1023.72.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **CO**

IST VALVE TEST TABLE

P&ID No.: **D20426**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CO-V421	3 (G-10)	C	2.0 Check	Self	DE	C	-											X
Condensate transfer pump discharge to CST check valve (SC-3-NNS interface). This valve has no safety related open function, and if open, must close to isolate the CST protected water supply. Check valves in lines which penetrate the CST below the elevation which defines the dedicated EFW volume must close when required (even though the upstream lines from the Turbine Building are seismic and extend above the elevation required for EFW).											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
CO-V422	3 (G-10)	C	2.0 Check	Self	DE	C	-											X
Condensate transfer pump discharge to CST check valve (SC-3-NNS interface). This valve has no safety related open function, and if open, must close to isolate the CST protected water supply. Check valves in lines which penetrate the CST below the elevation which defines the dedicated EFW volume must close when required (even though the upstream lines from the Turbine Building are seismic and extend above the elevation required for EFW).											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
CO-V434	3 (G-10)	C	4.0 Check	Self	C	C	-											X
Condensate spill line/Startup aux feedwater pump recirc. to CST check valve- (SC3/NNS interface valve). This valve is normally closed, opens when the SUFP is operating , and is required to close to isolate the CST protected water supply. Check valves in lines which penetrate the CST below the elevation which defines the dedicated EFW volume must close when required (even though the upstream lines from the Turbine Building are seismic and extend above the elevation required for EFW). References: P&ID D20426, TS 3.7.1.2.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
CO-V435	3 (G-10)	C	4.0 Check	Self	C	C	-											X
Condensate spill line/Startup aux feedwater pump recirc. to CST check valve- (SC3/NNS interface valve). This valve is normally closed, opens when the SUFP is operating , and is required to close to isolate the CST protected water supply. Check valves in lines which penetrate the CST below the elevation which defines the dedicated EFW volume must close when required (even though the upstream lines from the Turbine Building are seismic and extend above the elevation required for EFW). References: P&ID D20426, TS 3.7.1.2.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							

FIGURE F4

SYSTEM: **COP**

IST VALVE TEST TABLE

P&ID No.: **D20504**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
COP-V1	2 (D-8)	A	8.0 Butterfly	Air/Piston	LC	LC	C			X	X	X			X		X	
Containment online purge supply isolation valve- ORC for penetration X-18- subject to Appendix J Type C LLRT. This valve may be open during power operation to provide filtered air for purging the containment (manually controlled by operator to adjust containment pressure to 0.50 +/- 0.15 psig) and receives a Containment Ventilation Isolation Signal (CVIS) to close. References: P&ID D20504, UFSAR Table 6.2-83.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
COP-V2	2 (D-8)	A	8.0 Butterfly	Air/Piston	LC	LC	C			X	X	X			X		X	
Containment online purge supply isolation valve- IRC for penetration X-18- subject to Appendix J Type C LLRT. This valve may be open during power operation to provide filtered air for purging the containment (manually controlled by operator to adjust containment pressure to 0.50 +/- 0.15 psig) and receives a Containment Ventilation Isolation Signal (CVIS) to close. References: P&ID D20504, UFSAR Table 6.2-83.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
COP-V3	2 (E-8)	A	8.0 Butterfly	Air/Piston	LC	LC	C			X	X	X			X		X	
Containment online purge exhaust isolation valve- IRC for penetration X-16- subject to Appendix J Type C LLRT. This valve may be open during power operation to provide filtered air for purging the containment (manually controlled by operator to adjust containment pressure to 0.50 +/- 0.15 psig) and receives a Containment Ventilation Isolation Signal (CVIS) to close. References: P&ID D20504, UFSAR Table 6.2-83.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
COP-V4	2 (E-8)	A	8.0 Butterfly	Air/Piston	LC	LC	C			X	X	X			X		X	
Containment online purge exhaust isolation valve- ORC for penetration X-16- subject to Appendix J Type C LLRT. This valve may be open during power operation to provide filtered air for purging the containment (manually controlled by operator to adjust containment pressure to 0.50 +/- 0.15 psig) and receives a Containment Ventilation Isolation Signal (CVIS) to close. References: P&ID D20504, UFSAR Table 6.2-83.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20233**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-LCV112D	2 (G-8)	B	8.0 Gate	Motor	C	O/C	-			X					X		X	
RWST to CCP suction isolation valve. This valve is normally closed, opens to align the CCP suction to the RWST for ECCS injection and for SSD, and is closed during ECCS sump recirculation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Sections 7.4, 6.3.								CS-RJ-1		Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
CS-LCV112E	2 (G-8)	B	8.0 Gate	Motor	C	O/C	-			X					X		X	
RWST to CCP suction isolation valve. This valve is normally closed, opens to align the CCP suction to the RWST for ECCS injection and for SSD, and is closed during ECCS sump recirculation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, UFSAR Sections 7.4, 6.3, Engineering Evaluation 94-031.								CS-RJ-1		Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								

IST Program Plan Commitment Commitment: DI FE FS LJ LK PE PI RT ST CME

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20722**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CS-V142 CVCS normal charging header to Regen HX isolation valve. Open during normal plant operation and closes on SI signal and remains closed throughout the accident to divert Charging Pump flow to the RCS cold legs. Water sealed to preclude containment atmosphere outleakage through valve seats and packing leakage maintained as low as practical. References: P&ID 1-CS-D20722, UFSAR Section 6.3, 92-SIR-024.	2 (C-7)	B	3.0 Gate	Motor	O	C	-	CS-RJ-2		X					X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed
CS-V143 CVCS normal charging header to Regen HX isolation valve. Open during normal plant operation and closes on SI signal and remains closed throughout the accident to divert Charging Pump flow to the RCS cold legs. This is also an ORC containment isolation valve exempt from Type C LLRT. Water sealed to preclude containment atmosphere outleakage through valve seats and packing leakage maintained as low as practical. References: P&ID 1-CS-D20722, UFSAR Section 6.3, 92-SIR-024, UFSAR Table 6.2-83.	2 (C-8)	B	3.0 Gate	Motor	O	C	-	CS-RJ-2		X					X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed
CS-V144 Normal charging to Regen HX IRC check valve, exempt from Type C LLRT. The normal charging line is not required for safe shutdown. This valve is credited to open to protect penetration X-33 from overpressurization due to fluid thermal expansion under accident conditions. References: P&ID D20722, UFSAR Table 6.2-83, UFSAR Sections 5.4.7, 9.3.4, 7.4, Engineering Evaluation SS-EV-960023, Rev-0.	2	C	3.0 Check	Self	O	O	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V148 Regen HX Letdown line relief valve designed to provide flow-related over pressure protection for containment isolation valve CS-V149 in the event of containment isolation with upstream control valves CS-HCV189 and 190 open or leaking by. In scope per ISTA-1100 References: EWR 97-095	2 (G-9)	C	2.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CS-V149 Normal letdown HX IRC isolation. Closes on containment isolation ('T') signal. Normal letdown is not required for safe shutdown or used during DBA conditions. Auto-closure of CS-V145 on initiation of closure on either CS-V149 or CS-V150. References: P&ID D20722, DCR 05-003, UFSAR Table 6.2-83,UFSAR Sections 5.4.7, 7.4, 9.4.3.	2 (F-9)	A	3.0 Gate	Motor	O	C	-	CS-RJ-2		X		X			X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20722**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
CS-V150 Normal letdown HX ORC isolation. Closes on containment isolation ('T') signal. Normal letdown is not required for safe shutdown or used during DBA conditions. Auto-closure of CS-V145 on initiation of closure on either CS-V149 or CS-V150. References: P&ID D20722, DCR 05-003, UFSAR Table 6.2-83, UFSAR Sections 5.4.7, 7.4, 9.4.3.	2 (F-8)	A	3.0 Globe	Air/Diaphragm	O	C	C	CS-RJ-2		X	X	X			X		X		Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
CS-V177 Normal charging to loop 4 isolation AOV. Normally either V177 or V180 is open. These valves are alternated open (usually each refueling) over the plant life, such that neither path will be exposed to more than 60% of design transients involving complete stoppage of letdown and/or charging flow. Transfer should only be performed at cold shutdown conditions to avoid unnecessary additional thermal transients. These valves have no SSD function, but are relied upon to open and remain open to preclude overpressurization of penetration X-33 due to thermal expansion of trapped fluid under accident conditions. Only one of these valves needs to be open at one time to perform this function, therefore, they serve a passive open function only (per EWR 97-095).References: P&ID D20722, UFSAR Sections 5.4.7, 7.4, 9.3.4, SS-EV-960023, Rev. 0.	2 (E-12)	B	3.0 Globe	Air/Diaphragm	DE	O	O								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V178 Loop 4 charging line check valve. Located inside the missile shield. This valve is relied upon to open to preclude overpressurization of X-33 due to thermal expansion of trapped fluid under accident conditions. This valve must also close to prevent reverse flow following a LOCA in loop 1, to preclude two loops feeding one pipe rupture. References; P&ID D20722, UFSAR Section 3.6(N).2.3, SS-EV-960023, Rev. 0.	1 (E-12)	C	3.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V179 Loop 4 charging line check valve. Located inside the missile shield. This valve is relied upon to open to preclude overpressurization of X-33 due to thermal expansion of trapped fluid under accident conditions. This valve must also close to prevent reverse flow following a LOCA in loop 1 to preclude two loops feeding one pipe rupture. References; P&ID D20722, UFSAR Section 3.6(N).2.3, SS-EV-960023, Rev. 0.	1 (E-12)	C	3.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20722**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V180	2 (E-12)	B	3.0 Globe	Air/Diaphragm	DE	O	O								X			
Normal charging to loop 1 isolation AOV. Normally either V177 or V180 is open. These valves are alternated open (usually each refueling) over the plant life, such that neither path will be exposed to more than 60% of design transients involving complete stoppage of letdown and/or charging flow. Transfer should only be performed at cold shutdown conditions to avoid unnecessary additional thermal transients. These valves have no SSD function, but are relied upon to open and remain open to preclude overpressurization of penetration X-33 due to thermal expansion of trapped fluid under accident conditions. Only one of these valves needs to be open at one time to perform this function, therefore, they serve a passive open function only (per EWR 97-095). References: P&ID D20722, UFSAR Sections 5.4.7, 7.4, 9.3.4, SS-EV-960023, Rev. 0.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
CS-V181	1 (D-12)	C	3.0 Check	Self	DE	O/C	-											X
Loop 1 charging line check valve. Located inside the missile shield. This valve is relied upon to open to preclude overpressurization of X-33 due to thermal expansion of trapped fluid under accident conditions. This valve must also close to prevent reverse flow following a LOCA in loop 4, to preclude two loops feeding one pipe rupture. References; P&ID D20722, UFSAR Section 3.6(N).2.3, SS-EV-960023, Rev. 0.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
CS-V182	1 (D-12)	C	3.0 Check	Self	DE	O/C	-											X
Loop 1 charging line check valve. Located inside the missile shield. This valve is relied upon to open to preclude overpressurization of X-33 due to thermal expansion of trapped fluid under accident conditions. This valve must also close to prevent reverse flow following a LOCA in loop 4, to preclude two loops feeding one pipe rupture. References; P&ID D20722, UFSAR Section 3.6(N).2.3, SS-EV-960023, Rev. 0.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
CS-V185	1 (E-12)	B	2.0 Globe	Air/Diaphragm	C	C	C								X			
Pressurizer Auxiliary Spray valve. Normally closed valve. Aux. Spray is infrequently used and within station operating procedures is not recommended for use during RCP operation. This valve has no open safety function, but must be closed to isolate the Class 1 RCPB. Since this valve is normally closed, sees limited use in the open direction and is administratively controlled when open, it is considered to have a passive function only (see DCR 00-0001). References: P&ID D20722.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20725**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-LCV112B	2 (E-6)	B	4.0 Gate	Motor	O	C	-	CS-RJ-4		X					X		X	
CS-LCV112C	2 (E-6)	B	4.0 Gate	Motor	O	C	-	CS-RJ-4		X					X		X	
CS-V192	2	C	4.0 Check	Self	O	O/C	-	CS-RJ-3		X								
CS-V196	2 (C-11)	B	2.0 Globe	Motor	O	O/C	-			X					X		X	
CS-V197	2 (D-10)	B	2.0 Globe	Motor	O	O/C	-			X					X		X	

Remarks

CS-LCV112B

VCT outlet isolation valve to Charging Pump suction. This valve is normally open providing suction source to Charging pumps and is automatically closed during ECCS actuation (DBA condition) as suction is switched to the BAT tanks or the RWST. Also, manually closed during rapid boration from the RWST or BAT. Opened for normally planned plant cooldowns, but this is not a DBA or safe shutdown safety function. References: P&ID D20725, UFSAR Sections 6.3 & 7.4, procedure OS1202.04.

Open Test Freq:
Close Test Freq: Refueling
RV Test Freq:
FS Test Dir:
ST Test Dir: Closed

CS-LCV112C

VCT outlet isolation valve to Charging Pump suction. This valve is normally open providing suction source to Charging pumps and is automatically closed during ECCS actuation (DBA condition) as suction is switched to the BAT tanks or the RWST. Also, manually closed during rapid boration from the RWST or BAT. Opened for normally planned plant cooldowns, but this is not a DBA or safe shutdown safety function. References: P&ID D20725, UFSAR Sections 6.3 & 7.4, procedure OS1202.04.

Open Test Freq:
Close Test Freq: Refueling
RV Test Freq:
FS Test Dir:
ST Test Dir: Closed

CS-V192

VCT outlet check valve to Charging Pump suction. This valve is normally open when the charging pumps are drawing suction from the VCT, and must remain open when the VCT is isolated to return charging pump recirculation flow to the pump suction when required. Reverse closure is required to preclude discharge of post LOCA recirculated sump fluid via the seal water HX relief valve under certain small break scenarios where the RHR pump discharge pressure could exceed the relief valve setpoint. Leakage in the closed direction is not limited to a specific value, provided V-193 is closed. Reference: UFSAR Section 6.3, Engineering Evaluation 94-31, 11/7/94.

Open Test Freq: Refueling
Close Test Freq: Refueling
RV Test Freq:
FS Test Dir:
ST Test Dir:

CS-V196

CCP A min-flow isolation MOV. These valves are normally open, receive an "S" closure signal, but will open automatically for pump protection should pump flow drop below 80 gpm. References: P&ID D20725, UFSAR Sections 6.3, 9.3.4.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

CS-V197

CCP B min-flow isolation MOV. These valves are normally open, receive an "S" closure signal, but will open automatically for pump protection should pump flow drop below 80 gpm. References: P&ID D20725, UFSAR Sections 6.3, 9.3.4.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20725**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
CS-V199 Centrifugal charging pump B min-flow check valve. This valve is required to open to allow min-flow for pump protection, and is required to close to prevent CCP recirc flow diversion through the idle charging pump in case of failure of the recirc MOV to close. References: P&ID D20725.	2 (D-10)	C	2.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V200 CCP B discharge check valve. This valve must open to allow flow for ECCS and SSD, and must close to prevent flow diversion through an idle CCP. References; P&ID D20725.	2 (C-12)	C	4.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V209 CCP A discharge check valve. This valve must open to allow flow for ECCS and SSD, and must close to prevent flow diversion through an idle CCP. References; P&ID D20725.	2 (B-11)	C	4.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V210 CCP A manual discharge valve. This valve is normally open and is closed to align the CCP discharge to the alternate boration flow path via the RCP seal water injection header. References P&ID D20725, D20726, UFSAR Table 7.4-1, Procedures OS1200.01, OS1200.02, OS1202.04. This valve was added to the IST program in Rev 10 to the SITR. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required.	2 (B-12)	B	4.0 Gate	Manual	O	C	-			X									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
CS-V211 Centrifugal charging pump A min-flow check valve. This valve is required to open to allow min-flow for pump protection, and is required to close to prevent CCP recirc flow diversion through the idle charging pump in case of failure of the recirc MOV to close. References: P&ID D20725.	2 (B-11)	C	2.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20725**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
CS-V213 Charging PDP (P-128) discharge check valve. This valve must close to prevent diversion of CCP discharge flow. CS-P-128 is not provided with emergency power and its operation is not required for SSD or accident mitigation, therefore the check valve has no open safety function. References: P&ID D20725, UFSAR Sections 5.4.7, 7.4,9.3.4,	2 (E-9)	C	3.0 Check	Self	DE	C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V219 CCP B flow control bypass valve. This valve is normally closed and is opened to align the CCP discharge to the alternate boration flow path via the RCP seal water injection header. References P&ID D20725, D20726, UFSAR Table 7.4-1, Procedures OS1200.01, OS1200.02, OS1202.04. This valve was added to the IST program in Rev 10 to the SITR. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required.	2 (C-11)	B	3.0 Globe	Manual	LC	TH	-	CS-RJ-5		X									Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir:
CS-V220 CCP B manual discharge valve. This valve is normally open and is closed to align the CCP discharge to the alternate boration flow path via the RCP seal water injection header. References P&ID D20725, D20726, UFSAR Table 7.4-1, Procedures OS1200.01, OS1200.02, OS1202.04. This valve was added to the IST program in Rev 10 to the SITR. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required.	2 (C-12)	B	4.0 Gate	Manual	O	C	-			X									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
CS-V221 CCP A flow control bypass valve. This valve is normally closed and is opened to align the CCP discharge to the alternate boration flow path via the RCP seal water injection header. References P&ID D20725, D20726, UFSAR Table 7.4-1, Procedures OS1200.01, OS1200.02, OS1202.04. This valve was added to the IST program in Rev 10 to the SITR. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required.	2 (C-11)	B	3.0 Globe	Manual	LC	TH	-	CS-RJ-5		X									Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir:
CS-V227 RHR common cross-connect to SI/Charging pump suction relief valve. In scope per ISTA-1100. Protects Charging Pump suction piping close to the RHR inter-tie during suction swap over. Reference P&ID D20725.	2 (A-8)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20725**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V460	2 (A-6)	B	6.0 Gate	Motor	C	O/C	-			X					X		X	
CS-V461	2 (A-6)	B	6.0 Gate	Motor	C	O/C	-			X					X		X	
CS-V475	2 (A-6)	B	6.0 Gate	Motor	O	O/C	-			X					X		X	

CS-V460

SI-CS pump suction cross-connect valve from RHR- This valve is normally closed and is open during the sump recirculation phase of ECCS operation, and may be closed in the long term to isolate an ECCS limited passive failure. Reference: UFSAR Section 6.3.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

CS-V461

SI-CS pump suction cross-connect valve from RHR- This valve is normally closed and is open during the sump recirculation phase of ECCS operation, and may be closed in the long term to isolate an ECCS limited passive failure. Reference: UFSAR Section 6.3.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

CS-V475

SI-CS pump suction common cross-connect from RHR isolation valve. This valve is normally open and will remain open unless closed to isolate a passive failure in the ECCS system during the long term recirculation phase of ECCS operation. Reference: UFSAR Section 6.3.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: CS

IST VALVE TEST TABLE

P&ID No.: D20726

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V2	1 (A-10)	C	2.0 Check	Self	O	O/C	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							X
RCP A seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per UFSAR Section 3.6 and Appendix 3A.																		
CS-V4	2 (A-9)	C	2.0 Check	Self	O	O	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							X
RCP A seal water injection IRC isolation check valve. This valve is normally open and remains open for both SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. This CIV is excluded from Appendix J Type C LLRT because the Charging Pumps provide a positive pressure on this penetration throughout the entire accident period. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4, UFSAR Table 6.2-83.																		
CS-V18	1 (B-10)	C	2.0 Check	Self	O	O/C	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							X
RCP B seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per UFSAR Section 3.6 and Appendix 3A.																		
CS-V20	2 (B-9)	C	2.0 Check	Self	O	O	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							X
RCP B seal water injection IRC isolation check valve. This valve is normally open and remains open for both SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. This CIV is excluded from Appendix J Type C LLRT because the Charging Pumps provide a positive pressure on this penetration throughout the entire accident period. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4, UFSAR Table 6.2-83.																		
CS-V34	1 (C-10)	C	2.0 Check	Self	O	O/C	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							X
RCP C seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per UFSAR Section 3.6 and Appendix 3A.																		

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20726**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CS-V36	2 (C-9)	C	2.0 Check	Self	O	O	-											X	
RCP C seal water injection IRC isolation check valve. This valve is normally open and remains open for both SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. This CIV is excluded from Appendix J Type C LLRT because the Charging Pumps provide a positive pressure on this penetration throughout the entire accident period. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4, UFSAR Table 6.2-83.																			Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V50	1 (D-10)	C	2.0 Check	Self	O	O/C	-											X	
RCP D seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4.This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per UFSAR Section 3.6 and Appendix 3A.																			Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V52	2 (D-9)	C	2.0 Check	Self	O	O	-											X	
RCP D seal water injection IRC isolation check valve. This valve is normally open and remains open for both SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. This CIV is excluded from Appendix J Type C LLRT because the Charging Pumps provide a positive pressure on this penetration throughout the entire accident period. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4, UFSAR Table 6.2-83.																			Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V154	2 (D-8)	B	2.0 Globe	Motor	O	O	-								X		X		
RCP D seal water injection ORC isolation valve. This valve is normally open and remains open for both SSD and accident mitigation. Its open position is therefore an important passive function and will be tested by position indication per ISTC-3700. Stroke Time Requirements added per EC 276288. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4, UFSAR Table 6.2-83, EWR 97-095, EC 276288.								CS-RJ-8											Open Test Freq: 2 Years Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
CS-V158	2 (C-8)	B	2.0 Globe	Motor	O	O	-								X		X		
RCP C seal water injection ORC isolation valve. This valve is normally open and remains open for both SSD and accident mitigation. Its open position is therefore an important passive function and will be tested by position indication per ISTC-3700. Stroke Time Requirements added per EC 276288.This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4, UFSAR Table 6.2-83, EWR 97-095, EC 276288.								CS-RJ-8											Open Test Freq: 2 Years Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20726**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V162	2	B	2.0	Motor	O	O	-								X		X	
RCP B seal water injection ORC isolation valve. This valve is normally open and remains open for both SSD and accident mitigation. Its open position is therefore an important passive function and will be tested by position indication per ISTC-3700. Stroke Time Requirements added per EC 276288. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4, UFSAR Table 6.2-83, EWR 97-095, EC 276288.	(B-8)		Globe					CS-RJ-8	Open Test Freq: 2 Years Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed									
CS-V166	2	B	2.0	Motor	O	O	-								X		X	
RCP A seal water injection ORC isolation valve. This valve is normally open and remains open for both SSD and accident mitigation. Its open position is therefore an important passive function and will be tested by position indication per ISTC-3700. Stroke Time Requirements added per EC 276288. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4, UFSAR Table 6.2-83, EWR 97-095, EC 276288.	(A-8)		Globe					CS-RJ-8	Open Test Freq: 2 Years Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed									
CS-V167	2	A	2.0	Motor	O	C	-			X		X			X		X	
RCP seal water return to seal water HX ORC isolation valve. This valve is normally open and receives a "T" closure signal. This valve is subject to Type C LLRT per UFSAR Table 6.2-83. This valve has no safety function in the open direction as seal water return is not required for SSD or accident mitigation. For safe shutdown conditions, seal flow is established by maintaining positive pressure from the Charging pumps on each seal injection path penetration and relying on relief valve CS-V173 to lift. References: P&ID D20726, UFSAR Table 6.2-83.	(G-11)		Globe					CS-RJ-6	Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed									
CS-V168	2	A	2.0	Motor	O	C	-			X		X			X		X	
RCP seal water return to seal water HX IRC isolation valve. This valve is normally open and receives a "T" closure signal. This valve is subject to Type C LLRT per UFSAR Table 6.2-83. This valve has no safety function in the open direction as seal water return is not required for SSD or accident mitigation. For safe shutdown conditions, seal flow is established by maintaining positive pressure from the Charging pumps on each seal injection path penetration and relying on relief valve CS-V173 to lift. References: P&ID D20726, UFSAR Table 6.2-83.	(G-12)		Globe					CS-RJ-6	Open Test Freq: Close Test Freq: Refueling RV Test Freq: FS Test Dir: ST Test Dir: Closed									
CS-V173	2	C	2.0	Self	C	O	-									X		
Seal water return header relief valve. This valve provides over pressure protection for the X-37B adjacent piping caused by thermal expansion of trapped fluid under accident conditions. -In scope per ISTA-1100. When seal return CIV MOVs are isolated, pressure across RCP seals would equalize and pressure would rise until relief valve lift pressure (150 psig) was achieved. References: P&ID D20726, Engineering Evaluation SS-EV-960023, Rev.0.	(F-12)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:									

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20726**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CS-V250 RCP seal water return header/HX relief valve. This valve is located in the section of return piping which includes the CCP recirc flow. The min-flow recirc function is required for CCP protection, and therefore the RV is within the IST scope per ISTA-1100. References: P&ID D20726, UFSAR Section 9.3.4.	2 (G-7)	C	2.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
CS-V471 RCP A seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per UFSAR Section 3.6 and Appendix 3A.	1 (A-10)	C	2.0 Check	Self	O	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V472 RCP B seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per UFSAR Section 3.6 and Appendix 3A.	1 (B-10)	C	2.0 Check	Self	O	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V473 RCP C seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per UFSAR Section 3.6 and Appendix 3A.	1 (C-10)	C	2.0 Check	Self	O	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V474 RCP D seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation as a boron injection flow path. Also required to burp open, providing relief function during certain thermally induced overpressure conditions. References: P&ID D20726, UFSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per UFSAR Section 3.6 and Appendix 3A. Also required to burp open, providing relief function during certain thermally induced overpressure conditions.	1 (D-10)	C	2.0 Check	Self	O	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20726**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V794	2 (G-12)	A/C	0.75 Relief/Safety	Self	C	O/C	-					X				X		

RCP seal water return to seal water HX containment penetration X37B thermal relief valve. This containment isolation valve provides over pressure protection for X37B caused by thermal expansion of trapped fluid under accident conditions. This valve is also subject to Appendix J Type C LLRT. References: P&ID D20726, UFSAR Table 6.2-83, Engineering Evaluation SS-EV-960023, Rev.o.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20729**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CS-V410 Boric acid tank 4A outlet isolation valve. This valve is normally open and remains open or is closed for SSD in OS1200.01 depending on the required tank alignment. References: P&ID D20729, OS1200.01, UFSAR Table 7.4-1 and Sections 7.4 and 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (E-11)	B	4.0 Gate	Manual	O	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
CS-V416 Boric acid tank 4B outlet isolation valve. This valve is normally open and remains open or is closed for SSD in OS1200.01 depending on the required tank alignment. References: P&ID D20729, OS1200.01, UFSAR Table 7.4-1 and Sections 7.4 and 9.3.4 Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (E-8)	B	4.0 Gate	Manual	O	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
CS-V423 Boric acid pump CS-P-3A discharge isolation valve. This valve is normally open and remains open or is closed for SSD in OS1200.01 depending on the required tank alignment. References: P&ID D20729, OS1200.01, UFSAR Table 7.4-1 and Sections 7.4 and 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (D-7)	B	2.0 Saunders Weir	Manual	O	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
CS-V424 CS-P-3A discharge header to Boric Acid filter isolation valve. This valve is normally open and remains open except when operated during BAT weekly recirc or for BAT Pump quarterly surveillance test. EWR 97-095 considered the amount of time this occurs to be significant to consider this valve active and requiring re-positioning at these times. Needed for safe shutdown capability of emergency boration or gravity boration flow paths. References: P&ID D20729, OS1200.01, UFSAR Table 7.4-1 and Sections 7.4 and 9.3.4	3 (C-11)	B	2.0 Saunders Weir	Manual	O	O	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
CS-V426 Emergency boration to CCP suction isolation MOV. This valve is normally closed and opened to direct the discharge from the BA transfer pumps to the CCP suction. References; P&ID D20729, UFSAR Sections 5.4.7, 7.4, 9.3.4.	2 (D-5)	B	2.0 Globe	Motor	C	O/C	-	CS-CSJ-1		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Close5

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20729**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V427	2	C	2.0	Self	C	O	-			X								
Emergency boration to CCP suction check valve. This valve is normally closed and opens to direct the discharge from the BA transfer pumps to the CCP suction during rapid boration procedure. This valve does not have a safety related closure function, because RMW-V119, CS-V426 and the combination of CS-V449 and CS-V453 provide two barriers given any single failure. Regardless of this, CS-V427, RMW-V119, CS-V449 and CS-V453 are all tested in the closed direction in accordance with ISTC 4.5.2 requirements. References: P&ID D20729, UFSAR Sections	(E-5)		Check					CS-CSJ-3		Open Test Freq: CSD Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:								
CS-V430	3	B	2.0	Manual	O	O	-			X								
CS-P-3B discharge header to Boric Acid filter isolation valve. This valve is normally open and remains open except when operated during BAT weekly recirc or for BAT Pump quarterly surveillance test. EWR 97-095 considered the amount of time this occurs to be significant to consider this valve active and requiring re-positioning at these times. Needed for safe shutdown capability of emergency boration or gravity boration flow paths. References: P&ID D20729, OS1200.01, UFSAR Table 7.4-1 and Sections 7.4 and 9.3.4	(C-7)		Saunders Weir							Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:								
CS-V431	3	B	2.0	Manual	O	O/C	-			X								
CS-P-3B Boric acid pump discharge isolation valve. This valve is normally open and remains open or is closed for SSD in OS1200.01 depending on the required tank alignment. References: P&ID D20729, OS1200.01, UFSAR Table 7.4-1 and Sections 7.4 and 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required.	(D-11)		Saunders Weir							Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:								
CS-V437	3	B	4.0	Manual	C	O/C	-			X								
Boric acid tank 4A outlet cross-connect gravity feed to Charging Pumps. This valve is normally closed ,and opened to align TK-4A to gravity boration or TK-4A to the suction of P-3B. Reference: P&ID D20729 Procedure OS1200.01, UFSAR Table 7.4-1 and Sections 7.4 and 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water	(D-10)		Saunders Weir							Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:								
CS-V439	3	B	4.0	Manual	C	O	-			X								
Boric Acid Tank Gravity boration to Charging Pumps common line isolation valve. This valve is normally closed and opened to align the boric acid tank directly to the CCP suction. References: P&ID D20729, UFSAR Sections 5.4., 7.4, 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required.	(D-9)		Saunders Weir					CS-RJ-7		Open Test Freq: Refueling Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:								

FIGURE F4

SYSTEM: **CS**

IST VALVE TEST TABLE

P&ID No.: **D20729**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
CS-V440 Boric Acid Tank Gravity boration to Charging Pumps common line check valve. This valve is normally closed and opens to direct flow from the boric acid tanks to the CCP suction. References: P&ID D20729, UFSAR Sections 5.4., 7.4, 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required. No reverse safety function. Gravity boration requires adequate BAT Tank head to feed Charging pumps and is a manual action. Two normally closed manual valves (independently verified) isolate this path during normal operation. Periodic BAT Tank level monitoring (e.g., control room monitoring about every 2 hours) and weekly chemistry monitoring of BAT concentration would indicate dilution of contents more expeditiously than a quarterly IST reverse flow test.	3 (D-8)	C	4.0 Check	Self	C	O	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V442 Boric Acid Tank Gravity boration to Charging Pumps common line isolation valve. This valve is normally closed and opened to align the boric acid tank directly to the CCP suction. References: P&ID D20729, UFSAR Sections 5.4., 7.4, 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required.	3 (D-9)	B	4.0 Gate	Manual	C	O	-	CS-RJ-7		X									Open Test Freq: Refueling Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
CS-V449 Boric acid pump CS-P-3A discharge check valve. This valve opens to direct boric acid to the CCP suction and closes to prevent flow diversion when the transfer pump is not operating. References: P&ID D20729, UFSAR Sections 5.4.7, 7.4 9.3.4.	3 (C-11)	C	2.0 Check	Self	DE	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
CS-V453 Boric acid pump CS-P-3B discharge check valve. This valve opens to direct boric acid to the CCP suction and closes to prevent flow diversion when the transfer pump is not operating. References: P&ID D20729, UFSAR Sections 5.4.7, 7.4 9.3.4.	3 (B-7)	C	2.0 Check	Self	DE	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **CS**

P&ID No.: **D20729**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V1207	3 (D-10)	B	4.0 Saunders Weir	Manual	O	O/C	-			X								

Boric acid tank 4B gravity feed outlet to Charging Pumps. This valve is normally open and closed to align TK-4A to gravity boration. Reference: P&ID D20729 Procedure OS1200.01, UFSAR Table 7.4-1 and Sections 7.4 and 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SGCS design does not include letdown capability, boration from the RWST alone will not meet the SGCS design requirements due to large volume of water required.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir:

P&ID No.: **D20843**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V175	1 (A-11)	B	1.0 Globe	Air/Diaphragm	C	C	C								X			

Excess letdown RCS RCPB isolation valve. This valve is normally closed, but may be opened during normal plant operation or during plant startup, should normal letdown be unavailable or provides insufficient flow. This valve has no open safety function, but must be closed to isolate the Class 1 RCPB. Since this valve is normally closed, sees limited use in the open direction and is administratively controlled when open, it is considered to have a passive function only (see DCR 00-0001). References: P&ID D20843, UFSAR Sections 3.6, 5.2

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
CS-V176	1 (A-11)	B	1.0 Globe	Air/Diaphragm	C	C	C								X			

Excess letdown RCS RCPB isolation valve. This valve is normally closed, but may be opened during normal plant operation or during plant startup, should normal letdown be unavailable or provides insufficient flow. This valve has no open safety function, but must be closed to isolate the RCPB. Since this valve is normally closed, sees limited use in the open direction and is administratively controlled when open, it is considered to have a passive function only (see DCR 00-0001). References: P&ID D20843, UFSAR Sections 3.6, 5.2,

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **DG**

IST VALVE TEST TABLE

P&ID No.: **D20459**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
DG-V62A Starting air receiver TK-45A relief valve- in scope per ISTA-1100. References: P&ID D20460, DBD-DG-01.	3 (F-9)	C	0.75 Relief/Safety	Self	C	O	-				Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:					X		
DG-V66A Starting air receiver TK-45B relief valve- in scope per ISTA-1100. References: P&ID D20460, DBD-DG-01.	3 (G-9)	C	0.75 Relief/Safety	Self	C	O	-				Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:					X		
DG-V69A EDG starting air receiver TK-45 inlet check valve. SR open function to charge receivers, and SR close function to maintain receiver pressure. Both the open and closed functions are verified in OX1426.14. References: P&ID D20460, DBD-DG-01, OX1426.14.	3 (G-9)	C	0.75 Check	Self	DE	O/C	-			X	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:							
DG-V70A EDG starting air receiver TK-45 inlet check valve. SR open function to charge receivers, and SR close function to maintain receiver pressure. Both the open and closed functions are verified in OX1426.14. References: P&ID D20460, DBD-DG-01, OX1426.14.	3 (F-9)	C	0.75 Check	Self	DE	O/C	-			X	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:							

FIGURE F4

SYSTEM: **DG**

IST VALVE TEST TABLE

P&ID No.: **D20461**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
DG-V211A	3 (A-9)	C	0.75 Relief/Safety	Self	C	O	-									X		

EDG CC heat exchanger relief valve- in IST scope as defined in ISTA-1100. References: P&ID D20461, DBD-DG-01.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **DG**

IST VALVE TEST TABLE

P&ID No.: **D20465**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
DG-V62B	3 (F-9)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
Starting air receiver TK-45C relief valve- in scope per ISTA-1100. References: P&ID D20465, DBD-DG-01.																			
DG-V66B	3 (G-9)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
Starting air receiver TK-45D relief valve- in scope per ISTA-1100. References: P&ID D20465, DBD-DG-01.																			
DG-V69B	3 (G-9)	C	0.75 Check	Self	DE	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
EDG starting air receiver TK-45 inlet check valve. SR open function to charge receivers, and SR close function to maintain receiver pressure. Both the open and closed functions are verified in OX1426.14. References: P&ID D20465, DBD-DG-01, OX1426.14.																			
DG-V70B	3 (F-9)	C	0.75 Check	Self	DE	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
EDG starting air receiver TK-45 inlet check valve. SR open function to charge receivers, and SR close function to maintain receiver pressure. Both the open and closed functions are verified in OX1426.14. References: P&ID D20465, DBD-DG-01, OX1426.14.																			

P&ID No.: **D20466**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
DG-V211B	3 (A-9)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
EDG CC heat exchanger relief valve- in IST scope as defined in ISTA-1100. References: P&ID D20466, DBD-DG-01.																			

FIGURE F4

SYSTEM: **DM**

IST VALVE TEST TABLE

P&ID No.: **D20349**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
DM-V611 Demineralized water supply to the CST- SC/3-NNS boundary isolation check valve. This valve is open to fill the CST (NSR function) , and must close to provide safety / non-safety isolation. Check valves in lines which penetrate the CST below the elevation which defines the dedicated EFW volume must close when required. References: P&ID D20349.	3 (A-8)	C	6.0 Check	Self	DE	C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
DM-V612 Demineralized water supply to the CST- SC/3-NNS boundary isolation check valve. This valve is open to fill the CST (NSR function) , and must close to provide safety / non-safety isolation. Check valves in lines which penetrate the CST below the elevation which defines the dedicated EFW volume must close when required. References: P&ID D20349.	3 (A-8)	C	6.0 Check	Self	DE	C	-											X	Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:

P&ID No.: **D20352**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
DM-V4 Demineralized water supply to containment-ORC-CIV for penetration X-36, subject to Appendix J Type C LLRT. This valve is locked closed and has no active safety function. References: P&ID D20352, UFSAR Table 6.2-83.	2 (D-11)	A	1.0 Gate	Manual	LC	LC	-					X							Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
DM-V5 Demineralized water supply to containment-IRC-CIV for penetration X-36, subject to Appendix J Type C LLRT. This valve is locked closed and has no active safety function. References: P&ID D20352, UFSAR Table 6.2-83.	2 (D-10)	A	1.0 Gate	Manual	LC	LC	-					X							Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
DM-V18 Containment penetration X-36 (DM) relief valve (IRC), subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident condition. References; P&ID D20352, Engineering Evaluation SS-EV-960023, revision 0.	2 (D-10)	A/C	1.5 Relief/Safety	Self	C	O/C	-					X				X			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **FP**

IST VALVE TEST TABLE

P&ID No.: **D20271**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
FP-V588	2 (G-5)	A/C	4.0 Check	Self	C	C	-					X						

Fire Protection water IRC-CIV for penetration X-38 / 76- subject to Appendix J Type C LLRT. This valve is normally closed in Modes 1-4, and has no active safety function. References: P&ID D20271, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
FP-V592	2 (G-4)	A	4.0 Gate	Manual	LC	LC	-					X						

Containment Fire Protection water (hose stations) ORC-CIV for penetration X-38 / 76- subject to Appendix J Type C LLRT. This valve is normally locked closed in Modes 1-4, and has no active safety function. References: P&ID D20271, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **FW**

IST VALVE TEST TABLE

P&ID No.: **D20686**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
FW-V30 SG A main feedwater header containment isolation valve (X-5)-exempt from Appendix J Type C LLRT. This valve is normally open, closes on a FW isolation signal ('S' signal, RX trip, or SG hi-hi level). References: P&ID D20686, TS 4.7.1.2.2.b, UFSAR TAble 6.2-83.	2 (F-8)	B	18.0 Gate	Hydraulic/NDA	O	C	-	FW-CSJ-1		X					X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
FW-V39 SG B main feedwater header containment isolation valve (X-6)-exempt from Appendix J Type C LLRT. This valve is normally open, closes on a FW isolation signal ('S' signal, RX trip, or SG hi-hi level). References: P&ID D20686, TS 4.7.1.2.2.b, UFSAR TAble 6.2-83.	2 (D-8)	B	18.0 Gate	Hydraulic/NDA	O	C	-	FW-CSJ-1		X					X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
FW-V48 SG C main feedwater header containment isolation valve (X-7)-exempt from Appendix J Type C LLRT. This valve is normally open, closes on a FW isolation signal ('S' signal, RX trip, or SG hi-hi level). References: P&ID D20686, TS 4.7.1.2.2.b, UFSAR TAble 6.2-83.	2 (C-8)	B	18.0 Gate	Hydraulic/NDA	O	C	-	FW-CSJ-1		X					X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
FW-V57 SG D main feedwater header containment isolation valve (X-8)-exempt from Appendix J Type C LLRT. This valve is normally open, closes on a FW isolation signal ('S' signal, RX trip, or SG hi-hi level). References: P&ID D20686, TS 4.7.1.2.2.b, UFSAR TAble 6.2-83.	2 (H-8)	B	18.0 Gate	Hydraulic/NDA	O	C	-	FW-CSJ-1		X					X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
FW-V76 EFW header A containment isolation stop check valve (X-5)- exempt from Appendix J Type C LLRT. This valve is normally closed, is required to close to prevent reverse flow from the main feedwater header or to provide line isolation for FW isolation signal conditions, and opens to deliver EFW flow to the SG. This is also a HELB boundary valve. References: P&ID D20686, UFSAR Table 6.2-83, DBD-EFW-01, Revision 1, UFSAR Table 3.6(B)-2	2 (E-8)	C	4.0 Stop check	Self	C	O/C	-											X	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **FW**

IST VALVE TEST TABLE

P&ID No.: **D20686**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
FW-V82 EFW header B containment isolation stop check valve (X-6)- exempt from Appendix J Type C LLRT. This valve is normally closed, is required to close to prevent reverse flow from the main feedwater header or to provide line isolation for FW isolation signal conditions, and opens to deliver EFW flow to the SG. This is also a HELB boundary valve. References: P&ID D20686, UFSAR Table 6.2-83, DBD-EFW-01, Revision 1, UFSAR Table 3.6(B)-2	2 (C-8)	C	4.0 Stop check	Self	C	O/C	-											X	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:
FW-V88 EFW header C containment isolation stop check valve (X-7)- exempt from Appendix J Type C LLRT. This valve is normally closed, is required to close to prevent reverse flow from the main feedwater header or to provide line isolation for FW isolation signal conditions, and opens to deliver EFW flow to the SG. This is also a HELB boundary valve. References: P&ID D20686, UFSAR Table 6.2-83, DBD-EFW-01, Revision 1, UFSAR Table 3.6(B)-2	2 (B-8)	C	4.0 Stop check	Self	C	O/C	-											X	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:
FW-V94 EFW header D containment isolation stop check valve (X-8)- exempt from Appendix J Type C LLRT. This valve is normally closed, is required to close to prevent reverse flow from the main feedwater header or to provide line isolation for FW isolation signal conditions, and opens to deliver EFW flow to the SG. This is also a HELB boundary valve. References: P&ID D20686, UFSAR Table 6.2-83, DBD-EFW-01, Revision 1, UFSAR Table 3.6(B)-2	2 (G-8)	C	4.0 Stop check	Self	C	O/C	-											X	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:
FW-V330 SG A main feedwater header check valve. This valve is normally open during power operation, closes upon initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.	2 (F-7)	C	18.0 Check	Self	O	C	-	FW-CSJ-3		X									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:
FW-V331 SG B main feedwater header check valve. This valve is normally open during power operation, closes upon initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.	2 (D-7)	C	18.0 Check	Self	O	C	-	FW-CSJ-3		X									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:

SYSTEM: **FW**

IST VALVE TEST TABLE

P&ID No.: **D20686**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
FW-V332 SG C main feedwater header check valve. This valve is normally open during power operation, closes upon initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.	2 (C-7)	C	18.0 Check	Self	O	C	-	FW-CSJ-3		X Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:								
FW-V333 SG D main feedwater header check valve. This valve is normally open during power operation, closes upon initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.	2 (H-7)	C	18.0 Check	Self	O	C	-	FW-CSJ-3		X Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:								

FIGURE F4

SYSTEM: **FW**

IST VALVE TEST TABLE

P&ID No.: **D20688**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
FW-FV4214A	3	B	4.0	Motor	O	O/C	-			X					X		X	
EFW discharge to SG A isolation valve. This valve is normally open, may be throttled to control feed rate during accident conditions, and is automatically closed on high EFW header flow (faulted steam generator condition). References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-5)		Gate					FW-CSJ-7		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
FW-FV4214B	3	B	4.0	Motor	O	O/C	-			X					X		X	
EFW discharge to SG A isolation valve. This valve is normally open, may be throttled to control feed rate during accident conditions, and is automatically closed on high EFW header flow(faulted steam generator condition). References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-5)		Gate					FW-CSJ-7		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
FW-FV4224A	3	B	4.0	Motor	O	O/C	-			X					X		X	
EFW discharge to SG B isolation valve. This valve is normally open, may be throttled to control feed rate during accident conditions, and is automatically closed on high EFW header flow (faulted steam generator condition). References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-7)		Gate					FW-CSJ-7		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
FW-FV4224B	3	B	4.0	Motor	O	O/C	-			X					X		X	
EFW discharge to SG B isolation valve. This valve is normally open, may be throttled to control feed rate during accident conditions, and is automatically closed on high EFW header flow (faulted steam generator condition). References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-7)		Gate					FW-CSJ-7		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
FW-FV4234A	3	B	4.0	Motor	O	O/C	-			X					X		X	
EFW discharge to SG C isolation valve. This valve is normally open, may be throttled to control feed rate during accident conditions, and is automatically closed on high EFW header flow (faulted steam generator condition). References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-9)		Gate					FW-CSJ-7		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								

FIGURE F4

SYSTEM: **FW**

IST VALVE TEST TABLE

P&ID No.: **D20688**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
FW-FV4234B EFW discharge to SG C isolation valve. This valve is normally open, may be throttled to control feed rate during accident conditions, and is automatically closed on high EFW header flow (faulted steam generator condition). References; P&ID D20688, DBD-EFW-01, Revision 1.	3 (G-9)	B	4.0 Gate	Motor	O	O/C	-	FW-CSJ-7		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
FW-FV4244A EFW discharge to SG D isolation valve. This valve is normally open, may be throttled to control feed rate during accident conditions, and is automatically closed on high EFW header flow (faulted steam generator condition). References; P&ID D20688, DBD-EFW-01, Revision 1.	3 (G-11)	B	4.0 Gate	Motor	O	O/C	-	FW-CSJ-7		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
FW-FV4244B EFW discharge to SG D isolation valve. This valve is normally open, may be throttled to control feed rate during accident conditions, and is automatically closed on high EFW header flow (faulted steam generator condition). References; P&ID D20688, DBD-EFW-01, Revision 1.	3 (G-11)	B	4.0 Gate	Motor	O	O/C	-	FW-CSJ-7		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
FW-V64 EFW pump A discharge check valve. This valve opens when the EFW pump is operating, and must close to prevent back flow through an idle pump. References P&ID D20688.	3 (D-5)	C	6.0 Check	Self	C	O/C	-	FW-CSJ-4		X									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:
FW-V70 EFW pump B discharge check valve. This valve opens when the EFW pump is operating, and must close to prevent back flow through an idle pump. References P&ID D20688.	3 (C-11)	C	6.0 Check	Self	C	O/C	-	FW-CSJ-4		X									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **FW**

IST VALVE TEST TABLE

P&ID No.: **D20688**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
FW-V216 Startup feedwater pump discharge to EFW header stop check valve. This valve is normally closed for SC-3/NNS boundary isolation. References: P&ID D20688, TS 4.7.1.2.2.b.	3 (E-4)	C	6.0 Stop check	Self	C	C	-	FW-CSJ-5		X									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:
FW-V346 EFW pump A recirculation isolation valve to CST. The valve is normally closed and is opened when EFW to the SG is throttled. This valve may be opened and closed in response to system flow requirements to ensure adequate flow is delivered to the SG and minimum pump flow requirements are also met. References: P&ID D20688, DBD-EFW-01, Revision 1.	3 (D-7)	B	4.0 Globe	Motor	C	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
FW-V347 EFW pump B recirculation isolation valve to CST. The valve is normally closed and is opened when EFW to the SG is throttled. This valve may be opened and closed in response to system flow requirements to ensure adequate flow is delivered to the SG and minimum pump flow requirements are also met. References: P&ID D20688, DBD-EFW-01, Revision 1.	3 (D-9)	B	4.0 Globe	Motor	C	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
FW-V349 EFW pumps A&B recirculation common line check valve. This valve opens when the EFW pumps are operating. Valve closes to provide backup protection to FW-V351 and the Turbine bearing oil cooler, specifically, during a seismic event. References P&ID D20688.	3 (A-11)	C	4.0 Check	Self	C	O/C	-	FW-CSJ-6		X									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:
FW-V350 EFW pump A recirculation check valve. This valve opens when the EFW pump is operating, and must close to prevent back flow through an idle pump. References P&ID D20688.	3 (D-7)	C	3.0 Check	Self	C	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **FW**

IST VALVE TEST TABLE

P&ID No.: **D20688**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
FW-V351	3 (B-7)	C	1.0 Check	Self	C	O/C	-	FW-CSJ-6		X								
Turbine driven EFW pump oil cooler outlet check valve. This valve opens when the pump is operating, to discharge water from the turbine bearing oil cooler to the EFW common recirculation line to the CST. Required to close to protect CST inventory in the event the Turbine Bearing Oil cooler fails during a seismic event. Reference: P&ID D20688.										Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:								
FW-V353	3 (D-9)	C	3.0 Check	Self	C	O/C	-			X								
EFW pump B recirculation check valve. This valve opens when the EFW pump is operating, and must close to prevent back flow through an idle pump. References P&ID D20688.										Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:								
FW-V357	3 (E-4)	C	6.0 Check	Self	C	C	-	FW-CSJ-5		X								
Startup feedwater pump discharge to EFW header check valve. This valve is normally closed for SC-3/NNS boundary isolation. References: P&ID D20688, TS 4.7.1.2.2.b.										Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:								

FIGURE F4

SYSTEM: **IA**

IST VALVE TEST TABLE

P&ID No.: **D20643**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
IA-V531	2 (F-9)	A/C	2.0 Check	Self	C	C	-					X						X

IST Program Plan Commitment Commitment

IA IRC containment isolation valve (X-68)- subject to Appendix J Type C LLRT. Normally closed in Modes 1-4, unless being used to provide IA to containment. References: P&ID D20643, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

P&ID No.: **D20645**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
IA-V530	2 (E-6)	A	2.0 Globe	Air/Diaphragm	C	C	C			X	X	X			X		X	

IA Cross-connect ORC containment isolation valve (X-68)- subject to Appendix J Type C LLRT. Normally closed in Modes 1-4, unless being used to provide IA to containment. References: P&ID D20645, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

FIGURE F4

SYSTEM: **LD**

IST VALVE TEST TABLE

P&ID No.: **D20864**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
LD-V1	2 (B-8)	A	0.75 Globe	Manual	LC	LC	-					X						
CP-405 -IRC -CIV for penetration X-74- subject to Appendix J Type C LLRT. Administratively locked closed. Provides communication from the containment atmosphere to pressure sensing devices (temporary test instrumentation) during Type A Integrated Leak Rate Tests only. References: P&ID D20864, UFSAR Table 6.2-83.												Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:						
LD-V2	2 (B-7)	A	0.75 Globe	Manual	LC	LC	-					X						
CP-405 -ORC -CIV for penetration X-74- subject to Appendix J Type C LLRT. Administratively locked closed. Provides communication from the containment atmosphere to pressure sensing devices (temporary test instrumentation) during Type A Integrated Leak Rate Tests only. References: P&ID D20864, UFSAR Table 6.2-83.												Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:						

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20580**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
MS-PV3001	2 (D-10)	B	10.0 Globe	Air/Piston	C	O/C	C			X	X				X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
SG A atmospheric relief valve. This valve is normally closed and is cycled open and closed to remove decay heat when the condenser and associated secondary systems are unavailable. This valve is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Sections 5.4.7 & 7.4, Table 6.2-83.																			
MS-PV3004	2 (H-10)	B	10.0 Globe	Air/Piston	C	O/C	C			X	X				X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
SG D atmospheric relief valve. This valve is normally closed and is cycled open and closed to remove decay heat when the condenser and associated secondary systems are unavailable. This valve is also a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Sections 5.4.7 & 7.4, Table 6.2-83.																			
MS-V6	2 (C-8)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
SG A safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.																			
MS-V7	2 (C-8)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
SG A safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.																			
MS-V8	2 (C-7)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
SG A safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.																			

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20580**

IST Program Plan Commitment Commitment

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V9	2 (C-6)	C	6.0 Relief/Safety	Self	C	O	-									X		

SG A safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.

Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V10	2 (C-6)	C	6.0 Relief/Safety	Self	C	O	-									X		

SG A safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.

Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V50	2 (G-8)	C	6.0 Relief/Safety	Self	C	O	-									X		

SG D safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.

Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V51	2 (G-8)	C	6.0 Relief/Safety	Self	C	O	-									X		

SG D safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.

Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V52	2 (G-7)	C	6.0 Relief/Safety	Self	C	O	-									X		

SG D safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.

Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20580**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V53	2 (G-6)	C	6.0 Relief/Safety	Self	C	O	-									X		
SG D safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.											Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:							
MS-V54	2 (G-6)	C	6.0 Relief/Safety	Self	C	O	-									X		
SG D safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.											Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:							

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20581**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
MS-PV3002 SG B atmospheric relief valve. This valve is normally closed and is cycled open and closed to remove decay heat when the condenser and associated secondary systems are unavailable. This valve is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Sections 5.4.7 & 7.4, Table 6.2-83.	2 (G-10)	B	10.0 Globe	Air/Piston	C	O/C	C			X	X				X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
MS-PV3003 SG C atmospheric relief valve. This valve is normally closed and is cycled open and closed to remove decay heat when the condenser and associated secondary systems are unavailable. This valve is also a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Sections 5.4.7 & 7.4, Table 6.2-83.	2 (D-10)	B	10.0 Globe	Air/Piston	C	O/C	C			X	X				X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
MS-V22 SG B safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-8)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
MS-V23 SG B safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-7)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
MS-V24 SG B safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-7)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20581**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
MS-V25 SG B safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-6)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
MS-V26 SG B safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-5)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
MS-V36 SG C safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (C-8)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
MS-V37 SG C safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (C-8)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:
MS-V38 SG C safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (C-7)	C	6.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20581**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V39	2 (C-6)	C	6.0 Relief/Safety	Self	C	O	-									X		
MS-V40	2 (C-6)	C	6.0 Relief/Safety	Self	C	O	-									X		

MS-V39

SG C safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.

Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
FS Test Dir:
ST Test Dir:

MS-V40

SG C safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, UFSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.

Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20582**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V94	3	C	4.0	Self	C	O/C	-									X		
Main steam supply to FW-TD-2 from SG A check valve. This valve is normally closed, opens when steam is admitted to the EFW turbine and must close to prevent reverse flow to a faulted steam generator. References: P&ID D20582, DBD-EFW-01, revision 1.	(E-9)		Check									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:						
MS-V96	3	C	4.0	Self	C	O/C	-									X		
Main steam supply to FW-TD-2 from SG B check valve. This valve is normally closed, opens when steam is admitted to the EFW turbine and must close to prevent reverse flow to a faulted steam generator. References: P&ID D20582, DBD-EFW-01, revision 1.	(E-9)		Check									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:						
MS-V127	2	B	4.0	Manual	O	O	-								X			
Normally Locked Open valve supplying steam to Turbine Driven EFW Pump FW-P-37A from SG A main steam header. Passive function only. Remote position indication testing per ISTC-3700 only.	(H-12)		Gate									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:						
MS-V128	2	B	4.0	Manual	O	O	-								X			
Normally Locked Open valve supplying steam to Turbine Driven EFW Pump FW-P-37A from SG B main steam header. Passive function only. Remote position indication testing per ISTC-3700 only.	(B-12)		Gate									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:						
MS-V393	2	B	4.0	Air/Diaphragm	C	O/C	O			X	X				X		X	
Turbine driven steam supply isolation valve from SG A. This valve is normally closed and receives an EFW actuation signal to open. Required to close when EFW is not in operation. This is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20582, UFSAR Section 6.8, Table 6.2-83.	(H-10)		Globe									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Open ST Test Dir: Open/Closed						

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20582**

Valve Number	Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
MS-V394	Turbine driven steam supply isolation valve from SG B. This valve is normally closed and receives an EFW actuation signal to open. Required to close when EFW is not in operation. This is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. This valve has both an A & B Train power supply and is tested in both directions for B Train and open for A Train. References: P&ID D20582, UFSAR Section 6.8, Table 6.2-83.	2 (B-10)	B	4.0 Globe	Air/Diaphragm	C	O/C	O			X	X				X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Open ST Test Dir: Open/Closed
MS-V395	Turbine driven EFW Pump common steam supply isolation valve. This valve is normally closed and receives an EFW actuation signal to open. This valve has both an A & B Train power supply and is tested in open directions for B Train and open for A Train. References: P&ID D20582, UFSAR Section 6.8.	3 (E-8))	B	6.0 Globe	Air/Diaphragm	C	O	O			X	X				X		X		Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: Open ST Test Dir: Open
MS-V400	Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line which could cause a turbine overspeed, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (F-11)	C	0.75 Check	Self	O	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
MS-V401	Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line which could cause a turbine overspeed, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (F-11)	C	0.75 Check	Self	O	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
MS-V404	Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line which could cause a turbine overspeed, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (C-7)	C	0.75 Check	Self	O	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20582**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V405	3 (C-7)	C	0.75 Check	Self	O	O/C	-											X
Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line which could cause a turbine overspeed, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:									
MS-V417	3 (D-11)	C	0.75 Check	Self	O	O/C	-											X
Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line which could cause a turbine overspeed, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:									
MS-V418	3 (D-11)	C	0.75 Check	Self	O	O/C	-											X
Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line which could cause a turbine overspeed, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:									

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20583**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment										Commitment
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
MS-V86 SG A main steam isolation valve. This valve is normally open and receives a main steam isolation (closure) signal. This is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3 Table 6.2-83.	2 (F-11)	B	30.0 Gate	Hydraulic/NDA	O	C	-	MS-CSJ-2		X				X	X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
MS-V88 SG B main steam isolation valve. This valve is normally open and receives a main steam isolation (closure) signal. This is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3 Table 6.2-83.	2 (D-11)	B	30.0 Gate	Hydraulic/NDA	O	C	-	MS-CSJ-2		X				X	X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
MS-V90 SG C main steam isolation valve. This valve is normally open and receives a main steam isolation (closure) signal. This is also a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3 Table 6.2-83.	2 (C-11)	B	30.0 Gate	Hydraulic/NDA	O	C	-	MS-CSJ-2		X				X	X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
MS-V92 SG D main steam isolation valve. This valve is normally open and receives a main steam isolation (closure) signal. This is also a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3 Table 6.2-83.	2 (G-11)	B	30.0 Gate	Hydraulic/NDA	O	C	-	MS-CSJ-2		X				X	X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
MS-V204 SG A, main steam bypass valve. This valve is open to warm up the main steam system and equalize pressure across the main steam isolation valves, although this is not a safety function. It is closed during power operation and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3, Table 6.2-5.	2 (E-11)	B	4.0 Globe	Motor	C	C	-			X					X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed

FIGURE F4

SYSTEM: **MS**

IST VALVE TEST TABLE

P&ID No.: **D20583**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MS-V205	2 (D-11)	B	4.0 Globe	Motor	C	C	-			X					X		X	
SG B, main steam bypass valve. This valve is open to warm up the main steam system and equalize pressure across the main steam isolation valves, although this is not a safety function. It is closed during power operation and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3, Table 6.2-5.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								
MS-V206	2 (B-11)	B	4.0 Globe	Motor	C	C	-			X					X		X	
SG C, main steam bypass valve. This valve is open to warm up the main steam system and equalize pressure across the main steam isolation valves, although this is not a safety function. It is closed during power operation and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3, Table 6.2-5.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								
MS-V207	2 (G-11)	B	4.0 Globe	Motor	C	C	-			X					X		X	
SG D, main steam bypass valve. This valve is open to warm up the main steam system and equalize pressure across the main steam isolation valves, although this is not a safety function. It is closed during power operation and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3, Table 6.2-5.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								

FIGURE F4

SYSTEM: **MSD**

IST VALVE TEST TABLE

P&ID No.: **D20587**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
MSD-V44	2 (D-11)	B	1.0 Globe	Motor	O	C	-			X					X		X	
SG#1 Upstream of MS-V86, main steam drain line isolation valve. This valve is normally open to remove condensate from the main steam system and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3, Table 6.2-5.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								
MSD-V45	2 (G-11)	B	1.0 Globe	Motor	O	C	-			X					X		X	
SG#2 Upstream of MS-V88, main steam drain line isolation valve. This valve is normally open to remove condensate from the main steam system and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3, Table 6.2-5.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								
MSD-V46	2 (F-11)	B	1.0 Globe	Motor	O	C	-			X					X		X	
SG#3 Upstream of MS-V90, main steam drain line isolation valve. This valve is open to remove condensate from the main steam system and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3, Table 6.2-5.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								
MSD-V47	2 (C-11)	B	1.0 Globe	Motor	O	C	-			X					X		X	
SG#4 Upstream of MS-V92, main steam drain line isolation valve. This valve is open to remove condensate from the main steam system and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20583, UFSAR Section 10.3, Table 6.2-5.										Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								

FIGURE F4

SYSTEM: **NG**

IST VALVE TEST TABLE

P&ID No.: **D20136**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
NG-FV4609 Low pressure nitrogen supply to containment components ORC-CIV for penetration X40- subject to Appendix J Type C LLRT. This valve is open to supply nitrogen to various components inside containment, and receives a "T" closure signal. References: P&ID D20136, UFSAR Table 6.2-83.	2 (C-10)	A	1.0 Globe	Solenoid	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
NG-FV4610 Low pressure nitrogen supply to containment components IRC-CIV for penetration X40- subject to Appendix J Type C LLRT. This valve is open to supply nitrogen to various components inside containment, and receives a "T" closure signal. References: P&ID D20136, UFSAR Table 6.2-83.	2 (C-9)	A	1.0 Globe	Solenoid	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
NG-V13 High pressure nitrogen supply to the ECCS accumulators- ORC-CIV for penetration X36- subject to Appendix J Type C LLRT. This valve is open to charge the ECCS accumulators, and receives a "T" closure signal. References: P&ID D20136, UFSAR Table 6.2-83.	2 (F-10)	A	1.0 Globe	Air/Diaphragm	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
NG-V14 High pressure nitrogen supply to the ECCS accumulators- IRC-CIV for penetration X36- subject to Appendix J Type C LLRT. This valve is open to charge the ECCS accumulators, and receives a "T" closure signal. References: P&ID D20136, UFSAR Table 6.2-83.	2 (F-9)	A	1.0 Globe	Air/Diaphragm	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
NG-V17 ECCS accumulator A nitrogen supply isolation valve. This valve is normally closed (SC-2/NNS boundary), and may be periodically opened to pressurize the accumulator. Preserves the integrity of the SI Accumulator for the ECCS injection path of the accumulators to the core via the cold legs. Considered a passive valve per EWR 97-095 due to their limited service in the open direction. References: P&ID D20136, UFSAR Section 6.3.	2 (F-7)	B	1.0 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **NG**

IST VALVE TEST TABLE

P&ID No.: **D20136**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
NG-V19	2 (G-7)	B	1.0 Globe	Air/Diaphragm	C	C	C								X			
ECCS accumulator B nitrogen supply isolation valve. This valve is normally closed (SC-2/NNS boundary), and may be periodically opened to pressurize the accumulator. Preserves the integrity of the SI Accumulator for the ECCS injection path of the accumulators to the core via the cold legs. Considered a passive valve per EWR 97-095 due to their limited service in the open direction. References: P&ID D20136, UFSAR Section 6.3.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
NG-V21	2 (G-7)	B	1.0 Globe	Air/Diaphragm	C	C	C								X			
ECCS accumulator C nitrogen supply isolation valve. This valve is normally closed (SC-2/NNS boundary), and may be periodically opened to pressurize the accumulator. Preserves the integrity of the SI Accumulator for the ECCS injection path of the accumulators to the core via the cold legs. Considered a passive valve per EWR 97-095 due to their limited service in the open direction. References: P&ID D20136, UFSAR Section 6.3.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							
NG-V23	2 (F-7)	B	1.0 Globe	Air/Diaphragm	C	C	C								X			
ECCS accumulator D nitrogen supply isolation valve. This valve is normally closed (SC-2/NNS boundary), and may be periodically opened to pressurize the accumulator. Preserves the integrity of the SI Accumulator for the ECCS injection path of the accumulators to the core via the cold legs. Considered a passive valve per EWR 97-095 due to their limited service in the open direction. References: P&ID D20136, UFSAR Section 6.3.											Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							

0

SYSTEM: **RC**

FIGURE F4

IST VALVE TEST TABLE

P&ID No.: **D20518**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
RC-FV2830 Pressurizer steam space sample valve- IRC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.	2 (H-11)	A	0.5 Globe	Solenoid	DE	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
RC-FV2831 Pressurizer liquid space sample valve- IRC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.	2 (G-11)	A	0.5 Globe	Solenoid	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
RC-FV2832 RC Loop 1 sample valve- IRC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. This valve is utilized to obtain an RCS sample for boron concentration analysis to verify SDM during cold shutdown. If obtaining a sample is not possible, the operators verify adequate SDM by monitoring the volume of boric acid injected into the RCS. References: P&ID D20518, UFSAR Sections 5.4.7, 7.4, Table 6.2-83, procedure OS1200.01.	2 (E-11)	A	0.5 Globe	Solenoid	C	O/C	C			X	X	X			X		X		Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
RC-FV2833 RC Loop 3 sample valve- IRC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. This valve is utilized to obtain an RCS sample for boron concentration analysis to verify SDM during cold shutdown. If obtaining a sample is not possible, the operators verify adequate SDM by monitoring the volume of boric acid injected into the RCS. References: P&ID D20518, UFSAR Sections 5.4.7, 7.4, Table 6.2-83, procedure OS1200.01.	2 (D-11)	A	0.5 Globe	Solenoid	C	O/C	C			X	X	X			X		X		Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
RC-FV2836 PRT sample valve- IRC-CIV for penetration X-40, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.	2 (C-11)	A	0.5 Globe	Solenoid	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed

FIGURE F4

SYSTEM: **RC**

IST VALVE TEST TABLE

P&ID No.: **D20518**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RC-FV2837	2 (C-9)	A	0.5 Globe	Solenoid	DE	C	C			X	X	X			X		X	
PRT sample valve- ORC-CIV for penetration X-40, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.										Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
RC-FV2840	2 (H-9)	A	0.5 Globe	Solenoid	DE	C	C			X	X	X			X		X	
Pressurizer steam sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.										Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
RC-FV2874	2 (E-9)	A	0.5 Globe	Solenoid	DE	C	C			X	X	X			X		X	
RCS Loop 1 sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.										Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
RC-FV2876	2 (D-9)	A	0.5 Globe	Solenoid	DE	C	C			X	X	X			X		X	
RCS Loop 3 sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.										Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
RC-FV2894	2 (E-9)	A	0.5 Globe	Solenoid	LC	O/C	C			X	X	X			X		X	
RC Loop 1 sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. This valve is utilized to obtain an RCS sample for boron concentration analysis to verify SDM during cold shutdown. If obtaining a sample is not possible, the operators verify adequate SDM by monitoring the volume of boric acid injected into the RCS. References: P&ID D20518, UFSAR Sections 5.4.7, 7.4, Table 6.2-83, procedure OS1200.01.										Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed								

FIGURE F4

SYSTEM: **RC**

IST VALVE TEST TABLE

P&ID No.: **D20518**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
RC-FV2896	2 (D-9)	A	0.5 Globe	Solenoid	LC	O/C	C			X	X	X			X		X		
RC Loop 3 sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. This valve is utilized to obtain an RCS sample for boron concentration analysis to verify SDM during cold shutdown. If obtaining a sample is not possible, the operators verify adequate SDM by monitoring the volume of boric acid injected into the RCS. References: P&ID D20518, UFSAR Sections 5.4.7, 7.4, Table 6.2-83, procedure OS1200.01.																			Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
RC-V312	2 (H-11)	A/C	0.75 Relief/Safety	Self	C	O/C	-					X				X			
Pressurizer sample line containment penetration thermal relief valve- IRC-CIV for penetration X-35B. This valve is normally closed and opens to provide overpressure protection caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20518, UFSAR Table 6.2-83.																			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
RC-V314	2 (F-10)	A/C	0.75 Relief/Safety	Self	C	O/C	-					X				X			
RCS Loop 1 sample line containment penetration thermal relief valve- IRC-CIV for penetration X-35C. This valve is normally closed and opens to provide overpressure protection caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20518, UFSAR Table 6.2-83.																			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
RC-V337	2 (E-11)	A/C	0.75 Relief/Safety	Self	C	O/C	-					X				X			
RCS Loop 3 sample line containment penetration thermal relief valve- IRC-CIV for penetration X-35D. This valve is normally closed and opens to provide overpressure protection caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20518, UFSAR Table 6.2-83.																			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **RC**

IST VALVE TEST TABLE

P&ID No.: **D20841**

Valve Number	Class and	Valve	Size (in.) and	Actuator	Positions			Relief Req	IST Program Plan Commitment Commitment									
Remarks	Coord	(CAT)	Type	Type	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RC-V22	1	A	12.0	Motor	C	O/C	-			X			X		X		X	
	(A-9)		Gate					RC-CSJ-1										
RHR A -RCS loop 1 HL suction isolation valve (PIV). This valve is closed during plant power operation (interlocked to not allow opening until RCS is below 365 psig to prevent RHR overpressurization) and is opened to place the RHR system into operation to cool the RCS below 350F. This valve is identified in TRM Section 2.18 as an RCS pressure isolation valve not subject to TS 4.4.6.2.2d testing. This valve may also be closed to isolate a leak in the RHR system. References: P&ID D20841, UFSAR Section 5.4.7, ECA 1.2, TRM Section 2.18, DCR 00-0001.										Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
RC-V23	1	A	12.0	Motor	C	O/C	-			X		X	X		X		X	
	(A-11)		Gate					RC-CSJ-1										
RHR A-RCS loop 1 HL suction isolation valve (PIV/CIV). This valve is closed during plant power operation (interlocked to not allow opening until RCS is below 365 psig to prevent RHR overpressurization) and is opened to place the RHR system into operation to cool the RCS below 350F. This valve is an IRC CIV for penetration X-9, subject to Appendix J Type C LLRT, and is identified in TRM Section 2.18 as an RCS pressure isolation valve not subject to TS 4.4.6.2.2d testing. This valve may also be closed to isolate a leak in the RHR system. References: P&ID D20841, UFSAR Section 5.4.7, ECA 1.2, TRM Section 2.18, DCR 00-0001.										Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
RC-V24	2	A/C	3.0	Self	C	O/C	-					X				X		
	(A-12)		Relief/Safety															
RHR A Suction line relief valve. This RV protects the low pressure portion of the RHR system from overpressure, and also provides LTOP for the RCS in conjunction with the pressurizer PORVs. Relief capacity of 900 GPM at 450 psig is sized to relieve combined flow of all charging pumps. This RV is also a containment isolation valve for penetration X-9- subject to Appendix J Type C LLRT. References: P&ID D20841, TS 3.4.9.3, UFSAR Section 5.4.7.2, DCR 00-0001.										Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:								
RC-V360	2	C	0.75	Self	C	O	-									X		
	(A-11)		Relief/Safety															
RHR Loop1 suction line thermal relief valve. Relieves to PRT -- In scope per ISTA-1100. Reference: P&ID D20841.										Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:								
RC-V475	2	A/C	0.5	Self	C	O/C	-			X			X					
	(A-10)		Check					RC-CSJ-4										
RC-V22 bypass line check valve. This valve opens to equalize pressure across RC-V22 to preclude differential pressure locking, and closes to prevent bypass flow around RC-V22. This valve is designated as an RCS pressure isolation valve in TRM Section 2.18. References P&ID D20841, TRM Section 2.18, DCR 95-023.										Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:								

FIGURE F4

SYSTEM: **RC**

IST VALVE TEST TABLE

P&ID No.: **D20843**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RC-LCV459	1 (A-6)	B	3.0 Globe	Air/Diaphragm	O	C	C	RC-RJ-1		X	X				X		X	
RC-LCV460	1 (A-8)	B	3.0 Globe	Air/Diaphragm	O	C	C	RC-RJ-1		X	X				X		X	

RC-LCV459

RCS Loop 3 normal letdown Regen. HX isolation valves-(RCPB). These valves are normally open and close (fail closed) to isolate letdown on low pressurizer level. They have no open safety function since letdown is not required to achieve safe shutdown. Interlocked with CS-V145. These valves form the reactor coolant pressure boundary CL 1/2 boundary to meet the requirements of 10CFR 50.55.a (c).2.ii. Power supply is non-1E.
References: P&ID D20843, UFSAR Section 5.2, DCR 00-0001.

Open Test Freq:
Close Test Freq: Refueling
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

RC-LCV460

RCS Loop 3 normal letdown Regen. HX isolation valves-(RCPB). These valves are normally open and close (fail closed) to isolate letdown on low pressurizer level. They have no open safety function since letdown is not required to achieve safe shutdown. Interlocked with CS-V145. These valves form the reactor coolant pressure boundary CL 1/2 boundary to meet the requirements of 10CFR 50.55.a (c).2.ii. Power supply is non-1E.
References: P&ID D20843, UFSAR Section 5.2, DCR 00-0001.

Open Test Freq:
Close Test Freq: Refueling
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

FIGURE F4

SYSTEM: **RC**

IST VALVE TEST TABLE

P&ID No.: **D20844**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment	Remarks
RC-V87	1 (G-7)	A	12.0 Gate	Motor	C	O/C	-	RC-CSJ-1		X			X		X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed	RHR B -RCS loop 4 HL suction isolation valve (PIV). This valve is closed during plant power operation (interlocked to not allow opening until RCS is below 365 psig to prevent RHR overpressurization) and is opened to place the RHR system into operation to cool the RCS below 350F. This valve is identified in TRM Section 2.18 as an RCS pressure isolation valve not subject to TS 4.4.6.2.2d testing. This valve may also be closed to isolate a leak in the RHR system. References: P&ID D20844, UFSAR Section 5.4.7, ECA 1.2, TRM Section 2.18, DCR 00-0001.
RC-V88	1 (H-8)	A	12.0 Gate	Motor	C	O/C	-	RC-CSJ-1		X		X	X		X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed	RHR B-RCS loop 4 HL suction isolation valve (PIV). This valve is closed during plant power operation (interlocked to not allow opening until RCS is below 365 psig to prevent RHR overpressurization) and is opened to place the RHR system into operation to cool the RCS below 350F. This valve is an IRC CIV for penetration X-10, subject to Appendix J Type C LLRT, and is identified in TRM Section 2.18 as an RCS pressure isolation valve not subject to TS 4.4.6.2.2d testing. This valve may also be closed to isolate a leak in the RHR system. References: P&ID D20844, UFSAR Section 5.4.7, ECA 1.2, TRM Section 2.18, DCR 00-0001.
RC-V89	2 (H-8)	A/C	3.0 Relief/Safety	Self	C	O/C	-					X				X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:	RHR B Suction line relief valve. This RV protects the low pressure portion of the RHR system from overpressure, and also provides LTOP for the RCS in conjunction with the pressurizer PORVs. Relief capacity of 900 GPM at 450 psig is sized to relieve combined flow of all charging pumps. This RV is also a containment isolation valve for penetration X-10- subject to Appendix J Type C LLRT. References: P&ID D20844, TS 3.4.9.3, UFSAR Section 5.4.7.2, DCR 00-0001.
RC-V361	2 (H-7)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:	RHR Loop 4 suction line thermal relief valve. Relieves to PRT-- In scope per ISTA-1100. Reference: P&ID D20844.
RC-V479	2 (G-7)	A/C	0.5 Check	Self	C	O/C	-	RC-CSJ-4		X			X						Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:	RC-V87 bypass line check valve. This valve opens to equalize pressure across RC-V87 to preclude differential pressure locking, and closes to prevent bypass flow around RC-V87. This valve is designated as an RCS pressure isolation valve in TRM Section 2.18. References P&ID D20841, TRM Section 2.18, DCR 95-023.

FIGURE F4

SYSTEM: **RC**

IST VALVE TEST TABLE

P&ID No.: **D20845**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
RC-FV2881 Reactor head vent isolation valve. This valve opens to vent noncondensibles from the reactor head and closes to isolate the RCPB. References: P&ID D20845, UFSAR Section 5.2.6, TS 3.4.11.	2 (G-7)	B	0.75 Globe	Solenoid	C	O/C	C			X	X				X		X		Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
RC-V323 Reactor head vent isolation valve. This valve opens to vent noncondensibles from the reactor head and closes to isolate the RCPB. References: P&ID D20845, UFSAR Section 5.2.6, TS 3.4.11.	2 (G-7)	B	0.75 Globe	Motor	C	O/C	-	RC-CSJ-3		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **RC**

IST VALVE TEST TABLE

P&ID No.: **D20846**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RC-PCV456A	1	B	3.0	Solenoid	C	O/C	C			X	X				X		X	
Pressurizer PORV. This valve is normally closed and opens to limit RCS pressure transients to preclude safety valve actuation (non-safety function). The safety related functions include LTOP with RCS at reduced pressure and temperature, RCS noncondensibles venting, and RCS depressurization for Safe Shutdown. References: P&ID D20846, UFSAR Sectins 5.2.2.11, 5.4.7, 7.4, TS 3.4.9.3, TS 3.4.11.	(G-7)		Globe					RC-CSJ-2		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed								
RC-PCV456B	1	B	3.0	Solenoid	C	O/C	C			X	X				X		X	
Pressurizer PORV. This valve is normally closed and opens to limit RCS pressure transients to preclude safety valve actuation (non-safety function). The safety related functions include LTOP with RCS at reduced pressure and temperature, RCS noncondensibles venting, and RCS depressurization for Safe Shutdown. References: P&ID D20846, UFSAR Sectins 5.2.2.11, 5.4.7, 7.4, TS 3.4.9.3, TS 3.4.11.	(F-7)		Globe					RC-CSJ-2		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed								
RC-V115	1	C	6.0	Self	C	O	-									X		
RCS-Pressurizer Code safety valve- provides overpressure protection for the RCS-In scope per ISTA-1100. Prevents RCS from exceeding 110% design pressure for postulated transients following an Operating Basis Earthquake. References: P&ID D20846, UFSAR Section 5.2.2, TS 3.4.2.2.	(G-6)		Relief/Safety							Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:								
RC-V116	1	C	6.0	Self	C	O	-									X		
RCS-Pressurizer Code safety valve- provides overpressure protection for the RCS-In scope per ISTA-1100. Prevents RCS from exceeding 110% design pressure for postulated transients following an Operating Basis Earthquake. References: P&ID D20846, UFSAR Section 5.2.2, TS 3.4.2.2.	(H-6)		Relief/Safety							Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:								
RC-V117	1	C	6.0	Self	C	O	-									X		
RCS-Pressurizer Code safety valve- provides overpressure protection for the RCS-In scope per ISTA-1100. Prevents RCS from exceeding 110% design pressure for postulated transients following an Operating Basis Earthquake. References: P&ID D20846, UFSAR Section 5.2.2, TS 3.4.2.2.	(G-6)		Relief/Safety							Open Test Freq: Close Test Freq: RV Test Freq: 5 Years FS Test Dir: ST Test Dir:								

SYSTEM: **RC**

P&ID No.: **D20846**

FIGURE F4

IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment	Remarks
RC-V122	1 (G-7)	B	3.0 Gate	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed	Pressurizer PORV 456A block valve. This valve is normally open and may be closed with or without power removed depending on the operability status of the associated PORV or in the event of excessive PORV leakage. This valve may be subsequently opened to allow PORV actuation. References : P&ID D20846, TS 3.4.4, UFSAR Section 5.2.
RC-V124	1 (F-7)	B	3.0 Gate	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed	Pressurizer PORV 456B block valve. This valve is normally open and may be closed with or without power removed depending on the operability status of the associated PORV or in the event of excessive PORV leakage. This valve may be subsequently opened to allow PORV actuation. References : P&ID D20846, TS 3.4.4, UFSAR Section 5.2.

SYSTEM: **RH**

FIGURE F4

IST VALVE TEST TABLE

P&ID No.: **D20662**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
RH-FCV610 RHR pump A min-flow control valve. This valve automatically opens when the RHR pump discharge flow drops to 750 gpm and closes when the flow exceeds 1400 gpm to provide min-flow protection for the RHR pump during ECCS and RHR operation. References: P&ID 20662, UFSAR Sections 5.4.7, 7.4,6.3.	2 (A-12)	B	3.0 Globe	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
RH-FCV618 RHR heat exchanger A bypass flow control valve. This valve is normally fully closed (**PASSIVE**) during ECCS standby mode. During plant cool down, the valve is automatically positioned to maintain total flow in response to the operator repositioning of the outlet valve HCV-606 to establish and maintain plant cool down. This valve is designed to fail closed on loss of NNS air, and direct full flow through the heat exchanger. This transient is within the system/ plant design capabilities. References: P&ID D20662, UFSAR Sections 5.4.7, 7.4. , DCR 00-0001.	2 (D-8)	B	8.0 Butterfly	Air/Diaphragm	C	O/C	C								X				Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
RH-HCV606 RHR heat exchanger A outlet temp. control valve. This valve is normally fully open (**PASSIVE**) in the ECCS standby mode. During plant cool down, it is positioned by the operator to establish and maintain RCS cool down. The valve is designed to fail open upon loss of NNS air and direct full flow through the heat exchanger. This transient is within the system/ plant design capabilities. References: P&ID D20662, UFSAR Sections 5.4.7, 7.4, DCR 00-0001.	2 (E-9)	B	8.0 Butterfly	Air/Diaphragm	O	O/C	O								X				Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Open ST Test Dir: Open/Closed
RH-V4 RHR pump 8A discharge check valve. This valve opens when the RHR pump is operating for SSD and ECCS. Reverse closure is not required during ECCS operation due to closure of the RWST and Containment sump suction check valves should an RHR pump be idle. During Mode 4 RHR operation, one RHR train is used for cool down and the other train remains aligned for ECCS per TS 3.5.3.1, and a cross connect valve V21 (V22) is maintained closed. This will preclude reverse flow through an idle RHR pump. ES 92-1-5 performed on 9-7-92 demonstrated the ability of the RHR Pumps to operate in parallel on recirc. without adverse interaction between the two pumps. References: P&ID D20662, UFSAR Sections 5.4.7 & 6.3, OS1013.03 &. 04.	2 (B-11)	C	8.0 Check	Self	C	O	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
RH-V13 RHR A Train Cold Leg Injection 600# relief valve. Protects RHR piping from overpressure from potential RCS back leakage. This valve is in scope per ISTA-1100. References: P&ID D20662.	2 (F-7)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **RH**

IST VALVE TEST TABLE

P&ID No.: **D20662**

Valve Number	Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
RH-V14	RHR/LPSI discharge Train A to Cold Legs 1 & 2 CIV (X-11). This CIV is normally open and remains open during the injection phase of ECCS operation, and for normal RHR operation. This valve may be closed during the transition from ECCS injection to cold leg recirculation, and if open, will be closed during hot leg recirculation. Although not proceduralized, it may require reopening to mitigate certain long term ECCS limited passive failures. This valve is exempt from Appendix J Type C LLRT. References: P&ID D20662, UFSAR Sections 5.4.7, 6.3 Table 6.2-83, procedures ES-1.3, ES-1.4.	2 (E-6)	B	8.0 Gate	Motor	O	O/C	-	RH-CSJ-1		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
RH-V15	RHR/LPSI Loop 1 Cold Leg injection inside containment CIV/PIV (X-11). This valve opens to direct RHR/LPSI flow to the RCS loop 1 cold leg. This valve is also an RCS pressure isolation valve and closes to limit RCS leakage to the lower pressure RHR system piping. This CIV is exempt from Appendix J Type C LLRT. Also credited as burping open to provide penetration thermally induced overpressure protection. References: P&ID D20662, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	1 (D-5)	A/C	6.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
RH-V16	RHR A isolation to primary sample system. This valve receives an SI signal to close to isolate the NNS sample system from RHR/ECCS. This valve is not required for RHR sampling during safe shutdown (use local sample manual valve RH-V8). References: P&ID 20662, UFSAR Sections 5.4.7, 7.4.	2 (D-12)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
RH-V28	RHR cold leg 1 & 2 PIV test line isolation. This valve aligns the RHR header to the seat leakage detection header and receives an SI closure signal. This valve is also an IRC CIV for penetration X-11,-- exempt from Appendix J Type C LLRT. Reference: P&ID D20662, UFSAR Table 6.2-83.	2 (G-5)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
RH-V31	RHR/LPSI Loop2 CL INJ inside containment CIV/PIV (X-11). This valve opens to direct RHR/LPSI flow to the RCS loop 2 cold leg. This valve is also an RCS pressure isolation valve and closes to limit RCS leakage to the lower pressure RHR system piping. This CIV is exempt from Appendix J Type C LLRT. Also credited as burping open to provide penetrationthermallyinduced overpressure protection. References: P&ID D20662, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	1 (E-5)	A/C	6.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **RH**

IST VALVE TEST TABLE

P&ID No.: **D20662**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RH-V35	2 (G-8)	B	8.0 Gate	Motor	C	O/C	-	RH-CSJ-2		X					X		X	

IST Program Plan Commitment Commitment

RHR Train A discharge to CCP suction. This valve is normally closed (for ECCS injection) and is opened to align the RHR pump discharge to the charging pump suction during the containment sump recirculation phase of ECCS operation. This valve may be closed in the long term to isolate ECCS limited passive failures. References: P&ID D20662, UFSAR Section 6.3

Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **RH**

IST VALVE TEST TABLE

P&ID No.: **D20663**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
					NRM	SAF	FAL												
RH-FCV611 RHR pump B min-flow control valve. This valve automatically opens when the RHR pump discharge flow drops to 750 gpm and closes when the flow exceeds 1400 gpm to provide min-flow protection for the RHR pump during ECCS and RHR operation. References: P&ID 20663, UFSAR Sections 5.4.7, 7.4,6.3.	2 (A-12)	B	3.0 Globe	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
RH-FCV619 RHR heat exchanger B bypass flow control valve. This valve is normally fully closed (**PASSIVE**) during ECCS standby mode. During plant cool down, the valve is automatically positioned to maintain total flow in response to the operator repositioning of the outlet valve HCV-607 to establish and maintain plant cool down. This valve is designed to fail closed on loss of NNS air, and direct full flow through the heat exchanger. This transient is within the system/ plant design capabilities. References: P&ID D20663, UFSAR Sections 5.4.7, 7.4, DCR 00-0001.	2 (D-8)	B	8.0 Butterfly	Air/Diaphragm	C	O/C	C								X				Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Open/Closed
RH-HCV607 RHR heat exchanger B outlet temp. control valve. This valve is normally fully open (**PASSIVE**) in the ECCS standby mode. During plant cool down, it is positioned by the operator to establish and maintain RCS cool down. The valve is designed to fail open upon loss of NNS air and direct full flow through the heat exchanger. This transient is within the system/ plant design capabilities. References: P&ID D20663, UFSAR Sections 5.4.7, 7.4, DCR 00-0001.	2 (E-9)	B	8.0 Butterfly	Air/Diaphragm	O	O/C	O								X				Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Open ST Test Dir: Open/Closed
RH-V17 RHR B isolation to primary sample system. This valve receives an SI signal to close to isolate the NNS sample system from RHR/ECCS. This valve is not required for RHR sampling during safe shutdown (use local sample manual valve RH-V44). References: P&ID 20663, UFSAR Sections 5.4.7, 7.4.	2 (E-12)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
RH-V21 RHR/LPSI discharge Train B cross connect isolation valve. This valve is normally open and remains open during all phases of ECCS operation. It may be closed during normal RHR operation in Mode 4, or to isolate a Mode 4 LOCA outside containment (i.e. through an RHR pump seal), and may also be closed to isolate long term ECCS limited passive failures. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3, ECA-1.2, OS1013.03, .04.	2 (F-8)	B	8.0 Gate	Motor	O	O/C	-	RH-CSJ-3		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **RH**

IST VALVE TEST TABLE

P&ID No.: **D20663**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RH-V22	2 (H-8)	B	8.0 Gate	Motor	O	O/C	-	RH-CSJ-3		X					X		X	
RH-V25	2 (E-7)	C	0.75 Relief/Safety	Self	C	O	-									X		
RH-V26	2 (E-6)	B	8.0 Gate	Motor	O	O/C	-	RH-CSJ-1		X					X		X	
RH-V27	2 (E-6)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X	
RH-V29	1 (D-5)	A/C	6.0 Check	Self	C	O/C	-						X					X

RH-V22

RHR/LPSI discharge Train A cross connect isolation valve. This valve is normally open and remains open during all phases of ECCS operation. It may be closed during normal RHR operation in Mode 4, or to isolate a Mode 4 LOCA outside containment (i.e., through an RHR pump seal), and may also be closed to isolate long term ECCS limited passive failures. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3, ECA-1.2, OS1013.03, .04.

Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

RH-V25

RHR Train B Cold Leg Inj 600# relief valve. Protects RHR piping from overpressure from potential RCS backleakage. This valve is in scope per ISTA-1100. References: P&ID D20663.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

RH-V26

RHR/LPSI Train B discharge to Cold Legs 3 & 4 CIV (X-12). This CIV is normally open and remains open during the injection phase of ECCS operation, and for normal RHR operation. This valve may be closed during the transition from ECCS injection to cold leg recirculation, and if open, will be closed during hot leg recirculation. Although not proceduralized, it may require reopening to mitigate certain long term ECCS limited passive failures. This valve is exempt from Appendix J Type C LLRT. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3 Table 6.2-83, procedures ES-1.3, ES-1.4.

Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

RH-V27

RHR cold leg 3 & 4 PIV test line isolation. This valve aligns the RHR header to the seat leakage detection header and receives an SI closure signal. This valve is also an IRC CIV for penetration X-12,-- exempt from Appendix J Type C LLRT. Reference: P&ID D20663, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

RH-V29

RHR/LPSI Loop 3 CL INJ inside containment CIV/PIV (X-12). This valve opens to direct RHR/LPSI flow to the RCS loop 3 cold leg. This valve is also an RCS pressure isolation valve and closes to limit RCS leakage to the lower pressure RHR system piping. This CIV is exempt from Appendix J Type C LLRT. Also credited as burping open to provide penetration thermally induced overpressure protection. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **RH**

IST VALVE TEST TABLE

P&ID No.: **D20663**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RH-V30	1 (C-6)	A/C	6.0 Check	Self	C	O/C	-						X					X
RHR/LPSI Loop 4 CL INJ inside containment CIV/PIV (X-12). This valve opens to direct RHR/LPSI flow to the RCS loop 4 cold leg. This valve is also an RCS pressure isolation valve and closes to limit RCS leakage to the lower pressure RHR system piping. This CIV is exempt from Appendix J Type C LLRT. Also credited as burping open to provide penetration thermally induced overpressure protection. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.									Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:									
RH-V32	2 (F-7)	B	8.0 Gate	Motor	C	O/C	-	RH-CSJ-4		X					X		X	
RHR B hot leg recirculation isolation valve. This valve is normally closed and opens to initiate hot leg recirculation. Valve closure is also tested since certain LOCA conditions require swapping between hot and cold leg injection. This is also a containment isolation valve for penetration X-13 and exempt from Appendix J Type C LLRT. References: P&ID D20663, ES-1.4, UFSAR Sections 5.4.7, 6.3, Table 6.2-83.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed									
RH-V36	2 (F-12)	B	8.0 Gate	Motor	C	O/C	-	RH-CSJ-2		X					X		X	
RHR Train B discharge to SI suction. This valve is normally closed (for ECCS injection) and is opened to align the B RHR pump discharge to the Safety injection pump suction during the containment sump recirculation phase of ECCS operation. This valve may be closed in the long term to isolate ECCS limited passive failures. References: P&ID D20663, UFSAR Section 6.3									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed									
RH-V40	2 (B-11)	C	8.0 Check	Self	C	O	-											X
RHR pump 8B discharge check valve. This valve opens when the RHR pump is operating for SSD and ECCS. Reverse closure is not required during ECCS operation due to closure of the RWST and Containment sump suction check valves should an RHR pump be idle. During Mode 4 RHR operation, one RHR train is used for cool down and the other train remains aligned for ECCS per TS 3.5.3.1, and a cross connect valve V21 (V22) is maintained closed. This will preclude reverse flow through an idle RHR pump. ES 92-1-5 performed on 9-7-92 demonstrated the ability of the RHR Pumps to operate in parallel on recirc. without adverse interaction between the two pumps. References: P&ID D20663 UFSAR Sections 5.4.7 & 6.3, OS1013.03 &. 04.									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:									
RH-V49	2 (H-5)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X	
RHR/SI hot leg 1 & 4 PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and receives an SI closure signal. This valve is also an IRC CIV for penetration X-13,-- exempt from Appendix J Type C LLRT. Reference: P&ID D20663, UFSAR Table 6.2-83.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed									

FIGURE F4

SYSTEM: **RH**

IST VALVE TEST TABLE

P&ID No.: **D20663**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RH-V50	1 (G-6)	A/C	8.0 Check	Self	C	O/C	-						X					X
RH-V51	1 (F-6)	A/C	8.0 Check	Self	C	O/C	-						X					X
RH-V52	1 (F-5)	A/C	6.0 Check	Self	C	O/C	-						X					X
RH-V53	1 (H-5)	A/C	6.0 Check	Self	C	O/C	-						X					X

IST Program Plan Commitment

RH-V50

RCS loop 4 HL check valve-CIV. This is an IRC CIV for X-13- exempt from Appendix J Type C LLRT. This is also considered an RCS/LPSI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. Also credited as burping open to provide penetration thermally induced overpressure protection. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

RH-V51

RCS loop 1 HL check valve-CIV. This is an IRC CIV for X-13- exempt from Appendix J Type C LLRT. This is also considered an RCS/LPSI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. Also credited as burping open to provide penetration thermally induced overpressure protection. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3, Table

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

RH-V52

RCS loop 1 HL check valve. This is considered an RCS/LPSI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. Also credited as burping open to provide penetration thermally induced overpressure protection. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

RH-V53

RCS loop 4 HL check valve. This is considered an RCS/LPSI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. Also credited as burping open to provide penetration thermally induced overpressure protection. References: P&ID D20663, UFSAR Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **RH**

IST VALVE TEST TABLE

P&ID No.: **D20663**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RH-V54	2 (F-6)	B	0.75 Globe	Air/Diaphragm	C	C	C								X			
RH-V55	2 (H-5)	B	0.75 Globe	Air/Diaphragm	C	C	C								X			
RH-V57	2 (G-7)	C	0.75 Relief/Safety	Self	C	O	-									X		
RH-V70	2 (H-7)	B	8.0 Gate	Motor	C	O/C	-	RH-CSJ-4		X					X		X	

IST Program Plan Commitment Commitment

RH-V54

RHR/SI hot leg 1 PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and is required to be closed during normal plant operation. Passive closed function only (per EWR 97-095). Reference: P&ID D20663

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

RH-V55

RHR/SI hot leg 4 PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and is required to be closed during normal plant operation. Passive closed function only (per EWR 97-095). Reference: P&ID D20663

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

RH-V57

ECCS hot leg injection piping relief valve- in scope per ISTA-1100. Protects RHR piping from overpressure from potential RCS backleakage. References; P&ID D20663, DCR 00-0001.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

RH-V70

RHR A hot leg recirculation isolation valve. This valve is normally closed and opens to initiate hot leg recirculation. Valve closure is also tested since certain LOCA conditions require swapping between hot and cold leg injection. This is also a containment isolation valve for penetration X-13 and exempt from Appendix J Type C LLRT. References: P&ID D20663, ES-1.4, UFSAR Sections 5.4.7, 6.3, Table 6.2-83.

Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **RMW**

IST VALVE TEST TABLE

P&ID No.: **D20360**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RMW-V29	2 (H-5)	A/C	3.0 Check	Self	DE	O/C	-					X						X

RMW supply check valve to containment-IRC-CIV for penetration X36- subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident conditions and closes for containment isolation. References: P&ID D20360, UFSAR Table 6.2-83, Engineering Evaluation SS-EV-960023,

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RMW-V30	2 (H-6)	A	3.0 Globe	Air/Diaphragm	O	C	C			X	X	X			X		X	

RMW supply to containment-ORC-CIV for penetration X36- subject to Appendix J Type C LLRT. This valve is normally open as a supply valve to the RCP standpipe level control valves and receives a "T" closure signal. The open function for this valve is not a safety function. References: P&ID D20360, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

P&ID No.: **D20729**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RMW-V31	3 (D-5)	B	2.0 Saunders Weir	Manual	O	C	-			X								

Reactor makeup water supply to the CVCS blender. This valve is normally open and is closed to isolate potential dilution water during emergency boration. References: P&ID D20729, UFSAR Section 7.4, OS1200.01.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RMW-V34	3 (D-5)	B	2.0 Saunders Weir	Manual	O	C	-			X								

Reactor makeup water supply to the CVCS blender. This valve is normally open and is closed to isolate potential dilution water during emergency boration. References: P&ID D20729, UFSAR Section 7.4, OS1200.01.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir:

P&ID No.: **D20725**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
RMW-V119	2 (D-6)	C	2.0 Check	Self	C	O	-	RMW-RJ-1		X								

Boric Acid pump discharge to charging pump suction check valve. This valve is normally closed and will open during rapid boration when CS-V426 is opened. Reverse closure is not required during ECCS sump recirculation since the line will be isolated by normally closed valves CS-V426,V452, V229 and RMW-V31 and V34. References: P&ID D20725

Open Test Freq: Refueling
Close Test Freq: Refueling
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **SA**

IST VALVE TEST TABLE

P&ID No.: **D20652**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SA-V229	2 (E-7)	A	2.0 Gate	Manual	LC	LC	-					X						

Locked closed Service Air ORC-CIV for penetration X-67-subject to Appendix J Type C LLRT. References: P&ID D20652, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SA-V1042	2 (E-7)	A	2.0 Globe	Manual	LC	LC	-					X						

Locked closed Service Air IRC-CIV for penetration X-67-subject to Appendix J Type C LLRT. References: P&ID D20652, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **SB**

IST VALVE TEST TABLE

P&ID No.: **D20626**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
SB-V1	2 (H-12)	B	3.0 Gate	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SG A blowdown isolation valve (IRC). This valve is normally open and closes on a HELB isolation signal, high flash tank level and high flash tank pressure to preclude severe environmental conditions at the location of safety grade equipment. References: P&ID D20626, UFSAR Section 10.4.8.6.																			
SB-V3	2 (H-12)	B	3.0 Gate	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SG B blowdown isolation valve (IRC). This valve is normally open and closes on a HELB isolation signal, high flash tank level and high flash tank pressure to preclude severe environmental conditions at the location of safety grade equipment. References: P&ID D20626, UFSAR Section 10.4.8.6.																			
SB-V5	2 (G-12)	B	3.0 Gate	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SG C blowdown isolation valve (IRC). This valve is normally open and closes on a HELB isolation signal, high flash tank level and high flash tank pressure to preclude severe environmental conditions at the location of safety grade equipment. References: P&ID D20626, UFSAR Section 10.4.8.6.																			
SB-V7	2 (F-12)	B	3.0 Gate	Air/Piston	O	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SG D blowdown isolation valve (IRC). This valve is normally open and closes on a HELB isolation signal, high flash tank level and high flash tank pressure to preclude severe environmental conditions at the location of safety grade equipment. References: P&ID D20626, UFSAR Section 10.4.8.6.																			
SB-V9	2 (H-11)	B	3.0 Gate	Air/Piston	O	C	C	SB-CSJ-1		X	X				X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SG A blowdown isolation valve -ORC-CIV for penetration X-63- exempt from Appendix J Type C LLRT. This valve is normally open and closes on a HELB isolation signal, high flash tank level or pressure, EFW pump running signal and receives a "T" closure signal. References: P&ID D20626, UFSAR Section 10.4.8.6, Table 6.2-83.																			

FIGURE F4

SYSTEM: **SB**

IST VALVE TEST TABLE

P&ID No.: **D20626**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SB-V10	2	B	3.0	Air/Piston	O	C	C			X	X				X		X	
SG B blowdown isolation valve -ORC-CIV for penetration X-64- exempt from Appendix J Type C LLRT. This valve is normally open and closes on a HELB isolation signal, high flash tank level or pressure, EFW pump running signal and receives a "T" closure signal. References: P&ID D20626, UFSAR Section 10.4.8.6, Table 6.2-83.	(H-11		Gate					SB-CSJ-1		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
SB-V11	2	B	3.0	Air/Piston	O	C	C			X	X				X		X	
SG C blowdown isolation valve -ORC-CIV for penetration X-65- exempt from Appendix J Type C LLRT. This valve is normally open and closes on a HELB isolation signal, high flash tank level or pressure, EFW pump running signal and receives a "T" closure signal. References: P&ID D20626, UFSAR Section 10.4.8.6, Table 6.2-83.	(G-11)		Gate					SB-CSJ-1		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								
SB-V12	2	B	3.0	Air/Piston	O	C	C			X	X				X		X	
SG D blowdown isolation valve -ORC-CIV for penetration X-66- exempt from Appendix J Type C LLRT. This valve is normally open and closes on a HELB isolation signal, high flash tank level or pressure, EFW pump running signal and receives a "T" closure signal. References: P&ID D20626, UFSAR Section 10.4.8.6, Table 6.2-83.	(F-11)		Gate					SB-CSJ-1		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed								

SYSTEM: **SF**

FIGURE F4

IST VALVE TEST TABLE

P&ID No.: **D20484**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SF-V86	2 (F-7)	A	2.0 Gate	Manual	LC	LC	-					X						
Refueling canal skimmer pump discharge IRC-CIV for penetration X-39-subject to Appendix J Type C LLRT. This is a passive, locked closed manual valve. References: P&ID D20484, UFSAR Table 6.2-83.												Open Test Freq:						
												Close Test Freq:	Per Appendix J					
												RV Test Freq:						
												FS Test Dir:						
												ST Test Dir:						
SF-V87	2 (F-6)	A	2.0 Gate	Manual	LC	LC	-					X						
Refueling canal skimmer pump discharge ORC-CIV for penetration X-39-subject to Appendix J Type C LLRT. This is a passive, locked closed manual valve. References: P&ID D20484, UFSAR Table 6.2-83.												Open Test Freq:						
												Close Test Freq:	Per Appendix J					
												RV Test Freq:						
												FS Test Dir:						
												ST Test Dir:						
SF-V101	2 (G-6)	A/C	0.75 Relief/Safety	Self	C	O/C	-					X				X		
Refueling Canal Containment penetration X-39 thermal relief valve (IRC)- subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident conditions. Reference: P&ID D20484.												Open Test Freq:						
												Close Test Freq:	Per Appendix J					
												RV Test Freq:	10 Years					
												FS Test Dir:						
												ST Test Dir:						

FIGURE F4

SYSTEM: **SF**

IST VALVE TEST TABLE

P&ID No.: **D20796**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20446**

Valve Number	Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SI-V71	SI pump 6B discharge check valve. This valve opens when the SI pump is operating and must close to prevent suction piping overpressurization if the pump is idle when the redundant pump is operating. References: P&ID D20446, UFSAR Sections 6.3, Table 6.2-83, TS 3/4.5.2.	2 (B-9)	C	4.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SI-V76	SI Pump 6B discharge relief valve. Protects lower pressure piping in the event of RCS check valve leakage. In scope per ISTA-1100. References: P&ID D20446.	2 (C-7)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
SI-V77	SI Train B hot leg 1&4 injection containment isolation valve. This valve is normally closed with power removed in Modes 1,2&3 and is opened to initiate ECCS hot leg recirculation approximately 18 hours after the accident. This valve is also the ORC CIV for Penetration X-26 -exempt from Appendix J Type C LLRT. References: P&ID D20446, UFSAR Sections 6.3, Table 6.2-83, TS 3/4.5.2.	2 (B-7)	B	4.0 Gate	Motor	C	O/C	-	SI-CSJ-1		X					X		X		Open Test Freq: CSD Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open
SI-V81	RCS loop 3 HL check valve-CIV. This is an IRC CIV for X-26- exempt from Appendix J Type C LLRT. This is also considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is designated a pressure isolation valve in TRM Section 2.18. It also provides an overpressure protection function for certain thermally induced scenarios. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation approximately 18 hours after the accident. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	1 (B-5)	A/C	2.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20446**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-V82	1 (B-4)	A/C	6.0 Check	Self	C	O/C	-						X					X

RCS loop 3 HL check valve. This is considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is designated a pressure isolation valve in TRM Section 2.18. It also provides an overpressure protection function for certain thermally induced scenarios. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation approximately 18 hours after the accident. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-V86	1 (B-5)	A/C	2.0 Check	Self	C	O/C	-						X					X

RCS loop 2 HL check valve-CIV. This is an IRC CIV for X-26- exempt from Appendix J Type C LLRT. This is also considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is designated a pressure isolation valve in TRM Section 2.18. It also provides an overpressure protection function for certain thermally induced scenarios. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation approximately 18 hours after the accident. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-V87	1 (B-4)	A/C	6.0 Check	Self	C	O/C	-						X					X

RCS loop 2 HL check valve. This is considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is designated a pressure isolation valve in TRM Section 2.18. It also provides an overpressure protection function for certain thermally induced scenarios. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation approximately 18 hours after the accident. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-V88	2 (C-9)	C	1.5 Check	Self	C	O/C	-			X								

SI pump 6B min-flow recirc check valve. This valve opens when the SI pump is operating and must close to prevent suction piping overpressurization if the pump is idle when the redundant pump is operating. References: P&ID D20446.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir:

SYSTEM: **SI**

FIGURE F4

IST VALVE TEST TABLE

P&ID No.: **D20446**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SI-V89 SI pump B recirculation to RWST isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and is closed during the recirculation phase of ECCS operation. Also tested in the open direction since it is taken out of its safety position for surveillance testing. References: P&ID D20446, UFSAR Section 6.3	2 (C-9)	B	1.5 Globe	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
SI-V90 SI pump A miniflow recirculation to RWST isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and is closed during the recirculation phase of ECCS operation. Also tested in the open direction since it is taken out of its safety position for surveillance testing. References: P&ID D20446, UFSAR Section 6.3.	2 (F-9)	B	1.5 Globe	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
SI-V91 SI pump 6A min-flow recirc check valve. This valve opens when the SI pump is operating and must close to prevent suction piping overpressurization if the pump is idle when the redundant pump is operating. References: P&ID D20446	2 (F-9)	C	1.5 Check	Self	C	O/C	-			X									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir:
SI-V93 SI pump A/B common miniflow recirculation isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and is closed during the recirculation phase of ECCS operation. References: P&ID D20446, UFSAR Section 6.3.	2 (E-9)	B	2.0 Globe	Motor	O	O/C	-	SI-CSJ-2		X					X		X		Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Closed
SI-V96 SI pump 6A discharge check valve. This valve opens when the SI pump is operating and must close to prevent suction piping overpressurization if the pump is idle when the redundant pump is operating. References: P&ID P&ID D20446.	2 (G-8)	C	4.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20446**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
SI-V101 SI Pump 6A discharge relief valve. Protects lower pressure piping in the event of RCS check valve leakage. In scope per ISTA-1100. References: P&ID D20446.	2 (G-7)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
SI-V102 SI Train A hot leg 1&4 injection containment isolation valve. with power removed in Modes 1,2&3 and is opened to initiate ECCS hot leg recirculation approximately 18 hours after the accident. This valve is also the ORC CIV for penetration X-25 -exempt from Appendix J Type C LLRT. References: P&ID D20446, UFSAR Sections 6.3, Table 6.2-83, TS 3/4.5.2.	2 (G-7)	B	4.0 Gate	Motor	C	O/C	-	SI-CSJ-1		X					X		X		Open Test Freq: CSD Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open
SI-V106 RCS loop 4 HL check valve-CIV. This is an IRC CIV for X-25- exempt from Appendix J Type C LLRT. This is also considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. This valve is designated a pressure isolation valve in TRM Section 2.18. It also provides an overpressure protection function for certain thermally induced scenarios. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation approximately 18 hours after the accident. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	1 (G-5)	A/C	2.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V110 RCS loop 1 HL check valve-CIV. This is an IRC CIV for X-25- exempt from Appendix J Type C LLRT. This is also considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. This valve is designated a pressure isolation valve in TRM Section 2.18. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. It also provides an overpressure protection function for certain thermally induced scenarios. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation approximately 18 hours after the accident. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	1 (H-5)	A/C	2.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20446**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-V111	2 (C-8)	B	4.0 Gate	Motor	O	O/C	-			X					X		X	
SI-V112	2 (F-8)	B	4.0 Gate	Motor	O	O/C	-			X					X		X	
SI-V113	2 (D-7)	C	0.75 Relief/Safety	Self	C	O	-									X		
SI-V114	2 (D-7)	B	4.0 Gate	Motor	O	O/C	-	SI-CSJ-3		X					X		X	
SI-V118	1 (C-4)	A/C	2.0 Check	Self	C	O/C	-						X					X

SI-V111

SI Train B discharge cross connect valve. This valve is normally open, remains open during the injection and cold leg recirculation phase of ECCS operation and is closed during the hot leg recirculation phase of ECCS operation. Also tested in the open direction since it is taken out of its safety position for surveillance testing. References: P&ID D20446, UFSAR Section 6.3.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

SI-V112

SI Train A discharge cross connect valve. This valve is normally open, remains open during the injection and cold leg recirculation phase of ECCS operation and is closed during the hot leg recirculation phase of ECCS operation. Also tested in the open direction since it is taken out of its safety position for surveillance testing. References: P&ID D20446, UFSAR Section 6.3.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

SI-V113

SI Pumps common discharge relief valve. Protects lower pressure piping in the event of RCS check valve leakage. In scope per ISTA-1100. References: P&ID D20446.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

SI-V114

SI Pumps common discharge to cold leg header CIV. This valve is normally open (with power removed during Modes 1,2&3), remains open during the injection and cold leg recirculation phases of ECCS operation, and is closed during the hot leg recirculation phase of ECCS operation approximately 18 hours after the accident. This valve is also the ORC CIV for penetration X-27-- exempt from Appendix J Type C LLRT. References: P&ID D20446, UFSAR Section 6.3, Table 6.2-83, TS 3/4.5.2.

Open Test Freq:
Close Test Freq: CSD
RV Test Freq:
FS Test Dir:
ST Test Dir: Closed

SI-V118

SI loop 1 cold leg injection check valve. This valve is normally closed and opens when the SI pump is operating and the RCS pressure is below the pump shutoff head. This valve is an RCS/SI pressure isolation valve which is seat leakage tested per TS 3/4.4.6.2, and it is an IRC isolation for penetration X-27- exempt from Appendix J Type C LLRT. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20446**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-V122	1 (D-4)	A/C	2.0 Check	Self	C	O/C	-						X					X
SI-V126	1 (D-4)	A/C	2.0 Check	Self	C	O/C	-						X					X
SI-V130	1 (E-4)	A/C	2.0 Check	Self	C	O/C	-						X					X
SI-V131	2 (E-6)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X	
SI-V132	2 (A-5)	B	0.75 Globe	Air/Diaphragm	C	C	C								X			

SI-V122

SI loop 2 cold leg injection check valve. This valve is normally closed and opens when the SI pump is operating and the RCS pressure is below the pump shutoff head. This valve is an RCS/SI pressure isolation valve which is seat leakage tested per TS 3/4.4.6.2, and it is an IRC isolation for penetration X-27- exempt from Appendix J Type C LLRT. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI-V126

SI loop 3 cold leg injection check valve. This valve is normally closed and opens when the SI pump is operating and the RCS pressure is below the pump shutoff head. This valve is an RCS/SI pressure isolation valve which is seat leakage tested per TS 3/4.4.6.2, and it is an IRC isolation for penetration X-27- exempt from Appendix J Type C LLRT. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI-V130

SI loop 4 cold leg injection check valve. This valve is normally closed and opens when the SI pump is operating and the RCS pressure is below the pump shutoff head. This valve is an RCS/SI pressure isolation valve which is seat leakage tested per TS 3/4.4.6.2, and it is an IRC isolation for penetration X-27- exempt from Appendix J Type C LLRT. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20446, UFSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI-V131

SI cold leg injection check valyes test line isolation valve and IRC CIV for containment penetration X-27- Exempt from Appendix J Type C LLRT. This valve is normally closed and receives a containment isolation "T" signal. This valve may be periodically opened to measure the seat leakage past the SI cold leg PIVs. References : P&ID D20446, UFSAR Section 5.4.7, 6.3, Table 6.2-83, Engineering Evaluation SS-EV-980010, Revision 0.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

SI-V132

SI hot leg 3 PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and is required to be closed during normal plant operation. Passive closed function only (per EWR 97-095). Reference: P&ID D20446

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20446**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
SI-V133 SI hot leg 2 PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and is required to be closed during normal plant operation. Passive closed function only (per EWR 97-095). Reference: P&ID D20446	2 (C-5)	B	0.75 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SI-V134 Loops 2 & 3 HL check valves test line isolation valve and IRC CIV for containment penetration X-26- Exempt from Appendix J Type C LLRT. This valve is normally closed and receives a containment isolation "T" signal. This valve may be periodically opened to measure the seat leakage past the loops 2 & 3 HL PIVs. References : P&ID D20446, UFSAR Section 5.4.7, 6.3, Table 6.2-83.	2 (C-6)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SI-V157 SI accumulator fill isolation valve. This valve is normally closed, fails closed and receives a containment isolation "T" signal to close. SI-V157 may be periodically opened to adjust SI accumulator level. This is also a containment isolation valve for penetration X35A which is subject to Type C leak rate testing per 10CFR50 Appendix J. References: P&ID D20446, UFSAR Section 6.3, Table 6.2-83.	2 (H-7)	A	0.75 Globe	Air/Diaphragm	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SI-V160 Loops 1 & 4 HL backup check valve test line isolation valve and IRC CIV for containment penetraion X-25- Exempt from Appendix J Type C LLRT. This valve is normally closed and receives a containment isolation "T" signal. This valve may be periodically opened to measure the seat leakage past the loops 1 & 4 HL PIVs. References : P&ID D20446, UFSAR Section 5.4.7, 6.3, Table 6.2-83.	2 (H-5)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SI-V248 SI pump common recirculation line relief valve. Protects lower pressure piping in the event of RCS check valve leakage. In scope per ISTA-1100. Reference: P&ID D20446.	2 (D-9)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20447**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-V138	2 (H-6)	B	4.0 Gate	Motor	C	O/C	-	SI-RJ-1		X					X		X	
SI-V139	2 (H-6)	B	4.0 Gate	Motor	C	O/C	-	SI-RJ-1		X					X		X	
SI-V140	1 (G-5)	A/C	3.0 Check	Self	C	O/C	-						X					X
SI-V144	1 (D-4)	A/C	1.5 Check	Self	C	O/C	-						X					X
SI-V148	1 (E-4)	A/C	1.5 Check	Self	C	O/C	-						X					X

SI-V138

CCP-SI cold leg isolation valve and ORC containment isolation valve for penetration X-24- exempt from Appendix J Type C LLRT. This valve is normally closed, receives an open SI injection signal, and remains open for cold leg recirculation. Closed following termination of hi-head injection and to restore normal charging operations. This valve is also in the alternate boration injection flow path and may be cycled during safe shutdown. References: P&ID D20447, UFSAR Sections 5.4-7, 7.4, 6.3, Table 6.2-83.

Open Test Freq: Refueling
Close Test Freq: Refueling
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

SI-V139

CCP-SI cold leg isolation valve and ORC containment isolation valve for penetration X-24- exempt from Appendix J Type C LLRT. This valve is normally closed, receives an open SI injection signal, and remains open for cold leg recirculation. This valve is also in the alternate boration injection flow path and may be cycled during safe shutdown. Closed following termination of hi-head injection and to restore normal charging operations. References: P&ID D20447, UFSAR Sections 5.4-7, 7.4, 6.3, Table 6.2-83.

Open Test Freq: Refueling
Close Test Freq: Refueling
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

SI-V140

CCP SI injection to Cold Legs common line check valve and IRC isolation valve for X-24, exempt from Appendix J Type C LLRT. This valve is normally closed and opens upon initiation of hi-head SI flow to the RCS cold legs. This valve is designated a pressure isolation valve in TRM Section 2.18. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20447, UFSAR Sections 5.4.7, 7.4, 6.3, Table 6.2.83, TS 3/4.4.6.2, TRM

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI-V144

CCP SI injection loop 1 cold leg check valve. This valve is normally closed and opens upon initiation of hi-head SI flow to the RCS cold legs. This valve is designated a pressure isolation valve in TRM Section 2.18. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20447, UFSAR Sections 5.4.7, 7.4,

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI-V148

CCP SI injection loop 2 cold leg check valve. This valve is normally closed and opens upon initiation of hi-head SI flow to the RCS cold legs. This valve is designated a pressure isolation valve in TRM Section 2.18. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20447, UFSAR Sections 5.4.7, 7.4,

Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20447**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.											IST Program Plan Commitment Commitment
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SI-V152 CCP SI injection loop 3 cold leg check valve. This valve is normally closed and opens upon initiation of hi-head SI flow to the RCS cold legs. This valve is designated a pressure isolation valve in TRM Section 2.18. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20447, UFSAR Sections 5.4.7, 7.4, 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (F-4)	A/C	1.5 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V156 CCP SI injection loop 4 cold leg check valve. This valve is normally closed and opens upon initiation of hi-head SI flow to the RCS cold legs. This valve is designated a pressure isolation valve in TRM Section 2.18. Per UFSAR 5.4.7, since this valve is backed up by a normally closed MOV, it is not technically considered a high-to-low pressure isolation barrier, however, it is PIV tested as a conservative measure. It also provides an overpressure protection function for certain thermally induced scenarios. References: P&ID D20447, UFSAR Sections 5.4.7, 7.4, 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (D-4)	A/C	1.5 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V158 SI cold leg injection backup check valves test line isolation valve and IRC CIV for containment penetration X-24- Exempt from Appendix J Type C LLRT. This valve is normally closed and receives a containment isolation "T" signal. This valve may be periodically opened to measure the seat leakage past the SI cold leg PIVs. References : P&ID D20447, UFSAR Section 5.4.7, 6.3, Table 6.2-83.	2 (G-4)	B	0.75 Globe	Air/Diaphragm	C	C	C			X	X				X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SI-V159 SI cold leg injection primary check valves test line isolation valve. This valve is normally closed and may be periodically opened to measure the seat leakage past the SI cold leg PIVs. Passive closed function only (per EWR 97-095). References : P&ID D20447, UFSAR Section 5.4.7, 6.3, Table 6.2-83.	2 (F-4)	B	0.75 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-FV2475	2 (F-11)	B	1.0 Globe	Solenoid	C	C	C								X			

IST Program Plan Commitment Commitment

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI accumulator A nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for cold shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed for Accumulator operability and would be tested per ISTC-3700. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition (DCR 00-0001).

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-FV2476	2 (F-11)	B	1.0 Globe	Solenoid	C	C	C								X			

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI accumulator A nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for cold shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed for Accumulator operability and would be tested per ISTC-3700. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition (DCR 00-0001).

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-FV2477	2 (F-6)	B	1.0 Globe	Solenoid	C	C	C								X			

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI accumulator C nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for cold shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed for Accumulator operability and would be tested per ISTC-3700. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition (DCR 00-0001).

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	.RT	ST	CME
											IST Program Plan Commitment Commitment							
SI-FV2482 SI accumulator B nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for cold shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed for Accumulator operability and would be tested per ISTC-3700. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition (DCR 00-0001).	2 (F-9)	B	1.0 Globe	Solenoid	C	C	C				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:				X			
SI-FV2483 SI accumulator B nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for cold shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3.THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed for Accumulator operability and would be tested per ISTC-3700. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition (DCR 00-0001).	2 (F-8)	B	1.0 Globe	Solenoid	C	C	C				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:				X			
SI-FV2486 SI accumulator C nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for cold shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent omponent Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed for Accumulator operability and would be tested per ISTC-3700. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition (DCR 00-0001).	2 (F-6)	B	1.0 Globe	Solenoid	C	C	C				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:				X			

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SI-FV2495	2 (F-4)	B	1.0 Globe	Solenoid	C	C	C								X			
SI-FV2496	2 (F-3)	B	1.0 Globe	Solenoid	C	C	C								X			
SI-V3	1 (D-12)	B	10.0 Gate	Motor	O	O/C	-	SI-CSJ-4		X					X		X	
SI-V4	2 (E-12)	B	0.75 Globe	Air/Diaphragm	C	C	C								X			

SI-FV2495

SI accumulator D nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for cold shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed for Accumulator operability and would be tested per ISTC-3700. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition (DCR 00-0001).

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI-FV2496

SI accumulator D nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for cold shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed for Accumulator operability and would be tested per ISTC-3700. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition (DCR 00-0001).

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

SI-V3

SI accumulator A outlet isolation valve. This valve is normally open and deenergized in Modes 1-3 with RCS pressure >1000psig. It also receives an SI open signal. This valve is closed in Modes 4&5 when accumulator pressure is greater than 100 psig. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3, TS 3.5.2, DCR 00-0001.

Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
FS Test Dir:
ST Test Dir: Open/Closed

SI-V4

SI accumulator A Cold Leg 1 check valve test line isolation. This valve is normally closed but may be open to measure PIV seat leakage. Passive closed function only (per EWR 97-095). References: P&ID D20450, UFSAR Section 6.3.

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SI-V5 SI to RCS Loop 1 CL injection. Common SI accumulator, LPSI, SI check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump discharge pressure. This is also a Pressure Isolation Valve. Also provides overpressure protection for certain thermally induced scenarios. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (A-7)	A/C	10.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V6 SI accumulator Tank 9A outlet check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the accumulator pressure. This also a Pressure Isolation Valve. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (D-12)	A/C	10.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V10 SI accumulator Tank 9A nitrogen relief valve. This valve is in scope per ISTA-1100. Reference:P&ID D20450	2 (F-11)	C	1.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
SI-V15 SI accumulator A fill / drain isolation. This valve is normally closed but may be periodically open to adjust the SI accumulator level. Passive closed function only (per EWR 97-095). References: P&ID D20450, UFSAR Section 6.3.	2 (E-10)	B	1.0 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SI-V17 SI accumulator B outlet isolation valve. This valve is normally open and deenergized in Modes 1-3 with RCS pressure >1000psig. It also receives an SI open signal. This valve is closed in Modes 4&5 when accumulator pressure is greater than 100 psig. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3, TS 3.5.2, DCR 00-0001.	1 (D-10)	B	10.0 Gate	Motor	O	O/C	-	SI-CSJ-4		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
SI-V18 SI accumulator B Cold Leg 2 check valve test line isolation. This valve is normally closed but may be open to measure PIV seat leakage. Passive closed function only (per EWR 97-095). References: P&ID D20450, UFSAR Section 6.3.	2 (E-10)	B	0.75 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SI-V20 SI to RCS Loop 2 CL injection. Common SI accumulator, LPSI, SI check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump discharge pressure. This is also a Pressure Isolation Valve. Also provides overpressure protection for certain thermally induced scenarios. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (A-7)	A/C	10.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V21 SI accumulator Tank 9B outlet check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the accumulator pressure. This also a Pressure Isolation Valve. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (D-9)	A/C	10.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V23 SI accumulator B fill / drain isolation. This valve is normally closed but may be periodically open to adjust the SI accumulator level. Passive closed function only (per EWR 97-095). References: P&ID D20450, UFSAR Section 6.3.	2 (E-8)	B	1.0 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SI-V30 SI accumulator Tank 9B nitrogen relief valve. This valve is in scope per ISTA-1100. Reference:P&ID D20450	2 (F-9)	C	1.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SI-V32 SI accumulator C outlet isolation valve. This valve is normally open and deenergized in Modes 1-3 with RCS pressure >1000psig. It also receives an SI open signal. This valve is closed in Modes 4&5 when accumulator pressure is greater than 100 psig. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3, TS 3.5.2, DCR 00-0001.	1 (D-7)	B	10.0 Gate	Motor	O	O/C	-	SI-CSJ-4		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
SI-V33 SI accumulator C Cold Leg 3 check valve test line isolation. This valve is normally closed but may be open to measure PIV seat leakage. Passive closed function only (per EWR 97-095). References: P&ID D20450, UFSAR Section 6.3.	2 (E-8)	B	0.75 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SI-V35 SI to RCS Loop 3 CL injection. Common SI accumulator, LPSI, SI check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump discharge pressure. This is also a Pressure Isolation Valve. Also provides overpressure protection for certain thermally induced scenarios. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (A-7)	A/C	10.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V36 SI accumulator Tank 9C outlet check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the accumulator pressure. This also a Pressure Isolation Valve. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (D-7)	A/C	10.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V38 SI accumulator C fill / drain isolation. This valve is normally closed but may be periodically open to adjust the SI accumulator level. Passive closed function only (per EWR 97-095). References: P&ID D20450, UFSAR Section 6.3.	2 (E-6)	B	1.0 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SI-V45 SI accumulator Tank 9C nitrogen relief valve. This valve is in scope per ISTA-1100. Reference:P&ID D20450	2 (F-7)	C	1.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
SI-V47 SI accumulator D outlet isolation valve. This valve is normally open and deenergized in Modes 1-3 with RCS pressure >1000psig. It also receives an SI open signal. This valve is closed in Modes 4&5 when accumulator pressure is greater than 100 psig. References: P&ID D20450, UFSAR Sections 5.4.7, 7.4, 6.3, TS 3.5.2, DCR 00-0001.	1 (D-5)	B	10.0 Gate	Motor	O	O/C	-	SI-CSJ-4		X					X		X		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
SI-V48 SI accumulator D Cold Leg 4 check valve test line isolation. This valve is normally closed but may be open to measure PIV seat leakage. Passive closed function only (per EWR 97-095). References: P&ID D20450, UFSAR	2 (E-5)	B	0.75 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SI-V50 SI to RCS Loop 4 CL injection. Common SI accumulator, LPSI, SI check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump discharge pressure. This is also a Pressure Isolation Valve. Also provides overpressure protection for certain thermally induced scenarios. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (B-4)	A/C	10.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:
SI-V51 SI accumulator Tank 9D outlet check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the accumulator pressure. This also a Pressure Isolation Valve. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (D-4)	A/C	10.0 Check	Self	C	O/C	-						X					X	Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SI**

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SI-V53 SI accumulator D fill / drain isolation. This valve is normally closed but may be periodically open to adjust the SI accumulator level. Passive closed function only (per EWR 97-095). References: P&ID D20450, UFSAR Section 6.3.	2 (E-3)	B	1.0 Globe	Air/Diaphragm	C	C	C								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SI-V60 SI accumulator Tank 9D nitrogen relief valve. This valve is in scope per ISTA-1100. Reference:P&ID D20450	2 (F-4)	C	1.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
SI-V62 PIV test line, acccumulator fill/ drain header ORC penetration X-35 isolation. This CIV is normally closed, may be periodically open for check valve testing or to adjust accumulator level, and receives a containment isolation ('T') signal to close. This valve is subject to Appendix J, Type C LLRT. References: P&ID D20450, UFSAR Table 6.2-83.	2 (H-8)	A	0.75 Globe	Air/Diaphragm	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SI-V70 PIV test line, accumulator fill/ drain header IRC penetration X-35 isolation. This CIV is normally closed, may be periodically open for check valve testing or to adjust accumulator level, and receives a containment isolation ('T') signal to close. This valve is subject to Appendix J, Type C LLRT. References: P&ID D20450, UFSAR Table 6.2-83.	2 (H-12)	A	0.75 Globe	Air/Diaphragm	C	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
SI-V247 SI test line Containment penetration X-35 thermal relief valve-- subject to Appendix J, Type C LLRT. This valve provides overpressure protection for X-35 due to thermal expansion of trapped fluid under accident conditions. References: P&ID D20450, UFSAR Table 6.2-83, Engineering Evaluation SS-EV-960023 Revision 0.	2 (H-12)	A/C	0.75 Relief/Safety	Self	C	O/C	-					X				X			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SS**

IST VALVE TEST TABLE

P&ID No.: **D20520**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SS-FV2857	2 (G-5)	A	0.5 Globe	Solenoid	C	C	C			X	X	X			X		X	

PASS sample return isolation valve- ORC-CIV for penetration X-19, subject to Appendix J Type C LLRT. This valve is opened to return PASS sample/flush fluid to the containment and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: 2 Years
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SS-V273	2 (G-4)	A/C	0.5 Check	Self	C	O/C	-					X						X

PASS sample return line check valve- IRC-CIV for penetration X-19, subject to Appendix J Type C LLRT. This valve is opened to return PASS sample/flush fluid to the containment and closes for containment isolation. This valve is also relied upon to open to relieve overpressure caused by thermal expansion of trapped fluid under accident conditions References: P&ID D20518, UFSAR Table 6.2-83 Engineering Evaluation SS-EV-960023,

Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir:

SYSTEM: **SW**

FIGURE F4

IST VALVE TEST TABLE

P&ID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SW-V1 Service water pump P-41A discharge check valve. This valve must open when the service water pump is operating and close to prevent bypass flow from the standby pump as the discharge MOV is closing. References: P&ID D20794, DBD-SW-01 revision 1.	3 (H-7)	C	24.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V2 Service water pump P-41A discharge isolation valve. Interlocked to allow pump to start when fully closed. This valve closes when the pump is secured, and opens when the pump is started. References: P&ID D20794, DBD-SW-01 revision 1.	3 (H-7)	B	24.0 Butterfly	Motor	DE	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
SW-V3 Service water pump P-41C discharge check valve. This valve must open when the service water pump is operating, and close to prevent bypass flow from the standby pump as the discharge MOV is closing. References: P&ID D20794, DBD-SW-01 revision 1.	3 (G-7)	C	24.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V22 Service water pump P-41C discharge isolation valve. Interlocked to allow pump to start when fully closed. This valve closes when the pump is secured, and opens when the pump is started. References: P&ID D20794, DBD-SW-01 revision 1.	3 (G-7)	B	24.0 Butterfly	Motor	DE	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
SW-V24 Service water cooling tower pump P-110B discharge check valve. This valve is normally closed, and opens when the cooling tower pump is operating. This valve does not have a reverse closure function since the discharge MOV is closed when the pump is not operating, thus preventing bypass from the ocean pumps to the cooling tower basin. References: P&ID D20794.	3 (B-7)	C	24.0 Check	Self	C	O	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SW**

IST VALVE TEST TABLE

P&ID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
SW-V25 SW cooling tower pump (P-110B) discharge isolation valve. Interlocked to allow pump to start when fully closed. This valve opens when the pump is started and closes when the pump is stopped. References: P&ID D20794, DBD-SW-01, revision 1.	3 (C-7)	B	24.0 Butterfly	Motor	C	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
SW-V26 Service water Cooling Tower pump 110B discharge isolation to the alternate spent fuel pool heat exchanger. This valve is normally locked closed with power removed. Passive valve function only. To be tested in accordance with ISTC-3700 prior to being restored to service. References: P&ID D20794, DBD-SW-01, revision 1.	3 (B-7)	B	24.0 Butterfly	Motor	C	C	-								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V27 SW cooling tower pump (P-110B) Spray header test valve. This valve opens to 70% when the pump is secured and closes when the pump starts and discharge valve opens on a "TA" signal. This function is to vent the pump column and pipe. References: P&ID D20794, DBD-SW-01, revision 1.	3 (C-7)	B	24.0 Butterfly	Motor	O	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed
SW-V28 Service water pump P-41B discharge check valve. This valve must open when the service water pump is operating, and close to prevent bypass flow from the standby pump as the discharge MOV is closing. References: P&ID D20794, DBD-SW-01 revision 1.	3 (G-7)	C	24.0 Check	Self	DE	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V29 Service water pump P-41B discharge isolation valve. Interlocked to allow pump to start when fully closed. This valve closes when the pump is secured, and opens when the pump is started. References: P&ID D20794, DBD-SW-01, Revision 1.	3 (G-7)	B	24.0 Butterfly	Motor	DE	O/C	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed

FIGURE F4

SYSTEM: **SW**

IST VALVE TEST TABLE

P&ID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SW-V30 Service water pump P-41D discharge check valve. This valve must open when the service water pump is operating, and close to prevent bypass flow from the standby pump as the discharge MOV is closing. References: P&ID D20794, DBD-SW-01 revision 1.	3 (F-7)	C	24.0 Check	Self	DE	O/C	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							X
SW-V31 Service water pump P-41D discharge isolation valve. Interlocked to allow pump to start when fully closed. This valve closes when the pump is secured, and opens when the pump is started. References: P&ID D20794, DBD-SW-01, Revision 1.	3 (F-7)	B	24.0 Butterfly	Motor	DE	O/C	-			X	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed				X		X	
SW-V44 Service water pump suction isolation from the intake transition structure. This valve is normally locked open with power removed. Would only be re-positioned in very limited circumstances to provide tunnel heat treatment (THT). This function is no longer employed, generally, because the chlorination system performs the intended function. Passive valve function only. To be tested in accordance with ISTC-3700 prior to being restored to service. References: P&ID D20794, DBD-SW-01, Revision 1.	3 (H-4)	B	42.0 Butterfly	Motor	O	O	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:				X			
SW-V46 Service water pump suction isolation from the discharge transition structure. This valve is normally locked closed with power removed. Would only be re-positioned in very limited circumstances to provide tunnel heat treatment (THT). This function is no longer employed, generally, because the chlorination system performs the intended function. Passive valve function only. To be tested in accordance with ISTC-3700 prior to being restored to service. References: P&ID D20794, DBD-SW-01, Revision 1.	3 (F-4)	B	42.0 Butterfly	Motor	C	C	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:				X			
SW-V53 Service water cooling tower pump P-110A discharge check valve. This valve is normally closed, and opens when the cooling tower pump is operating. This valve does not have a reverse closure function since the discharge MOV is closed when the pump is not operating, thus preventing bypass from the ocean pumps to the cooling tower basin. References: P&ID D20794.	3 (B-8)	C	24.0 Check	Self	C	O	-				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:							X

FIGURE F4

SYSTEM: **SW**

IST VALVE TEST TABLE

P&ID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SW-V54	3	B	24.0	Motor	C	O/C	-			X					X		X	
SW cooling tower pump (P-110A) discharge isolation valve. Interlocked to allow pump to start when fully closed. This valve opens when the pump is started and closes when the pump is stopped. References: P&ID D20794, DBD-SW-01, revision 1.	(C-9)		Butterfly							Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
SW-V55	3	B	24.0	Motor	C	C	-								X			
Service water Cooling Tower pump 110A discharge isolation to the alternate spent fuel pool heat exchanger. This valve is normally locked closed with power removed. Passive valve function only. To be tested in accordance with ISTC-3700 prior to being restored to service. References: P&ID D20794, DBD-SW-01, revision 1.	(B-9)		Butterfly							Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:								
SW-V56	3	B	24.0	Motor	O	O/C	-			X					X		X	
SW cooling tower pump (P-110A) Spray header test valve. This valve opens to 70% when the pump is secured and closes when the pump starts and discharge valve opens on a "TA" signal. This function is to vent the pump column and pipe. References: P&ID D20794, DBD-SW-01, revision 1.	(C-8)		Butterfly							Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed								
SW-V139	3	B	24.0	Motor	O	C	-			X					X		X	
SW cooling tower Train A spray header bypass recirculation valve. This valve is normally open when the cooling tower is placed into operation, and is cycled closed to initiate sprays by the operator to maintain basin water temperature. References: P&ID D20794, DBD-SW-01, revision 1, OS1016.05.	(C-10)		Butterfly							Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								
SW-V140	3	B	24.0	Motor	O	C	-			X					X		X	
SW cooling tower Train B spray header bypass recirculation valve. This valve is normally open when the cooling tower is placed into operation, and is cycled closed to initiate sprays by the operator to maintain basin water temperature. References: P&ID D20794, DBD-SW-01, revision 1, OS1016.05.	(C-11)		Butterfly							Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed								

FIGURE F4

SYSTEM: **SW**

IST VALVE TEST TABLE

P&ID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
SW-V4 Service water to SCC isolation valve. This valve is normally open and closes on a safety injection signal to isolate the SW NNS loads. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-11)	B	12.0 Butterfly	Motor	O	C	-			X					X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed
SW-V5 Service water to SCC isolation valve. This valve is normally open and closes on a safety injection signal to isolate the SW NNS loads. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-11)	B	12.0 Butterfly	Motor	O	C	-			X					X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed
SW-V15 SW outlet from the CC heat exchanger (CC-E17A). This valve is considered passive per 08MMOD510. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-8)	B	24.0 Butterfly	Motor	O	O	-								X				Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V16 EDG A jacket water heat exchanger outlet isolation valve. This valve is normally closed and opens when the EDG is started. References: P&ID D20795, DBD-SW-01, revision 1.	3 (B-8)	B	16.0 Butterfly	Air/Piston	C	O	O			X	X				X		X		Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: Open ST Test Dir: Open

SYSTEM: **SW**

FIGURE F4

IST VALVE TEST TABLE

P&ID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SW-V17	3 (D-8)	B	24.0 Butterfly	Motor	O	O	-								X			
SW outlet from the CC heat exchanger (CC-E17B). This valve is considered passive per 08MMOD510 References: P&ID D20795, DBD-SW-01, revision 1.									Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:									
SW-V18	3 (C-8)	B	16.0 Butterfly	Air/Piston	C	O	O			X	X				X		X	
EDG B jacket water heat exchanger outlet isolation valve. This valve is normally closed and opens when the EDG is started. References: P&ID D20795, DBD-SW-01, revision 1.									Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: Open ST Test Dir: Open									
SW-V19	3 (D-7)	B	24.0 Butterfly	Motor	O	C	-			X					X		X	
Service water Train B to the discharge transition structure. This valve is normally open, and closes on a Tower Actuation (TA) Signal to divert SW flow to the CT basin. References: P&ID D20795, DBD-SW-01, revision 1.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed									
SW-V20	3 (E-7)	B	24.0 Butterfly	Motor	O	C	-			X					X		X	
Service water Train A to the discharge transition structure. This valve is normally open, and closes on a Tower Actuation (TA) Signal to divert SW flow to the CT basin. References: P&ID D20795, DBD-SW-01, revision 1.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed									
SW-V23	3 (D-7)	B	24.0 Butterfly	Motor	C	O	-			X					X		X	
Service water Train B return to the cooling tower basin. This valve is normally closed and opens on a Tower Actuation (TA) Signal allowing SW flow to the cooling tower. References: P&ID D20795, DBD-SW-01, revision 1.									Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open									

FIGURE F4

SYSTEM: **SW**

IST VALVE TEST TABLE

P&ID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment										
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	
SW-V32 Service water -PCCW heat exchanger 17A outlet relief valve- in scope per ISTA-1100. References: P&ID D20795.	3 (E-9)	C	2.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
SW-V34 Service water Train A return to the cooling tower basin. This valve is normally closed and opens on a Tower Actuation (TA) Signal allowing SW flow to the cooling tower. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-7)	B	24.0 Butterfly	Motor	C	O	-			X					X		X		Open Test Freq: Quarterly Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir: Open
SW-V73 Service water -PCCW heat exchanger 17B outlet relief valve- in scope per ISTA-1100. References: P&ID D20795.	3 (D-9)	C	2.0 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:
SW-V74 Service water- SCC return header isolation valve & Turbine Bldg. Cross-connect to PAB. This valve is normally open and closes on a safety injection signal to isolate the NNS SW return lines. References: P&ID D20795, DBD-SW-01, revision 1.	3 (F-11)	B	24.0 Butterfly	Motor	C	C	-			X					X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed
SW-V76 Service water- SCC return header isolation valve & Turbine Bldg. Cross-connect to PAB. This valve is normally open and closes on a safety injection signal to isolate the NNS SW return lines. References: P&ID D20795, DBD-SW-01, revision 1.	3 (F-11)	B	24.0 Butterfly	Motor	C	C	-			X					X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Closed

SYSTEM: **SW**

FIGURE F4

IST VALVE TEST TABLE

P&ID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment Commitment
SW-V174 Service water to EDG B HX Inlet vacuum breaker check valve. Installed at high point in the SW system piping. System remains operable if testing occurs when the associated Train is supplied by the Cooling Tower. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. DCR 98-34 replaced the previous ANS Class 3 valves with ASME Class 3 valves. References: P&ID D20795, DBD-SW-01, revision 1.	3 (C-11)	C	1.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V175 Service water to PCCW HX B vacuum breaker check valve. Installed at high point in the SW system piping. System remains operable if testing occurs when the associated Train is supplied by the Cooling Tower. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. DCR 98-34 replaced the previous ANS Class 3 valves with ASME Class 3 valves. References: P&ID	3 (C-9)	C	1.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V176 Service water to EDG A HX Inlet vacuum breaker check valve. Installed at high point in the SW system piping. System remains operable if testing occurs when the associated Train is supplied by the Cooling Tower. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. DCR 98-34 replaced the previous ANS Class 3 valves with ASME Class 3 valves. References: P&ID	3 (B-9)	C	1.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V177 Service water to PCCW HX A Outlet vacuum breaker check valve. Installed at high point in the SW system piping. System remains operable if testing occurs when the associated Train is supplied by the Cooling Tower. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. DCR 98-34 replaced the previous ANS Class 3 valves with ASME Class 3 valves. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-9)	C	1.0 Check	Self	C	O/C	-											X	Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:
SW-V514A EDG A jacket water heat exchanger service water relief valve. This valve is in scope per ISTA-1100.	3 (B-10)	C	0.75 Relief/Safety	Self	C	O	-									X			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

FIGURE F4

SYSTEM: **SW**

IST VALVE TEST TABLE

P&ID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
SW-V514B	3 (C-10)	C	0.75 Relief/Safety	Self	C	O	-									X		

EDG B jacket water heat exchanger service water relief valve. This valve is in scope per ISTA-1100.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir:

FIGURE F4

SYSTEM: VG

IST VALVE TEST TABLE

P&ID No.: D20780

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
VG-FV1661	2 (C-8)	A	2.0 Diaphragm	Solenoid	O	C	C			X	X	X			X		X	
VG-FV1712	2 (C-7)	A	2.0 Diaphragm	Solenoid	O	C	C			X	X	X			X		X	

VG-FV1661

Hydrogenated vent header IRC-CIV for penetration X-17- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20780, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: 2 Years
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

VG-FV1712

Hydrogenated vent header ORC-CIV for penetration X-17- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20780, UFSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: 2 Years
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

FIGURE F4

SYSTEM: **WLD**

IST VALVE TEST TABLE

P&ID No.: **D20218**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment
WLD-V81 Reactor Coolant Drain Tank discharge- IRC-CIV for penetration X-32- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20218.	2 (F-11)	A	3.0 Globe	Air/Piston	O	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
WLD-V213 Containment penetration X-32 relief valve, subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident condition. References; P&ID D20219, Engineering Evaluation SS-EV-960023, revision 0.	2 (F-12)	A/C	1.5 Relief/Safety	Self	C	O/C	-					X				X			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

P&ID No.: **D20219**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment
WLD-FV8331 ICI sump discharge IRC-CIV for penetration X-34- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20219	2 (E-11)	A	2.0 Globe	Solenoid	O	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed
WLD-V209 Containment floor sump penetration X-34 thermal relief valve, subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident condition. References; P&ID D20219, Engineering Evaluation SS-EV-960023, revision 0.	2 (E-11)	A/C	0.75 Relief/Safety	Self	C	O/C	-					X				X			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years FS Test Dir: ST Test Dir:

P&ID No.: **D20221**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME	IST Program Plan Commitment
WLD-FV8330 ICI sump discharge ORC-CIV for penetration X-34- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20221	2 (F-6)	A	2.0 Globe	Solenoid	O	C	C			X	X	X			X		X		Open Test Freq: Close Test Freq: 2 Years RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed

FIGURE F4

SYSTEM: **WLD**

IST VALVE TEST TABLE

P&ID No.: **D20222**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
WLD-V82	2 (G-6)	A	3.0 Globe	Air/Piston	O	C	C			X	X	X			X		X	

Reactor Coolant Drain Tank discharge- ORC-CIV for penetration X-32- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20222.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
FS Test Dir: Closed
ST Test Dir: Closed

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown <u>Justification</u>:	CBS - CSJ-1
<u>Valves</u>:	CBS-V8, CBS-V14
<u>Category</u>:	B
<u>Code Class</u>:	2
<u>Function</u>:	(Active) Containment Isolation. Provides a suction source to the residual heat removal pumps <u>and</u> containment building spray pumps following the transfer from the injection mode to the recirculation mode of ECCS operation.
<u>Test Requirements</u>:	ISTC-3510 Exercise (3 months)
Basis for Cold <u>Shutdown Testing</u>:	These valves cannot be exercised during normal plant operation without draining the piping from the ECCS sumps to the suction of RHR and CBS pumps. Draining the suction piping is required to prevent the introduction of water into the ECCS sumps. The RHR and CBS pumps are disabled at the Main Control Board while the suction piping is drained, to prevent introducing water into the containment ECCS sumps, and remain disabled until the suction piping is refilled and vented.
<u>Alternate Testing</u>:	These valves shall be full stroke exercised during cold shutdowns and at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification: CBS - CSJ-2

Valves: CBS-V49

Category: B

Code Class: 2

Function: (Active) Provides a suction source to the safety injection pump from the RWST, and from the residual heat removal pump to the centrifugal charging pump following the transfer from the injection mode to the recirculation mode of ECCS operation.

Test Requirements: ISTC-3510 Exercise (3 Months)

Basis for Cold Shutdown Testing: Closure of CBS-V49 may cause Train A of ECCS components (as defined in TS 3.5.2.b), to be inoperable since it isolates SI-P6A from the RWST. Closure of this valve also causes Train B to be inoperable (as defined in TS 3.5.2.e), since B RHR would be isolated from both A and B charging pumps during sump recirculation. With both ECCS trains inoperable, TS 3.0.3 applies and a 1 hour shutdown is required.

Alternate Testing: This valve shall be full stroke exercised during cold shutdowns and at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	CC- CSJ-1
Valves:	CC-V341
Category:	B
Code Class:	3
Function:	(Active) Primary Component Cooling Water Isolation Valves
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	It is impractical to full stroke exercise this valve quarterly. Isolating this valve during power operations will isolate cooling water to letdown heat exchanger, possibly resulting in overheating.
Alternate Testing:	This valve shall be full stroke exercised at cold shutdowns and refueling outages, when the non-essential cooling load can be isolated.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CC- RJ-1
Valves:	CC-TV2171-1, CC-TV2171-2, CC-TV2271-1, CC-TV2271-2
Category:	B
Code Class:	3
Function:	(Active) Primary Component Cooling Water Temperature Control Valves
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Refueling Outage Testing:	Full stroke exercising these valves during power operations may result in an undesirable thermal transient on one train of primary component cooling. Full stroke exercising these valves during cold shutdowns (when the reactor coolant pumps are still normally in operation) may result in loss of cooling water to the reactor coolant pumps and their motors during their operation. Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.
Alternate Testing:	These valves shall be full stroke exercised at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling
Justification: CC- RJ-2 (not used)

Refueling Justification: CC - RJ-3

Valves: CC-V57, CC-V121, CC-V122, CC-V168, CC-V175, CC-V176, CC-V256, CC-V257

Category: A

Code Class: 2

Function: (Active) Containment Isolation

Test Requirements: ISTC-3510 Exercise (3 Months)

Basis for Refueling Outage Testing:

Exercising these valves quarterly during power operation or during cold shutdowns (when the reactor coolant pumps are still normally in operation) would isolate cooling water to the reactor coolant pump bearing oil coolers and motor air coolers, possibly damaging the reactor coolant pumps.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing: These valves shall be full stroke exercised at refueling outages.

Refueling Justification: CC - RJ-4

Valves: CC-V1092, CC-V1095, CC-V1101, CC-V1109

Category: B

Code Class: 2

Function: (Passive) PCCW Thermal Barrier Containment Isolation

Test Requirements: ISTC-3510 Exercise (3 Months)

Basis for Refueling Outage Testing:

Full stroke exercising these valves quarterly during power operation or during cold shutdowns (when the reactor coolant pumps are still normally in operation) would isolate cooling water to the thermal barrier heat exchanger, possibly damaging or overheating the reactor coolant pumps.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing: These valves shall be full stroke exercised at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification: CS - CSJ-1

Valve: CS-V426

Category: B

Code Class: 2

Function: (Active) Emergency Boration Flow Path

Test Requirements: ISTC-3510, 4.2.4 Full Stroke Time and Exercise (3 Months)

Basis for Cold Shutdown Testing: Exercising this normally closed valve to the open position during power operation could cause a sudden increase in the reactor coolant system boron inventory. This valve supplies highly concentrated borated water to the suctions of the charging pumps. A rapid addition of this highly concentrated borated water would add large amounts of negative reactivity to the reactor coolant system possibly causing a plant shutdown.

Alternate Testing: This valve shall be full stroke exercised, position indication tested and stroke time tested during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown
Justification: CS - CSJ-2 (not used)

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	CS - CSJ-3
Valve:	CS-V427
Category:	C
Code Class:	2
Function:	(Active) Emergency Boration Flow Path
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	Exercising this normally closed check valve to the open position during power operation could cause a sudden increase in the reactor coolant system boron inventory. This valve supplies highly concentrated borated water to the suctions of the charging pumps. A rapid addition of this highly concentrated borated water would add large amounts of negative reactivity to the reactor coolant system possibly causing a plant shutdown.
Alternate Testing:	This valve shall be exercised during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-1
Valves:	CS-LCV112D, CS-LCV112E
Category:	B
Code Class:	2
Function:	(Active) Charging Pump Suction Isolation Valves from the RWST
Test Requirements:	ISTC-3510 Exercise (3 Months)

Basis for Refueling Outage Testing:

Exercising these valves during power operations would require the charging pump suctions to be aligned with the RWST (Refueling Water Storage Tank). This would cause a sudden increase in reactor coolant system boron inventory resulting in the addition of large amounts of negative reactivity to the RCS possibly causing a plant shutdown.

During most cold shutdowns, the reactor coolant pumps are still normally in operation. These exercise tests should not be performed at that time in order to prevent loss of seal cooling flow, or to minimize pressure swings on the seal flow to the reactor coolant pumps.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing: These valves shall be full stroke exercised and stroke timed in both directions at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-2
Valves:	CS-V142, CS-V143, CS-V149, CS-V150
Category:	A and B
Code Class:	2
Function:	(Active) Containment Isolation/Isolation of RC Letdown Flow/Charging Isolation Valves
Test Requirements:	ISTC-3510 Exercise (3 Months)

Basis for Refueling Outage Testing:

The normal charging to the RCS Regenerative Heat Exchanger Isolation Valves (CS-V142 and CS-V143) and the RCS Letdown Flow Isolation Valves (CS-V149 and CS-V150) provide pressurizer level control and chemistry control of the RCS. Full stroke exercising these valves during power operation could cause a loss of pressurizer level control and possibly trip the plant.

During most cold shutdowns, the reactor coolant pumps are still normally in operation. These exercise tests should not be performed at that time in order to prevent loss of seal cooling flow, or to minimize pressure swings on the seal flow to the reactor coolant pumps.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing:

Full stroke exercising and stroke testing (closed) shall be performed at refueling outages. Fail safe (closed) testing for CS-V150 only will also be performed at refueling outages.

Refueling Justification:	CS - RJ-3
Valves:	CS-V192
Category:	C
Code Class:	2
Function:	(Active) Reverse flow protection after sump switch over when RHR Pump Discharge is routed to the CS Pump Suction, and Forward Flow for Safe Shutdown
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Refueling Outage Testing:	The normal suction flow path for the charging pumps during power operation is from the VCT. To verify obturator movement, both safety function directions must be verified. This would require cycling the charging pumps or alternating suctions sources. Isolation of the VCT during power operation would require injection of borated water from the RWST into the RCS causing a reactivity imbalance. The Charging Pumps are not normally shutdown during cold shutdown conditions as seal injection flow is normally in service. Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.
Alternate Testing:	CS-V192 shall be forward flow exercised and reverse flow exercised during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-4
Valves:	CS-LCV112B, CS-LCV112C
Category:	B
Code Class:	2
Function:	(Active) Volume Control Tank Suction Isolation Valves
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Refueling Outage Testing:	Full stroke exercising these valves quarterly during power operation could result in a loss of charging pump suction. This could result in a loss of pressurizer level control possibly resulting in a plant trip, or loss of cooling flow to the Reactor Coolant Pump Seals resulting in equipment damage. During most cold shutdowns, the reactor coolant pumps remain in service. These exercise tests should not be performed at that time in order to prevent loss of seal cooling flow, or to minimize pressure swings on the seal flow to the reactor coolant pumps. Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.
Alternate Testing:	These valves shall be full stroke exercised and stroke timed in the close direction at refueling outage intervals.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-5
Valves:	CS-V219, CS-V221
Category:	B
Code Class:	2
Function:	(Active) Alternate charging to reactor coolant pump seal water injection throttle valves.
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Refueling Outage Testing:	Full stroke exercising these valves during power operation could cause perturbations or loss in RCP seal water flow resulting in pump and reactor trip. During most cold shutdowns, the reactor coolant pumps remain in service. These exercise tests should not be performed at that time in order to prevent loss of seal cooling flow, or to minimize pressure swings on the seal flow to the reactor coolant pumps. Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.
Alternate Testing:	Full stroke exercising shall be performed during refueling outages.

Refueling Justification: CS - RJ-6

Valves: CS-V167, CS-V168

Category: A

Code Class: 2

Function: (Active) Containment Isolation

Test Requirements: ISTC-3510 Exercise (3 Months)

Basis for Refueling Outage Testing:

These valves isolate the Reactor Coolant Pump No. 1 Seal Leakoff flow and Excess Letdown flow.

Isolating these valves during power operation and during startup could cause damage to the Reactor Coolant Pump Seals. During most cold shutdowns, the reactor coolant pumps remain in service. These exercise tests should not be performed at that time.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing: Full stroke exercising and stroke time testing shall be performed during refueling outages.

Refueling Justification:	CS - RJ-7
Valves:	CS-V439, CS-V442
Category:	B
Code Class:	3
Function:	(Active) Gravity Feed - Boration Flow Path
Test Requirements:	ISTC-3510 Exercise (3 Months)

Basis for Refueling Outage Testing:

Exercising these normally closed valves during power operation could cause a sudden increase in reactor coolant system boron inventory. These valves supply highly concentrated borated water to the suction of the charging pump. A rapid addition of this highly concentrated borated water could add negative reactivity to the reactor coolant system, possibly causing a plant shutdown.

This exercise test requires the swapping of the suction path from the VCT to the Boric Acid Tanks in order to monitor system flow. This exercise test should not be performed when the reactor coolant pumps are running. During most cold shutdowns, the reactor coolant pumps remain in service.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing: These valves shall be full stroke exercised during refueling outages.

Refueling Justification:	CS - RJ-8
Valves:	CS-V154, CS-V158, CS-V162, CS-V166
Category:	B
Code Class:	2
Function:	(Active) Seal Injection Isolation Valves
Test Requirements:	ISTC-3510 Exercise (3 Months)

Basis for Refueling Outage Testing:

The four seal injection isolation valves (1-CS-V-154, -158, -162 and -166) prior to EC 276288 implementation, only had one passive safety function. This safety function was to be open and to provide a flow path for reactor coolant inventory control and emergency boration for safe shutdown. During discussions associated with 09CAR044, "Cold Leg Injection Permissive Modification (CLIP)", (ref. AR 01673893), it was determined that the seal injection valves will be utilized, as part of the CLIP design, to isolate charging flow in the Inadvertent Safety Injection and CVCS malfunction accident scenarios.

Exercising these normally open valves during power operation would impact the seal water flow and pressure to the RCP seals. This would have a high probability of impacting the operation of the RCP seal floating ring that could result in an RCP seal failure.

Alternate Testing: These valves shall be full stroke exercised during refueling outages.

Cold Shutdown Justification:	FW - CSJ-1
Valves:	FW-V30, FW-V39, FW-V48, FW-V57
Category:	B
Code Class:	2
Function:	(Active) Feedwater Isolation
Test Requirements:	ISTC-3510 Exercise (3 Months)

Basis for Cold Shutdown Testing:

Full closure of these valves to satisfy the requirements of ISTC-3510 would require plant shutdown. Periodic testing of the FWIVs by closing at power would induce steam generator water level transients and oscillations and any operation which induces main feedwater flow perturbations, whether deliberate or otherwise, generally leads to a reactor trip and should be avoided.

Similarly, partial stroke testing at power is also considered impractical. This testing could result in an unnecessary plant shutdown, cause unnecessary challenges to safety systems, place undue stress on components, cause unnecessary cycling of equipment or unnecessarily reduce the life expectancy of the plant systems or components. This is an example of an impractical condition defined as testing that could cause a plant trip or require a power reduction. Main Feedwater Isolation Valves (MFIV) should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power.

The risk of part-stroke testing the FWIVs during power operations outweighs the potential safety benefit of performing the testing. Furthermore, review of past component work history reveals no cases of any FWIV sticking in the open position and failing to close upon demand, including during part-stroke testing. The closing solenoids are Train-Related for redundancy and have no history of failure. The hydraulic fluid vented off during valve closing is sampled twice each plant operating cycle and the fluid is changed every two years to aid in the identification and removal of any contaminants that could present blockage of the solenoid vent path flow. The valves are not of a design that requires stem and packing lubrication through periodic stroking of the valve, without which, a valve failure may occur. The operating manual for these valves states that preventive maintenance of the gate valve component is not required. There are no known failure mechanisms for these valves that would be minimized by exercising these valves (even partially) on a quarterly basis.

Alternate Testing: Valve full closure time will be verified in hot standby during each reactor shutdown, but this verification need not be determined more than once every 3 months for multiple shutdowns.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification: FW - CSJ-3

Valves: FW-V330, FW-V331, FW-V332, FW-V333

Category: C

Code Class: 2

Function: (Active) Prevent Feedwater Backflow via Main Feed Headers

Test Requirements: ISTC-3510 Exercise (3 Months)

Basis for Cold Shutdown Testing: Exercising these valves for closure would require securing the steam generator feedwater system and cause a plant shutdown.

Alternate Testing: These valves shall be reverse closure tested during cold shutdown conditions and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	FW - CSJ-4
Valves:	FW-V64, FW-V70
Category:	C
Code Class:	3
Function:	(Active) EFW Pumps A & B Discharge Check Valves
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	Full flow through these normally closed check valves on a quarterly basis would require establishing emergency feedwater flow to the steam generators. This would introduce cold water into the steam generators causing a thermal shock to the feedwater nozzles. This testing could also cause feedwater control problems during plant operation which could lead to a reactor trip.
Alternate Testing:	These valves shall be exercised in both the forward and reverse directions during cold shutdowns and refueling outages.

Cold Shutdown Justification: FW - CSJ-5

Valves: FW-V216, FW-V357

Category: C

Code Class: 3

Function: (Active) Startup Feed Pump/EFW Header Check Valves

Test Requirements: ISTC-3510 Exercise (3 Months)

Basis for Cold Shutdown Testing: Full flow through these normally closed check valves on a quarterly basis would require establishing emergency feedwater flow to the steam generators. This would introduce cold water into the steam generators causing a thermal shock to the feedwater nozzles. This testing could also cause feedwater control problems during plant operation which could lead to a reactor trip. Quarterly reverse flow testing of these valves would require a system intrusion.

Alternate Testing: These valves shall be exercised in both the forward and reverse directions during cold shutdown conditions and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	FW - CSJ-6
Valves:	FW-V349, FW-V351
Category:	C
Code Class:	3
Function:	(Active) Emergency Feedwater Pump Turbine Oil Cooler Outlet Check Valve (FW-V351), Emergency Feedwater Common Recirc Line Check Valve (FW-V349)
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	A forward flow exercise for both of these valves could be achieved on a quarterly interval, when the EFW pumps are run. However , to verify obturator movement in both the open and closed direction, as required by ISTC-3530, system intrusion and isolation of all EFW recirculation flow paths is required, which would make both EFW trains inoperable.
Alternate Testing:	These valves shall be exercised in the forward and reverse directions during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	FW - CSJ-7
Valves:	FW-FV4214A/B, FW-FV4224A/B, FW-FV4234A/B and FW-FV4244A/B
Category:	B
Code Class:	3
Function:	(Active) Steam Generator EFW Isolation Valves
Test Requirements:	ISTC-3510 Exercise (3 months)
Basis for Cold Shutdown Testing:	If a valid EFW actuation were to occur during performance of a quarterly surveillance stroke time test, EFW flow to two additional steam generators could be isolated. This would result in less than the design basis flow (e.g., minimum flow of 470 gpm to three steam generators and a minimum total flow of 650 gpm to four steam generators with one EFW pump operational.)
Alternate Testing:	These valves will be full stroke exercised and stroke time tested during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown
<u>Justification</u>: MS - CSJ-1 (not used)

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	MS - CSJ-2
Valves:	MS-V86, MS-V88, MS-V90, MS-V92
Category:	B
Code Class:	2
Function:	(Active) Main Steam Isolation
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	Full closure of these valves for the purpose of exercising per ISTC-3510 would require plant shutdown. Periodic testing of the MSIVs by closing at power would induce main steam transients which would lead to a reactor trip.
Alternate Testing:	These valves shall be part-stroke exercised at quarterly intervals. Valve full closure time will be verified generally in hot standby during each reactor shutdown, except that this verification need not be determined more then once every 3 months for multiple shutdowns. Valve full closure time may also be performed when the MSIV actuator metal temperature can be maintained at or above the required minimum temperature.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RC - CSJ-1
Valves:	RC-V22, RC-V23, RC-V87, RC-V88
Category:	A
Code Class:	1
Function:	(Active) RHR Pump Suction Valves
Test Requirements:	ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	It is impractical to open these valves during operation when RCS pressure is above 365 psig. These valves have system interlocks which prevent them from opening with the RCS pressure above 365 psig to prevent overpressurization of the RHR system piping.
Alternate Testing:	These valves shall be full stroke exercised and timed during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RC - CSJ-2
Valves:	RC-PCV456A, RC-PCV456B
Category:	B
Code Class:	1
Function:	(Active) Pressurizer Power Operated Relief Valves (PORVs)
Test Requirements:	ISTC-3510 Full Stroke Exercise, Full Stroke Time, and Fail Safe (3 Months)
Basis for Cold Shutdown Testing:	Full stroke exercising of these valves is impractical during power operation. These valves demonstrate a high probability of sticking open and are not needed for overpressure protection during power operation. The safety function of these valves is to protect the reactor vessel and the reactor coolant system from low temperature overpressurization conditions, and shall be exercised prior to initiation of system conditions for which vessel protection is needed.
Alternate Testing:	These valves shall be full stroke exercised, timed, and fail safe tested at each cold shutdown. The typical cold shutdown testing position is not applicable to the PORVs; however, in the case of frequent cold shutdowns, testing of the PORVs is not required more often than every three months.

Cold Shutdown Justification:	RC - CSJ-3
Valves:	RC-V323
Category:	B
Code Class:	2
Function:	(Active) Reactor Head Vent Isolation Block Valve
Test Requirements:	ISTC-3510 Full Stroke Exercise and Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	As discussed in Generic Letter 93-05, Paragraph 6.3 and as adopted in Seabrook Station Technical Specification Amendment 30.
Alternate Testing:	This valve shall be full stroke exercised and timed at least once per cold shutdown, if not performed within the previous 92 days.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RC - CSJ-4
Valves:	RC-V475, RC-V479
Category:	AC
Code Class:	2
Function:	(Active) Pressure Locking Vent Path
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	These valves are located inside the Containment missile barrier. They are not accessible during plant operation. These valves provide a bonnet vent path to relieve trapped bonnet pressure (e.g., differential pressure locking). Differential pressure locking may occur when a system is pressurized after a valve is closed. The pressurized side of the disc may move slightly away from the seat, allowing high pressure liquid to enter the bonnet cavity. With time, the bonnet pressure would tend to equalize with pressure in the body cavity. If the pressure in the system is subsequently decreased, the bonnet pressure would force the disc against the seat, more tightly than normal if the bonnet pressure is not relieved. These check valves are normally closed against reactor coolant (RCS) system pressure, but are open to relieve trapped bonnet pressure after RCS pressure is decreased.
Alternate Testing:	These valves shall be full open exercised during cold shutdowns and refueling outages, and shall be full closed exercised during cold shutdowns and refueling outages when performing their required reactor coolant pressure isolation valve leakage rate tests per Technical Specification 4.4.6.2.2.

Refueling Justification:	RC - RJ-1
Valves:	RC-LCV459, RC-LCV460
Category:	B
Code Class:	1
Function:	(Active) Letdown Regenerative Hx Isolation from Loop 3
Test Requirements:	ISTC-3510 Full Stroke Exercise, Full Stroke Time, and Fail Safe (3 Months)

Basis for Refueling Outage Testing:

The letdown subsystem of the Chemical and Volume Control System provides pressurizer level control of the reactor coolant system. Full stroke exercising these valves during power operation on a quarterly basis could cause a loss of pressurizer level control and possibly a plant trip.

During most cold shutdowns, the reactor coolant pumps remain in service. These exercise tests should not be performed at that time in order to prevent loss of seal cooling flow, or to minimize pressure swings on the seal flow to the reactor coolant pumps.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing: These valves shall be full stroke exercised, timed, and fail safe tested during refueling outages.

Cold Shutdown Justification: RH - CSJ-1

Valves: RH-V14, RH-V26

Category: B

Code Class: 2

Function: (Active) RHR Cold Leg Isolation

Test Requirements: ISTC-3510 Exercise (3 Months)

Basis for Cold Shutdown Testing: These valves are required to be open with power removed from the operators during Modes 1, 2 and 3 by Technical Specification 4.5.2 to ensure the operability of this ECCS subsystem.

Alternate Testing: These valves shall be full stroke exercised during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RH - CSJ-2
Valves:	RH-V35, RH-V36
Category:	B
Code Class:	2
Function:	(Active) Provide suction source to the safety injection/charging pump(s) during recirculation mode of operation of the emergency core cooling system.
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	These valves cannot be exercised during normal plant operation without the use of electrical jumpers to defeat system interlocks. Should an ECCS actuation occur while these valves were open, the suction source to the charging and safety injection pumps would be the RHR system, and the borated water supplied would be at the boron concentration of the RHR system at the time the RHR system was last shutdown. This boron concentration could be less than the boron concentration in the CS/SI pumps normal suction supply (RWST) and may result in an increase in the time required to borate the reactor coolant system.
Alternate Testing:	These valves shall be full stroke exercised during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RH - CSJ-3
Valves:	RH-V21, RH-V22
Category:	B
Code Class:	2
Function:	(Active) Residual Heat Removal System Crossover Valves
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	Exercising these valves during power operations is impractical. Closing either valve would render the RHR system inoperable by isolating two of the required four cold leg injection paths to the reactor coolant system from each RHR pump. Technical Specification 3.5.2 requires that there be at least one operable RHR pump for emergency core cooling during Modes 1, 2 and 3. Closing either of these valves could inhibit the ability of the RHR system to adequately respond to a large break loss-of-coolant accident.
Alternate Testing:	These valves shall be full stroke exercised during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RH - CSJ-4
Valves:	RH-V32, RH-V70
Category:	B
Code Class:	2
Function:	(Active) RHR Hot Leg Isolation
Test Requirements:	ISTC-3510 Exercise (3 Months)
Basis for Cold Shutdown Testing:	These valves are required by Technical Specifications to be shut and power to be removed from their operators during Modes 1, 2, and 3 (Technical Specification 4.5.2) to ensure operability of this ECCS subsystem.
Alternate Testing:	These valves shall be full stroke exercised during cold shutdowns and refueling outages.

Refueling Justification:	RMW - RJ-1
Valves:	RMW-V119
Category:	C
Code Class:	2
Function:	(Active) Forward flow for emergency boration
Test Requirements:	ISTC-3510 Exercise (3 Months)

Basis for Refueling Outage Testing:

Reverse closure testing of this valve would require isolation of the VCT. Since the VCT is the normal suction path to the charging pumps, a suction swap to the RWST would be required, introducing colder borated water into the RCS causing a reactivity imbalance. Forward flow through this valve could be achieved by inserting reactor makeup water directly to the suction of the charging pumps, however, the open and closed exercise tests need to be performed in the same interval per ISTC-3522a.

The reverse test requires that both charging pumps are secured. This exercise test requires the swapping of the suction path from the VCT to the Boric Acid Tanks in order to monitor system flow. This exercise test should not be performed when the Reactor Coolant pumps are running. During most cold shutdowns, the reactor coolant pumps and charging pumps remain in service.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing: Forward and reverse exercising shall be performed during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SB - CSJ-1
Valves:	SB-V9, SB-V10, SB-V-11, SB-V12
Category:	B
Code Class:	2
Function:	(Active) Steam Blowdown Containment Isolation Valves
Test Requirements:	ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	SG B blowdown isolation valve ORC-CIV. These valves are normally open and close on a HELB isolation signal, high flash tank level or pressure, EFW pump running signal and receives a "T" closure signal. These valves are equipped with train specific solenoids (connected in series with each other) with both solenoids actuated by a dual train control switch. Accessing the “A” solenoids involves climbing around hot pipes and would require significant physical activity to configure the solenoids for train specific testing. This testing is intrusive and requires both climbing / crawling access into areas with hot pipes, presenting significant safety issues.
Alternate Testing:	These valves shall be full stroke exercised and timed during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SI - CSJ-1
Valves:	SI-V77, SI-V102
Category:	B
Code Class:	2
Function:	(Active) SI to Hot Leg Isolation Valves
Test Requirements:	ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	These valves are required by Technical Specifications to be closed and power to be removed from their operators during Modes 1, 2, and 3 (Technical Specification 4.5.2a) to ensure operability of this ECCS subsystem.
Alternate Testing:	These valves shall be full stroke exercised and timed during cold shutdowns as permitted by Technical Specification 3.5.3.2 and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SI - CSJ-2
Valves:	SI-V93
Category:	B
Code Class:	2
Function:	(Active) Minimum Flow Common Recirculation Isolation for SI-P6A and SI-P6B
Test Requirements:	ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	Isolating this valve during power operations is impractical. Isolating this valve would render both safety injection pumps inoperable in the event of a safety injection actuation. The valve is designed to provide a minimum flow through the safety injection pumps during the time of an event when the RCS pressure is greater than the shutoff head of the SI pumps. Isolating this minimum flow path from both SI pumps would possibly damage the pumps and significantly affect the ability of these pumps to adequately perform their safety function.
Alternate Testing:	This valve shall be full stroke exercised and timed during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SI - CSJ-3
Valves:	SI-V114
Category:	B
Code Class:	2
Function:	(Active) SI to Cold Leg Isolation Valve
Test Requirements:	ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	This valve is required by Technical Specifications to be open and power removed from its operator during Modes 1, 2, and 3 (Technical Specification 4.5.2a) to ensure operability of this ECCS subsystem.
Alternate Testing:	This valve shall be full stroke exercised and timed during cold shutdowns as permitted by Technical Specification 3.5.3.2 and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SI - CSJ-4
Valves:	SI-V3, SI-V17, SI-V32, SI-V47
Category:	B
Code Class:	1
Function:	(Active) Accumulator Isolation Valves
Test Requirements:	ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	These normally open valves provide isolation between the pressurized accumulators and the reactor coolant system, when the reactor coolant system pressure is less than 1000 psig. These valves cannot be exercised during normal plant operation in Modes 1 or 2 (or in Mode 3 when the RCS is pressurized above 1000 psig), since Technical Specifications require them to be open, with power removed from their actuators. These valves cannot be exercised in Mode 4 or in Mode 5 when the accumulators are pressurized above 100 psig, since they are required to be closed, with power removed from their actuators by Technical Specifications.
Alternate Testing:	These valves shall be full stroke exercised and timed during cold shutdowns and refueling outages.

Refueling Justification: SI - RJ-1

Valves: SI-V138 and SI-V139

Category: B

Code Class: 2

Function: (Active) Containment Isolation/High Head Safety Injection (HHSI) Isolation

Test Requirements: ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)

Basis for Refueling Outage Testing: These valves cannot be exercised during normal plant operation or under certain Cold Shutdown alignments. Exercising these valves would direct normal charging pump flow to the high head safety injection flow path. Since normal charging water is heated by the RCS letdown in the regenerative heat exchanger, the inversion through the HHSI flow path introduces relatively cold water to the RCS, thermally shocking these piping lines. Further, it would divert seal injection flow from the Reactor Coolant Pumps (RCP), possibly damaging RCP seals and bearings. During most cold shutdowns, the reactor coolant pumps remain in service. These exercise tests should not be performed at that time in order to prevent loss of seal cooling flow, or to minimize pressure swings on the seal flow to the reactor coolant pumps.

Stopping and restarting reactor coolant pumps at each cold shutdown solely to allow for the testing of these valves would increase wear, stress and the number of cycles on the pumps and extend the length of cold shutdown outages. Engineering recommends testing these valves at least each refueling outage.

Alternate Testing: These valves shall be full stroke exercised and timed during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	SW - RJ-1	(not used)

FIGURE F5
ADMINISTRATIVE RELIEF REQUEST

There are no Administrative Relief Request for the Third Interval

PART II

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING (IST) PROGRAM PLAN

EXCLUSION JUSTIFICATION DOCUMENT

1.0 INTRODUCTION

1.1 OBJECTIVE

This document presents justification for excluding various ASME III Class 1, 2 and 3 pumps and valves from the Seabrook Station Inservice Testing (IST) Program Plan.

This document also contains justification for excluding various non-ASME, but safety-related pumps and valves from the IST Program Plan.

The reference documents used to develop the IST Program Plan are listed in Reference 2.4.

1.2 DEFINITIONS

1. P&IDs

Controlled drawings, which delineate the boundaries of safety-related and non-safety-related (NNS) systems and associated components.

2. Active Valves

Any valve which is required to change position to accomplish its specific safety-related function.

3. Passive Valves

Any valve which does not have to change position to accomplish its specific safety-related function. The reference code excludes valves used only for operating convenience and/or maintenance testing.

4. Manual Valves

The reference code excludes passive manual valves from IST testing unless they have a leakage requirement (see ISTC-3600) and/or remote position indication (see ISTC3700). Refer to Table ISTC-3500-1.

5. Control Valves

The reference code excludes valves which perform system control functions. Control valves that are self-contained (e.g., pressure regulating valves) are excluded. The program excludes other control valves unless they also perform a required system safety-related response function such as having a required fail-safe position.

6. Power Operated Valves

Power operated valves activated by remote switches by safety system signals, or by process signals to change position.

1.3 RESPONSIBILITIES

Component Engineering and Test personnel maintain the Pump and Valve Inservice Testing (IST) Program.

2.0 REFERENCES

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 2004 Edition.
2. Generic Letter No. 89-04, Guidance on Developing Acceptable Inservice Testing Programs, April 3, 1989.
3. Updated Final Safety Analysis Report (UFSAR), Seabrook Station.
4. Seabrook Station Pump and Valve Inservice Testing (IST) Program Plan.

3.0 SCOPE

Various pumps and valves contained in this document were excluded from the IST Program Plan because they did not meet the following general conditions.

3.1 PUMPS

The pumps included in the IST Program Plan are certain ASME III Code Class 2 and 3 safety-related pumps. These pumps must perform a specific function in shutting down the reactor, maintaining safe shutdown conditions or in mitigating the consequences of an accident, and must be provided with an emergency on site power source (See ISTA-1100).

3.2 VALVES

The valves included in the IST Program Plan are certain ASME III Code Class 1, 2, and 3 safety-related valves. The valves must perform a specific function in shutting down a reactor to the safe shutdown condition, maintaining safe shutdown conditions or in mitigating the consequences of an accident. Also covered, are pressure relief devices which protect systems or portions of systems which perform those specific functions (See ISTA-1100).

3.3 APPROACH

Active components are listed is UFSAR 3.9 in the following tables:

1. Table 3.9(B)-26, BOP Supplier - Active Pumps
2. Table 3.9(B)-27, BOP Supplier - Active Valves
3. Table 3.9(N)-10, NSSS Supplier - Active Pumps
4. Table 3.9(N)-11, NSSS Supplier - Active Valves

System P&IDs containing the above listed components were obtained. Portions of each system that performed a specific function in shutting down the reactor to a safe shutdown condition, maintaining safe shutdown or in mitigating the consequences of an accident were highlighted. Boundaries of these system portions were established. Components in these highlighted system portions were either included in the IST Program Plan, or listed in the Exclusion Justification Document.

Safe shutdown is defined as the minimum required for maintaining safe shutdown of the reactor under non-accident conditions, and does not include shutdown capabilities in the event of a fire. The safe shutdown design basis for Seabrook Station is Hot Standby per UFSAR 5.4.7.2.i. Reference UFSAR 7.4, Systems Required for Safe Shutdown.

3.4 OTHER COMPONENTS NOT INCLUDED

The following HVAC Systems, with the exception of the containment penetration valves, are not included in the scope of the Seabrook Station IST Program Plan:

CBA - Emergency Switchgear, Battery Room, and Cable Spreading Room Ventilation System

PAH - Primary Air Handling System

EAH - Enclosure Air Handling System

FAH - Fuel Storage Building Heating and Ventilation

These systems and other HVAC systems are excluded from the IST Program Plan because:

1. these systems are tested in accordance with Technical Specification requirements,
2. other system operation is demonstrated by monitoring area temperatures in accordance with Technical Specifications requirements,
3. these systems contain dampers and fans, and
4. these systems contain self-contained, skid mounted chillers or air conditioning units whose operation is demonstrated by satisfactory system operation.

Fire Protection Systems, with the exception of the containment penetration valves, are not included in the scope of the IST Program Plan. They are not listed in this document.

Certain skid-mounted pumps, valves and component sub-assemblies that are adequately tested as part of the major component are also excluded from the scope of the IST Program in accordance with provisions of ISTB-1200 and ISTC-1200. See PART I, IST Program Plan, Section 3.7 for additional information on the scope of skid-mounted components.

3.5 COMPONENT EXCLUSION JUSTIFICATION TABLES

Figure F6 includes the tables for systems which have components that have been excluded from the IST Program Plan.

4.0 PUMPS

4.1 PUMP EXCLUSION

Pumps which are excluded from the IST Program Plan are contained in the applicable system or component notes/remarks of Figure F6, IST Exclusion Justification Document Tables.

Bases for which pumps are excluded from the IST Program Plan include the following:

1. The pump is not ASME Code Class 2 or 3, or does not perform a specific ISTA-1100 safety-related function.

2. The pump does not have an emergency on site power supply (ISTB-1100).

3. The pump is supplied with emergency power solely for operating convenience (ISTB-1200(b)).

4. The pump is associated with a skid system (e.g., diesel generator engine driven pumps or fuel oil transfer pumps) where satisfactory operation of the unit demonstrates satisfactory operation of the pump (ISTB-1200(c)).

5. The pump is associated with a Fire Protection system (e.g., non-Code, but important to safety). These pumps are tested separately in accordance with other Seabrook Station programs.

6. Pumps that are either gear or shaft driven are excluded as their operation is assessed with the satisfactory operation of the associated equipment.

7. Drivers are excluded (ISTB-1200(a)) unless they are an integral unit (e.g., canned motor assembly like the boric acid transfer pumps) or part of a vertical line shaft pump (e.g., residual heat removal, service water, etc.).

5.0 VALVES

5.1 VALVE EXCLUSION

Valves which are excluded from the IST Program Plan are contained in the applicable system or component notes/remarks of Figure F6, IST Exclusion Justification Document Tables.
The valve number and the drawing coordinates uniquely define the valve. The noun name serves only to provide information regarding the function of the valve. Changes in valve noun names are considered as editorial changes. These will be periodically updated; however, they should not be the sole reason for a revision

Bases for which valves are excluded from the IST Program Plan include the following:

1. Valves used only for operating convenience such as manual vent, drain, instrument, and test valves (ISTC-1200(a)) are not listed in this document.

2. Valves used for system control such as self contained pressure regulating valves (ISTC-1200(b)) or that do not have a required ISTA-1100 safety-related function.

3. Valves used for maintenance isolation or for thermal relief protection during maintenance isolation (ISTC-1200), or if no credit for overpressure protection for certain thermally induced scenarios is assumed in the design bases.

4. External control and protection systems responsible for sensing plant conditions and providing signals for valve operation (ISTC-1200(c)) are not listed in this document.

5. Passive valves that do not have a leakage requirement (ISTC-3600) or remote position indication (ISTC-3700).

6. Valves that are not ASME Code Class 1, 2, or 3 or that are ASME Code Class but do not perform a specific ISTA-1100 safety-related function.

7. Valves that are skid-mounted and whose function is demonstrated by the satisfactory operation of the associated component (ISTC-1200).

8. Valves that are integral with a component (e.g., a seal cooler assembly on an ISTB in-scope pump, or an integral relief valve on a positive displacement pump). Satisfactory operation of the valve is integral with the satisfactory operation of the component.

9. Valves that are in the Fire Protection System (e.g., non-safety related portion). These components are tested in accordance with other Seabrook Station programs.

10. Valves whose function is adequately demonstrated by another program (e.g., the INPO Check Valve Program).

6.0 COMPONENT EXCLUSION JUSTIFICATION TABLE NOMENCLATURE

The following abbreviations have been used in the Component Exclusion Justification Table:

Valve Type

BFV - Butterfly Valve
BLV - Ball Valve

CHV - Check Valve

DIV - Diaphragm Valve

GLV - Globe Valve
GTV - Gate Valve

PGV - Plug Valve

REV - Relief Valve

SAV - Saunders Weir Valve
SCV - Stop Check Valve
SEV - Safety Valve

TMV Three Way Valve

Actuator Type

ADA - Air/Diaphragm
APA - Air/Piston
DIA - Diaphragm

HOA - Hydraulic
NPA - Nitrogen/Piston
NDA - Nitrogen/Diaphragm
MAA - Manual
MOA - Motor

SEA - Self
SOA - Solenoid

Positions

O - Open

C - Closed

LO - Locked Open

LC - Locked Closed

TH - Throttled

DE - Normal position depends on system condition.

7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT

Valve Number	Unique number assigned to each valve, and a noun name of the component within the system.
Class and Coord	The ASME component classification (Class 1, 2, or 3), non-ASME component classification (N), ANSI component classification (e.g., Class 3*) and the component location on the P&ID.
Valve (CAT.)	Valve category as defined in ISTC-1300.
Size (In.) and Type	Valve size is the nominal diameter of the valve in inches. Valve type is the specific type of valve, as abbreviated in Section 6.0, "Component Exclusion Justification Table Nomenclature."
Actu Type	The type of Actuator used to operate the valve, as abbreviated in Section 6.0, "Component Exclusion Justification Table Nomenclature."
Positions NRM SAF FAL	The expected valve position during normal plant operation, the safety position and fail-safe position, as abbreviated in Section 6.0, "Component Exclusion Justification Table Nomenclature."
Justification	Statement providing the basis for exclusion from the IST Program Plan.

	System	P&ID No.	Page No.
1.	Auxiliary Steam (AS)	1-AS-D20569	N/A
2.	Containment Air Handling (CAH)	1-MAH-D20504	N/A
3.	Containment Air Purge (CAP)	1-MAH-D20504	2-F6.1
4.	Containment Spray (CBS)	1-CBS-D20233 1-SI-D20446 1-SI-D20447	2-F6.2
5.	Component Cooling Water (CC)	1-CC-D20205 1-CC-D20206 1-CC-D20207 1-CC-D20209 1-CC-D20211 1-CC-D20212 1-CC-D20213	2-F6.3

7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT (Continued)

System	P&ID No.	Page No.
6. Combustible Gas Control (CGC)	1-CGC-D20612	2-F6.5
7. Condensate (CO)	1-CO-D20426	2-F6.8
8. Containment Online Purge (COP)	1-MAH-D20504	2-F6.9
9. Chemical & Volume Control (CS)	1-CS-D20722 1-CS-D20725 1-CS-D20726 1-CS-D20729 1-RH-D20662 1-RH-D20663	2-F6.10
10. Diesel Generator (DG)	1-DG-D20458 1-DG-D20459 1-DG-D20460 1-DG-D20461 1-DG-D20462 1-DG-D20463 1-DG-D20464 1-DG-D20465 1-DG-D20466 1-DG-D20467	2-F6.21
11. Demineralized Water (DM)	1-DM-D20349 1-DM-D20352	2-F6.61
12. Fire Protection (FP)	1-FP-D20271	N/A
13. Feedwater (FW)	1-CO-D20426 1-FW-D20686 1-FW-D20687 1-FW-D20688 1-FW-D20690 1-FW-D20691	2-F6.62
14. Instrument Air (IA)	1-IA-D20640 1-IA-D20643 1-IA-D20644 1-IA-D20645	2-F6.72
15. Leak Detection (LD)	1-LD-D20864	N/A

7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT (Continued)

System	P&ID No.	Page No.
16. Main Steam (MS)	1-MS-D20580 1-MS-D20581 1-MS-D20582 1-MS-D20583 1-MS-D20587	2-F6.76
17. Nitrogen Gas (NG)	1-NG-D20135 1-NG-D20136	2-F6.77
18. Reactor Coolant (RC)	1-RC-D20841 1-RC-D20842 1-RC-D20843 1-RC-D20844 1-RC-D20845 1-RC-D20846 1-SS-D20518 1-WLD-D20218	2-F6.78
19. Residual Heat Removal (RH)	1-RH-D20662 1-RH-D20663	2-F6.79
20. Reactor Makeup Water (RMW)	1-CS-D20729 1-RMW-D20360	2-F6.81
21. Service Air (SA)	1-SA-D20652	N/A
22. Steam Generator Blowdown (SB)	1-RC-D20841 1-RC-D20842 1-RC-D20843 1-RC-D20844	2-F6.82
23. Spent Fuel Pool Cooling and Cleanup (SF)	1-SF-D20482 1-SF-D20483 1-SF-D20484 1-SW-D20796	2-F6.84
24. Safety Injection (SI)	1-SI-D20446 1-SI-D20447 1-SI-D20450	2-F6.87
25. Sample (SS)	1-SS-D20520	N/A
26. Service Water (SW)	1-SW-D20794 1-SW-D20795 1-SW-D20796	2-F6.88

7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT (Continued)

	System	P&ID No.	Page No.
27.	Vent Gas (VG)	1-VG-D20780	N/A
28.	Waste Gas (WG)	1-WG-D20773	2-F6.91
29.	Waste Processing Liquid Drains (WLD)	1-WLD-D20218 through 1-WLD-D20229	2-F6.92

SYSTEM: **CAP**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

P&ID No.: **D20504**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CAP-V1	2 (B-8)	B	36.0 Butterfly	Air/Piston	LC	LC	C
Containment- refueling purge supply isolation valve (ORC). This valve is normally closed in Modes 1-4 (pen. blanked), and is open during extended plant shutdowns and refueling outages. It receives an auto closure signal on high radiation inside containment (Containment Purge and Exhaust Isolation Signal). System supplies air to maintain tritium within acceptable levels during refueling. Pre-entry subsystem will reduce containment airborne activity level within 24 hours following reactor shutdown. References P&ID D20504, FSAR Section 15.7.4.3, 92DCR014, CAP Valves V1 and V4 Blind Flanges and 95MMOD508, which adds a test connection to each CAP penetration.							
CAP-V2	2 (C-7)	B	36.0 Butterfly	Air/Piston	LC	LC	C
Containment- refueling purge supply isolation valve (IRC). This valve is normally closed in Modes 1-4 (pen. blanked), and is open during extended plant shutdowns and refueling outages. It receives an auto closure signal on high radiation inside containment(Containment Purge and Exhaust Isolation Signal). System supplies air to maintain tritium within acceptable levels during refueling. Pre-entry subsystem will reduce containment airborne activity level within 24 hours following reactor shutdown. References P&ID D20504, FSAR Section 15.7.4.3, 92DCR014, CAP Valves V1 and V4 Blind Flanges and 95MMOD508, which adds a test connection to each CAP penetration.							
CAP-V3	2 (C-7)	B	36.0 Butterfly	Air/Piston	LC	LC	C
Containment- refueling purge exhaust isolation valve (IRC). This valve is normally closed in Modes 1-4 (pen. blanked), and is open during extended plant shutdowns and refueling outages. It receives an auto closure signal on high radiation inside containment(Containment Purge and Exhaust Isolation Signal). System supplies air to maintain tritium within acceptable levels during refueling. Pre-entry subsystem will reduce containment airborne activity level within 24 hours following reactor shutdown. References P&ID D20504, FSAR Section 15.7.4.3, 92DCR014, CAP Valves V1 and V4 Blind Flanges and 95MMOD508, which adds a test connection to each CAP penetration.							
CAP-V4	2 (E-8)	B	36.0 Butterfly	Air/Piston	LC	LC	C
Containment- refueling purge exhaust isolation valve (ORC). This valve is normally closed in Modes 1-4 (pen. blanked), and is open during extended plant shutdowns and refueling outages. It receives an auto closure signal on high radiation inside containment(Containment Purge and Exhaust Isolation Signal). System supplies air to maintain tritium within acceptable levels during refueling. Pre-entry subsystem will reduce containment airborne activity level within 24 hours following reactor shutdown. References P&ID D20504, FSAR Section 15.7.4.3, 92DCR014, CAP Valves V1 and V4 Blind Flanges and 95MMOD508, which adds a test connection to each CAP penetration.							

SYSTEM: **CBS**

P&ID No.: **D20233**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Remarks
CBS-V35	2 (G-8)		4.0 Gate	Manual	C	C	-	RWST to SF pool makeup isolation valve. Normally closed valve. This valve has no active safety function as described in ISTA-1100. Although opened for SF pool makeup during abnormal operating procedures, this is a short evolution in terms of time. Engineering has determined a valve operated in this manner need not be considered active solely due to that operation. References: OS1215.07
CBS-V61	3 (B-4)		4.0 Diaphragm	Manual	C	C	-	RWST to SF pool makeup isolation valve. Normally closed valve. This valve has no active safety function as described in ISTA-1100. Although opened for SF pool makeup during abnormal operating procedures, this is a short evolution in terms of time. Engineering has determined a valve operated in this manner need not be considered active solely due to that operation. References: OS1215.07
CBS-P377	3 (F-12)							The Spray Additive Tank recirc pump is used to ensure proper chemical concentrations are present in the Spray Additive Tank. The pump does not have a safety related power supply and is not in IST per ISTB-1200(b) and ISTA-1100. Although the proper chemical concentrations are important for the safe shutdown of the reactor, the pump only provides a means of accurately measuring that concentration. Reference PID-D20233, CS0910.05,

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CC**

P&ID No.: **D20205**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CC-V1267 PCCW return header cross-connect manual isol. Administratively controlled locked closed valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45	3 (A-8)		16.0 Butterfly	Manual	Locke	C	-
CC-V1268 PCCW CC-E-17A heat exchanger outlet manual isol. Administratively controlled normally open valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45	3 (F-11)		24.0 Butterfly	Manual	Locke	O	-
CC-V1272 PCCW head tank cross-connect manual isol. Administratively controlled locked closed valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45	3 (D-8)		4.0 Butterfly	Manual	Locke	C	-
CC-V486 CC A Train containment return header IRC relief valve. This valve is credited to provide adjacent piping OPP for penetrations X-20 & X-21. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20207, Engineering Evaluation SS-EV-960023, revision 0.	NNS (B-6)		3.0 Relief/Safety	Self	C	O	-

P&ID No.: **D20208**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CC-Various1 There are no SSD or accident mitigating components on this P&ID CC-D20208.						-	-

SYSTEM: **CC**

P&ID No.: **D20211**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CC-V1266	3 (A-9)		16.0 Butterfly	Manual	Locke	C	-
PCCW return header cross-connect manual isol. Administratively controlled locked closed valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45							
CC-V1269	3 (F-11)		24.0 Butterfly	Manual	Locke	O	-
PCCW CC-E-17B heat exchanger outlet manual isol. Administratively controlled normally open valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45							
CC-V1273	3 (D-9)		4.0 Butterfly	Manual	Locke	C	-
PCCW head tank cross-connect manual isol. Administratively controlled locked closed valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45							
CC-V120	NNS (A-10)		3.0 Relief/Safety	Self	C	O	-
CC Train B containment return header IRC relief valve. This valve is credited to provide adjacent piping OPP for penetrations X-22 & X-23.However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20214, Engineering Evaluation SS-EV-960023, revision 0.							

P&ID No.: **D20215**

Valve Number	SAF	FAL
CC-Various2	-	-

There are no SSD or accident mitigating components on this drawing P&ID CC-D20215.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **CGC**
P&ID No.: **B20612**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CGC-V56	NNS (D-5)		0.13 Globe	Manual	O	-	-
Containment air sample vessel MM-782 supply isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V57	NNS (D-5)		0.13 Globe	Manual	O	-	-
Containment air sample vessel MM-782 return isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V58	2 (E-6)		0.75 Diaphragm	Manual	C	C	-
Containment air sample vessel MM-782 supply isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. Serves passive function of isolating NNS piping. No position indication, therefore excluded from IST. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V59	2* (E-5)		0.75 Diaphragm	Manual	C	C	-
Containment air sample vessel MM-782 return isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. Serves passive function of isolating NNS piping. No position indication and is ANSI Class 2, therefore excluded from IST. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							

SYSTEM: **CGC**

P&ID No.: **B20612**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
CGC-V60	NNS (D-5)		0.13 Globe	Manual	O	-	-
Containment air sample vessel MM-783 supply isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V61	NNS (D-5)		0.13 Globe	Manual	O	-	-
Containment air sample vessel MM-783 return isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V62	2 (C-6)		0.75 Globe	Manual	C	C	-
Containment air sample vessel MM-783 supply isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. Serves passive function of isolating NNS piping. No position indication, therefore excluded from IST. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V63	2* (C-5)		0.75 Globe	Manual	C	C	-
Containment air sample vessel MM-783 return isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function.This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. Serves passive function of isolating NNS piping. No position indication and ANSI Class 2, therefore excluded from IST. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							

SYSTEM: **CGC**
P&ID No.: **B20612**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
CGC-V64	NNS (E-5)		0.5 Globe	Manual	O	-	-	Containment air sample vessel MM-782 return isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.
CGC-V65	NNS (E-6)		0.5 Globe	Manual	O	-	-	Containment air sample vessel MM-782 supply isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.
CGC-V66	NNS (C-5)		0.5 Globe	Manual	O	-	-	Containment air sample vessel MM-783 return isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.
CGC-V67	NNS (C-5)		0.5 Globe	Manual	O	-	-	Containment air sample vessel MM-783 supply isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CO**
P&ID No.: **D20426**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
CO-V142 CST to startup aux feedwater pump low point suction isolation valve. This valve is normally locked closed (SC-3 to NNS interface isolation), and is opened to align the CST protected water volume to the startup feedwater pump suction. Operation of this valve required by TS 3.7.1.2 This valve was included in the IST program scope via SITR Rev 10. Subsequent Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. References: P&ID D20426, TS 3.7.1.2.	3 (F-9)		24.0 Gate	Manual	Locke	C	-
CO-V340 Startup feedwater pump suction check valve from CST suction cross connect. This valve is normally closed and opens when the startup feed pump is operating. This valve does not have a safety related close function. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20426, TS 3.7.1.2.	NNS (D-6)		8.0 Check	Self	C	-	-
CO-V430 Startup feed pump oil cooler water outlet thermal relief valve that protects piping isolated for maintenance purposes only. This valve is also non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20426.	NNS (A-6)		0.75 Relief/Safety	Self	C	-	-

SYSTEM: **COP**
P&ID No.: **D20504**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
COP-V7	NNS (F-10)		4.0 Butterfly	Motor	C	-	-
COP Exhaust throttle valve used for fine control. NNS valve with no safety function as described in ISTA-1100.							
COP-V8	NNS (F-10)		8.0 Butterfly	Motor	C	-	-
COP Exhaust throttle valve used for coarse control. NNS valve with no safety function as described in ISTA-1100.							
COP-V11	NNS (F-10)		8.0 Gate	Manual	C	-	-
COP Exhaust valve PAH-F-16 bypass. NNS valve with no safety function as described in ISTA-1100.							
COP-V12	NNS (F-10)		8.0 Gate	Manual	O	-	-
COP Exhaust valve PAH-F-16 inlet. NNS valve with no safety function as described in ISTA-1100.							

SYSTEM: **CS**

P&ID No.: **D20662**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	 SAF	 FAL
CS-V496 CVCS purification return (RC filter) to RHR A check valve. This is a SC-3/NNS interface check valve which is open during RHR slipstream operation and must close following a failure of the NNS CS piping. References: P&ID RH-D20662. This valve was added to the IST program in Rev 10 to the SITR. However, upon further Engineering review conducted for EWR 97-095, this valve was determined to be not active, and should be removed from the IST Program. This Eng. Evaluation determined that the manual valve CS-V828 upstream of CS-V496 was indeed the active valve in the line and should be added to the IST Program. However, slipstream operation does not occur until well below the plant licensing basis safe shutdown condition of Hot Standby (Mode 3). Therefore, these valves qualify only as passive valves under that basis and are not included in the IST Program because they do not possess remote position indication.	2 (B-7)		3.0 Check	Self	DE	C	-
CS-V828 RHR Train A to CVCS Purification (slipstream) isolation. This valve is normally closed and is opened to initiate Train A RHR slipstream flow. It is required to be closed in the event of a NNS piping break upstream to preserve RHR inventory while in slipstream operation and therefore is considered active per EWR 97-095. But, since slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station, this valve will not be tested under the IST program as it does not perform a safety function as described in ISTA-1100 for this station. Will be tested under other App. B program commensurate with its importance to safety.	2 (C-7)		3.0 Gate	Manual	C	C	-

SYSTEM: **CS**

P&ID No.: **D20663**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
CS-V497	2 (B-7)		3.0 Check	Self	DE	C	-
CVCS purification (RC filter) return to RHR B check valve. This is a SC-3/NNS interface check vavle which is open during RHR operation and must close following a failure of the NNS CS piping. References: P&ID RH-D20662. This valve was added to the IST program in Rev 10 to the SITR. However, upon further Engineering review conducted for EWR 97-095, this valve was determined to be not active, and should be removed from the IST Program. This Eng. Evaluation determined that the manual valve CS-V829 upstream of CS-V497 was indeed the active valve in the line and should be added to the IST Program. However, slipstream operation does not occur until well below the plant licensing basis safe shutdown condition of Hot Standby (Mode 3). Therefore, these valves qualify only as passive valves under that basis and are not included in the IST Program because they do not possess remote position indication.							
CS-V829	2 (B-7)		3.0 Gate	Manual	C	C	-
RHR Train B to CVCS Purification (slipstream) isolation. This valve is normally closed and is opened to initiate Train B RHR slipstream flow. It is required to be closed in the event of a NNS piping break upstream to preserve RHR inventory while in slipstream operation and therefore is considered active per EWR 97-095. But, since slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station, this valve will not be tested under the IST program as it does not perform a safety function as described in ISTA-1100 for this station. Will be tested under other App. B program commensurate with its importance to safety.							

SYSTEM: **CS**

P&ID No.: **D20722**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
CS-Various1						-	-
Valves which perform an accident mitigating or safe shutdown function on this drawing are : V148, 149, 150, 142,143, 144, 177, 180, 178,179, 181, 182 & 185. There are no other valves on this P&ID which are included within the IST scope as defined in ISTA-1100.							
CS-HCV123	2 (C-11)		1.0 Globe	Air/Diaphragm	C	-	C
Excess letdown HX flow control valve serves no safety function as described in ISTA-1100 as RCS boundary isolation is provided by upstream Class 1 valves CS-V175 and V176. References: UFSAR 7.4, Table 7.4-1.							
CS-HCV182	2 (C-6)		3.0 Globe	Air/Diaphragm	O	-	O
RCP seal flow control valve. Normal charging line is isolated by CS-V142 and V143, so the control function provided by this valve is not needed during DBA mitigation. During safe shutdown, seal flow may be adjusted using the needle valves outside containment. This valve serves no safety function as described in ISTA-1100							
CS-HCV189	2 (F-9)		2.0 Globe	Motor	DE	-	-
Letdown flow control valve. Letdown is not used during DBA or safe shutdown conditions. Letdown is isolated by upstream valves RC-LCV 459 and 460. This valve serves no safety function as described in ISTA-1100							
CS-HCV190	2 (F-9)		2.0 Globe	Motor	DE	-	-
Letdown flow control valve. Letdown is not used during DBA or safe shutdown conditions. Letdown is isolated by upstream valves RC-LCV 459 and 460. This valve serves no safety function as described in ISTA-1100							
CS-V145	2 (F-10)		3.0 Globe	Air/Diaphragm	O	-	C
Letdown Regen HX isolation valve. Letdown is not used during DBA or safe shutdown conditions. Letdown is isolated by upstream valves RC-LCV 459 and 460. This valve serves no safety function as described in ISTA-1100. References: UFSAR 7.4, Table 7.4-1.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **CS**
P&ID No.: **D20722**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CS-V170	2 (C-9)		1.0 Three way	Air/Diaphragm		-	-

Excess letdown HX outlet 3-way divert valve serves no safety function as described in ISTA -1100as RCS boundary isolation is provided by upstream Class 1 valves CS-V175 and V176. Can divert to RCDT or seal water return. Fails on loss of air to seal water return. References: UFSAR 7.4, Table 7.4-1.

CS-V184	2 (D-12)		0.75 Check	Self		-	-

Normal charging to loops 1 & 4 cross-connect check valve. This valve was originally designed for OPP, however normally either V177 or V180 is open in the charging lines to loops 1 & 4. These valves have no SSD function, but are relied upon to open and remain open to preclude overpressurization of penetration X-33 due to thermal expansion of trapped fluid under accident conditions. Therefore, CS-V184 is not needed for this function and may be excluded from IST based on CS-V177 and 180 inclusion to IST. References: P&ID D20722, FSAR Sections 5.4.7, 7.4, 9.3.4, SS-EV-960023, Rev. 0, EWR 97-095.

CS-V502	2 (B-4)	B	3.0 Gate	Manual		-	-

This valve was to be used as the SC2/NNS piping boundary in the event of a break in the NNS piping during RHR slipstream operations. However, RH-V18 and RH-V19 which are upstream are used for this purpose instead to preserve RHR inventory. Therefore this valve serves no safety function as described in ISTA-1100.

CS-V834	NNS (B-4)		0.75 Relief/Safety	Self		-	-

RHR slipstream line relief valve. This valve is designed to provide OPP for the SC2/NNS boundary valves CS-V828, 829 and 502. Per EWR 97-095, this valve is considered important to safety due to its OPP function for the class boundary valves. However, it is not in the scope of ISTA-1100 since it is NNS and slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station. Will be tested under other App. B program commensurate with its importance to safety per

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CS**

P&ID No.: **D20723**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CS-Various5						-	-

The CVCS purification system depicted on this P&ID is not required for SSD or accident mitigation and is excluded from the IST scope per ISTA-1100. There are no valves shown on this drawing which are listed in the UFSAR active valve tables 3.9(B)-27 or 3.9(N)-11.

References: UFSAR Sections 5.4.7, 7.4, 9.3.4.

P&ID No.: **D20724**

CS-Various6						-	-

The letdown degasifier and associated components depicted on this P&ID are not required for SSD or accident mitigation and are excluded from the IST scope per ISTA-1100. There are no valves shown on this drawing which are listed in the UFSAR active valve tables 3.9(B)-27 or 3.9(N)-11. References: UFSAR Sections 5.4.7, 7.4, 9.3.4.

SYSTEM: **CS**

P&ID No.: **D20725**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CS-FCV121	2 (D-12)		3.0 Globe	Air/Diaphragm	O	-	O
Charging flow control valve. Used for normal charging flow and not an ECCS function. HHSI flow is upstream of this valve. Position of the FCV is inconsequential during DBA. Manual valves CS-V210,219,220 and 221 at Charging Pump discharge are also used for safe shutdown per UFSAR 7.4. CS-FCV121 has no safety function as described in ISTA-1100							
CS-P128	2 (C-7)					-	-
The Charging system PDP and its subcomponents are not powered from a safety bus and are not considered active. They are not relied upon to provide a safety function as described in ISTA-1100.							
CS-P243A	2 (A-10)					-	-
The motor driven Charging Pump Lube Oil Pump is normally running whenever the lube oil pressure falls below 8 psig (CCP gear driven pump not running). It is a backup to the gear driven pump (run off the CCP while it is running). Satisfactory operation of this pump is determined when the CCP is not running and it should be treated as an integral skid-mounted component of the CCP. It is excluded per ISTB-1200(c) and is adequately tested by other means.							
CS-P243B	2 (C-10)					-	-
The motor driven Charging Pump Lube Oil Pump is normally running whenever the lube oil pressure falls below 8 psig (CCP gear driven pump not running). It is a backup to the gear driven pump (run off the CCP while it is running). Satisfactory operation of this pump is determined when the CCP is not running and it should be treated as an integral skid-mounted component of the CCP. It is excluded per ISTB-1200(c) and is adequately tested by other means							
CS-V205	2 (D-6)		2.0 Globe	Motor	C	-	-
PDP Minimum flow valve. The PDP and its subcomponents are not powered from a safety bus and are not considered active. They are not relied upon to provide a safety function as described in ISTA-1100							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CS**
P&ID No.: **D20725**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CS-V230	2 (F-11)		1.0 Check	Self		-	-

Chemical mixing tank outlet check valve. Infrequently used during power operation. Administratively controlled use of this valve by Control Room due to reactivity change potential. Normally closed manual valve CS-V229 upstream of this check valve is SC2/NNS boundary. This valve is not considered active since it is repositioned for a short period of time and administratively controlled and therefore serves no safety function as described by ISTA-1100.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CS-V492	2 (D-6)		0.75 Relief/Safety	Self		-	-

PDP discharge piping relief valve. The PDP and its subcomponents are not powered from a safety bus and are not considered active. They are not relied upon to provide a safety function as described in ISTA-1100

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **CS**

P&ID No.: **D20726**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
CS-Various2	2					-	-	The RCP seal water return components inside containment, except for the RVs and CIVs, are not required for SSD or accident mitigation and are not within the IST scope per ISTA-1100, and should be removed from the IST Program. Only that portion of the seal water return piping which is required for CCP min flow cooling is included within the IST scope. RCP Seal water injection valves are within the IST scope as described on the individual valve basis sheet.
CS-V10	2 (A-12)		0.75 Globe	Air/Diaphragm	O	-	O	RCP A seal water leakoff isolation valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTA-1100. Valve is closed when RCP is shutdown and RCS is less than 100 psig to prevent crud backleakage into seals. This is more of an equipment protection feature and not a safety function. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.
CS-V28	2 (B-12)		0.75 Globe	Air/Diaphragm	O	-	O	RCP B seal water leakoff isolation valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTA-1100. Valve is closed when RCP is shutdown and RCS is less than 100 psig to prevent crud backleakage into seals. This is more of an equipment protection feature and not a safety function. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.
CS-V44	2 (C-12)		0.75 Globe	Air/Diaphragm	O	-	O	RCP C seal water leakoff isolation valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTA-1100. Valve is closed when RCP is shutdown and RCS is less than 100 psig to prevent crud backleakage into seals. This is more of an equipment protection feature and not a safety function. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CS**
P&ID No.: **D20726**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
CS-V59	2 (D-12)		0.75 Globe	Air/Diaphragm	O	-	O	RCP D seal water leakoff isolation valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTA-1100. Valve is closed when RCP is shutdown and RCS is less than 100 psig to prevent crud backleakage into seals. This is more of an equipment protection feature and not a safety function. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.
CS-V1166	2 (A-12)		0.75 Check	Self	O	-	-	RCP A seal water return check valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTA-1100. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.
CS-V1167	2 (B12)		0.75 Check	Self	O	-	-	RCP B seal water return check valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTA-1100. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.
CS-V1168	2 (C-12)		0.75 Check	Self	O	-	-	RCP C seal water return check valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTA-1100. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.
CS-V1169	2 (D-12)		0.75 Check	Self	O	-	-	RCP D seal water return check valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTA-1100. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **CS**

P&ID No.: **D20727**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
CS-Various3						-	-

The Boron Thermal Regeneration System (BTRS) is not required for SSD or accident mitigation and is excluded from the IST scope per ISTA-1100. There are no valves shown on this drawing which are listed in the UFSAR active valve tables 3.9(B)-27 or 3.9(N)-11. References: FSAR 5.4.7, 7.4, 9.3.4.

P&ID No.: **D20728**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
CS-Various4						-	-

The Boron Thermal Regeneration System (BTRS) is not required for SSD or accident mitigation and is excluded from the IST scope per ISTA-1100. There are no valves shown on this drawing which are listed in the UFSAR active valve tables 3.9(B)-27 or 3.9(N)-11. References: FSAR 5.4.7, 7.4, 9.3.4.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CS**

P&ID No.: **D20729**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Remarks
					NRM	SAF	FAL	
CS-FCV110A	3 (A-5)		2.0 Globe	Air/Diaphragm	DE	-	O	Boric Acid Blender flow control valve. Can be isolated by manual upstream valve CS-V432 or other downstream valves, if necessary. Piping is seismic, as these lines are used during normal plant operation. Per UFSAR Table 9.3-7, position of this valve is inconsequential to safe shutdown operation as there are alternate means of boration which are unaffected by the position of this valve. No safety function as described in ISTA-1100
CS-FCV110B	2 (C-4)		2.0 Saunders Weir	Air/Diaphragm	DE	-	C	Boric Acid Blender flow control valve to Charging Pumps. Downstream of CS-FCV110A, this valve can be isolated by upstream or downstream valves, if necessary. Piping is seismic, as these lines are used during normal plant operation. Per UFSAR Table 9.3-7, position of this valve is inconsequential to safe shutdown operation as there are alternate means of boration which are unaffected by the position of this valve. No safety function as described in ISTA-1100
CS-FCV111A	3 (D-5)		2.0 Globe	Air/Diaphragm	DE	-	C	RMW to Boric Acid Blender flow control valve. Is isolated by manual upstream valve RMW-V34 prior to emergency boration to avoid dilution. Per UFSAR Table 9.3-7 position of this valve is inconsequential to safe shutdown operation. No safety function as described in ISTA-1100
CS-FCV111B	2 (C-4)		2.0 Saunders Weir	Air/Diaphragm	DE	-	C	Boric Acid Blender to VCT flow control valve. Can be isolated by upstream or downstream valves, if necessary. Per UFSAR Table 9.3-7 position of this valve is inconsequential to safe shutdown operation. No safety function as described in ISTA-1100
CS-V434	3 (A-5)		2.0 Check	Self	DE	-	-	Boric Acid supply to BA Blender check valve. Can be isolated by manual upstream valve CS-V432 or other downstream valves, if necessary. Piping is seismic, as these lines are used during normal plant operation. This valve is not in the emergency boration flow path, thus has no safety function as described in ISTA-1100

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**

P&ID No.: **D20458**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-P115A	3* (G-10)					-	-
The engine driven Lube Oil pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of LO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB-1200(c). Also excluded because it is ANS Class 3. Reference: DBD- DG-01, revision 1.							
DG-P116A	3* (B-5)					-	-
Motor driven Pre-lube and filter pump. This portion of the DG lube oil system does not perform a safety function as described in ISTA-1100. Also, this pump is excluded from IST because it is ANS Class 3. This serves as the engine "keep warm" pump when the diesel is not running and can remain running with the diesel to serve as a cleanup pump. Per UFSAR 9.5.7.2, the pump motor is non-1E, powered from the associated emergency bus and can be manually shut down when the diesel is running. Sat. operation can be determined by monitoring engine temp. when diesel is shut down.							
DG-P117A	3* (D-11)					-	-
The motor driven aux. lube oil pump is not required to support EDG operation ,and is excluded from IST per ISTA-1100. Per UFSAR 9.5.7.1, 'the malfunction or failure of a component will not result in the loss of function of more than one diesel generator.' Thus, even though this pump starts on falling header pressure, redundancy is provided by the other diesel unit. Reference: DBD- DG-01, revision 1.							
DG-P227A	3* (C-6)					-	-
The motor driven Rocker Arm lube oil pump is not required to support EDG operation ,and is excluded from IST per ISTA-1100. This pre-conditioning pump is run about 10 min. prior to a diesel start. It does not have an auto start feature. Per UFSAR 9.5.7.2, 'actual emergency conditions do not require Starting of the rocker arm prelube pumps.' Reference: DBD- DG-01, revision 1.							
DG-P228A	3* (C-6)					-	-
The engine driven Rocker Arm Lube Oil pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of LO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB-1200(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**

P&ID No.: **D20458**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-V8A	3* (E-11)		3.0 Relief/Safety	Self	C	-	-
Motor driven aux LO pump discharge relief valve. This pump is not required to support EDG operation. Therefore, the RV is not within the IST scope per ISTA-1100. Also excluded because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.							
DG-V18A	3* (C-6)		0.5 Check	Self	O	C	-
Motor driven rocker arm prelube pump discharge check valve. This valve has a safety related close function only. This function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within normal ranges. Therefore, the valve is excluded from IST by ISTC-1200(c). Also excluded because it is ANS Class 3. Pump operation is not required to support EDG operation. The valve is exercised to the closed position by OS1426.25. References: P&ID D20458, DBD-DG-01.							
DG-V23A	3 (G-10)		5.0 Check	Self	C	O	-
Engine driven LO pump discharge check valve. This valve must open to support EDG operation. There is no safety related close function for this valve. Valve is adequately tested in the open direction during normal surveillance testing, and may be excluded by ISTC-1200(c) .References: P&ID D20458, DBD-DG-01,OS1426.25							
DG-V24A	3 (F-10)		5.0 Check	Self	O	C	-
Motor driven aux LO pump discharge check valve. The motor driven pump is not required to support EDG operation. This valve, if open, must close to ensure adequate LO flow to the EDG. This function is adequately tested during normal surveillance testing through maintenance of process parameters within normal range. Therefore, the valve is excluded from IST by ISTC-1200(c). References: P&ID D20458, DBD-DG-01, OS1426.25.							
DG-V29A	3 (C-10)		5.0 Three way	Self	DE	-	-
Self contained lube oil temperature control valve, exempt from IST per ISTC-1200(b). references: P&ID D20458, DBD-DG-01.							
DG-V31A	3* (B-5)		2.0 Check	Self	O	C	-
Motor driven prelube and filter pump discharge check valve. This valve is normally open and is closed when the EDG is running to prevent lube oil bypass flow. The closure function is adequately verified during normal surveillance by maintenance of adequate LO pressure and temperatures. Therefore, the valve is excluded from IST by ISTC-1200(c). Also excluded because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**

P&ID No.: **D20458**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
DG-V37A	3* (B-5)		Relief/Safety	Self		-	-	Prelube and filter pump integral discharge relief valve. The pump is not required to support EDG operation. Therefore, the valve is exempt from IST per ISTA-1100 (scope). Also excluded because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.
DG-V41A	3* (D-7)		0.38 Gate	Self		-	-	Lube oil reservoir tank level control valve. This valve perfoms a safety function (per EWR 97-095) of maintaining lube oil inventory. It is excluded from IST because it is ANS 3 and an integral subcomponent to the lube oil reservoir. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V42A	3* (D-7)		0.5 Relief/Safety	Self		-	-	Rocker arm duplex filter outlet pressure regulating valve. Provides pressure regulation in the rocker arm lubricating header at 12 psig and is excluded from IST by ISTC-1200(b). Not required to perform a function as described in ISTA-1100, per EWR 97-095. Also excluded because it is ANS Class 3. References: P&ID D20458 , DBD-DG-01 EDG OM Manual C470-1.
DG-V195A	NNS (D-7)		Relief/Safety	Self	C	-	-	Lube oil keep warm filter internal relief valve. This portion of the system is not required to support EDG operation and the valve is not in the IST scope per ISTA-1100. References: P&ID D20458, DBD-DG-01.
DG-V196A	3* (G-10)		Relief/Safety	Self	C	-	-	Engine driven LO pump integral relief valve, adequately verified during pump operation. This valve is in scope per ISTA-1100. However, excluded because it is ANS Class 3 and it is an integral subcomponent to the pump so it is excluded per ISTC-1200(c). References: P&ID D20458, DBD-DG-01.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20458**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V257A	3* (G-6)		0.75 Globe	Self	C	O	-
EDG lube oil reservoir tank makeup valve. This is a self contained pressure regulator which is exempt from IST per ISTC-1200(b). Also excluded because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.							
DG-V261A	3* (C-6)		0.5 Check	Self	DE	O	-
Engine driven rocker arm lube oil pump discharge check valve. This valve must open to ensure adequate engine lubrication. This valve has no safety related closure function. Operational readiness is verified during normal surveillance testing by maintenance of adequate LO pressure and temperature and may be excluded by ISTC-1200(c) Also excluded because it is ANS Class 3. Both the open and the non- safety closure functions are periodically verified in OS1426.25. References: P&ID D20458, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20459**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-P38A	3 (B-10)					-	-
The fuel oil transfer pumps operate periodically to replenish the EDG day tank. These skid-mountedPD pumps have a specified flow rate of 20 GPM and an actual flow rate of 25 GPM. The FO Transfer pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of FO day tank level within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB-1200(c). References: P&ID D20459, FSAR Table 9.5-4, EX1804.23.							
DG-P118A	3* (H-7)					-	-
The motor driven aux fuel oil pump is not required to support EDG operation and is excluded from the IST Program by ISTA-1100. Backup to the engine driven pump. Motor is non-1E. Per UFSAR 9.5.7.1, 'the malfunction or failure of a component will not result in the loss of function of more than one diesel generator.' Thus, even though this pump starts on falling header pressure (less than 20 psig), redundancy is provided by the other diesel unit. Reference: DBD-DG-01, revision 1.							
DG-P119A	3* (G-7)					-	-
The engine driven FO pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of FO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB-1200(c). Also excluded because it is ANS Class 3. Reference:							
DG-V82A	3* (F-7)		1.0 Check	Self	C	O	-
EDG fuel header return check valve. This valve has a safety related open function to return excess fuel to the day tank. This function is adequately verified during normal surveillance testing by maintenance of proper fuel oil process conditions. No other testing or monitoring is required. Also excluded because it is ANS Class 3. References : P&ID D20459, DBD-DG-01.							
DG-V83A	3* (F-7)		1.0 Check	Self	C	O	-
EDG fuel header return check valve. This valve has a safety related open function to return excess fuel to the day tank. This function is adequately verified during normal surveillance testing by maintenance of proper fuel oil process conditions and is excluded by ISTC-1200(c) No other testing or monitoring is required. Also excluded because it is ANS Class 3. References : P&ID D20459, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20459**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V84A	3 (H-7)		1.0 Check	Self	C	C	-
Motor driven aux fuel oil pump discharge check valve. The pump is not required to support EDG operation, and the check valve has a safety close function only to prevent fuel oil bypass. This function is adequately verified during normal surveillance and may be exempted by ISTC-1200(c) References: P&ID D20459, DBD-DG-01.							
DG-V85A	3* (G-7)		1.0 Check	Self	C	O	-
Engine driven fuel oil pump discharge check valve. This valve has a safety related open function only which is verified during normal surveillance testing and may be excluded by ISTC-1200(c) Also excluded because it is ANS Class 3.							
DG-V99A	3* (H-7)		Relief/Safety	Self	C	-	-
Aux motor driven fuel oil pump integral relief valve.The aux motor driven fuel oil pump is not required to support EDG operation. This valve is not in scope per ISTA-1100 References: P&ID D20459, DBD-DG-01.							
DG-V100A	3* (H-7)		Relief/Safety	Self	C	O	-
Engine driven fuel oil pump integral relief valve. This valve is in scope per ISTA-1100. However, excluded because it is ANS Class 3. Sat. operation is integral with sat. operation of the pump. Will be tested under other Appendix B program. References: P&ID D20459, DBD-DG-01.							
DG-V115	3 (B-10)		1.5 Check	Self	C	O	-
Fuel oil transfer pump 38A discharge check valve has a safety related open function only. Closure to prevent reverse flow is not required since the transfer line enters the top of the day tank. Exercising of this skid-mounted check valve is adequately performed during performance of the fuel oil transfer pump testing conducted for TS 4.8.1.1.2.f.11 every 18 months. References: P&ID D20459, DBD-DG-01, EX1804.23							
DG-V118	3 (C-9)		1.5 X 2 Relief	Self	C	O	-
Fuel Oil transfer pump 38A discharge relief valve. See CR 06-10718 and DCR 00-001, for passive designation. These skid mounted RVs will be tested iaw TS 4.8.1.1.2.f.11.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20459**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V155A	NNS (H-12)		4.0 Relief/Safety	Self		-	-

EDG fuel oil day tank relief valve. This valve is classified non-nuclear safety and is for backup protection only. The tank is vented to atmosphere through the DG Bldg. roof with a flame arrestor attached. Tank also has an overflow line back to the storage tank with a line sized twice that of the supply. Level switches are also provided for transfer pump auto control and tank high and low level alarms. References: P&ID D20459, DBD-DG-01.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V208	NNS (D-8)		6.0 Relief/Safety	Self		-	-

Fuel oil storage tank relief valve. This valve is classified non-nuclear safety and provides backup protection only. The tank is vented to atmosphere through the DG Bldg. wall with a flame arrestor attached. References: P&ID D20459, DBD-DG-01.

SYSTEM: **DG**

P&ID No.: **D20460**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
DG-D-6A-checks	3* (F-4)		0.25 Check	Self	DE	-	-	C-2A air dryer check valves open and close as required by dryer design /operation. The dryer is required to remove moisture to within design limits of the supplied components. Proper operation of the dryer and associated components is verified via proper operation and reliabillity of the EDG and associated pneumatic components which is verified by periodic surveillance testing. Therefore the valve are excluded per ISTC-1200(c) Also excluded because they are ANS Class 3. Will be tested periodically commensurate with their importance to safety under another App. B program. These valves include DG-V281A, DG-V282A, DG-V286A, and DG-V287A. References: P&ID D20460, DBD-DG-01.
DG-D-6A-SOVs	3* (F-4)		0.25 Globe	Solenoid	DE	-	-	C-2A air dryer solenoid valves open and close as required by dryer design /operation. The dryer is required to remove moisture to within design limits of the supplied components. Proper operation of the dryer and associated components is verified via proper operation and reliabillity of the EDG and associated pneumatic components, which is verified by periodic surveillance testing. Therefore, the valves are excluded per ISTC-1200(c) Also excluded because they are ANS Class 3. These valves include DG-V279A, DG-V280A, DG-V285A, DG-V289A and DG-V288A. Will be tested periodically commensurate with their importance to safety under another App. B program. References: P&ID D20460, DBD-DG-01.
DG-V52A	3* (C-10)		0.25 Other	Self		-	-	DG control air press. reducing valve. Reduces air pressure from 600 to 100 psig. Performs safety function for control air subsystem according to EWR 97-095. Self contained pressure control valve excluded from IST based on ISTC-1200(b)and 1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to
DG-V53A	3 (C-10)		0.25 Check	Self		-	-	EDG shutdown air receiver inlet check valve- not required for EDG operation, and the valve is not in the IST scope per ISTA-1100. Maintains and isolates high pressure (600 psig) air volume for engine shutdown. References: P&ID D20460, DBD-DG-01.

SYSTEM: **DG**

P&ID No.: **D20460**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Remarks
DG-V54A	3* (C-10)		0.5 Relief/Safety	Self	C	O	-	125 psig control air relief valve- in scope per ISTA-1100. Protects downstream piping in the event of pressure regulator DG-V52A failure, as pressure is reduced from 600 psig to 100 psig by that regulator. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References P&ID D20460, DBD-DG-01.
DG-V55A	3*		Other	Self		-	-	DELETED per EC 144992 > > > >
DG-V56A	3*		0.25 Relief/Safety	Self	C	O	-	DELETED per EC 144992 > > >
DG-V59A	3* (D-8)		Other	Self		-	-	DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b)and 1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V60A	3* (D-8)		Other	Self		-	-	DG main air start valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b) and 1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**

P&ID No.: **D20460**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
DG-V72A	3* (F-10)		Relief/Safety	Self	C	O	-	Starting air compressor discharge piping relief valve-in scope per ISTA-1100. Protects downstream piping because compressor rating is 700 psig (above system piping design). However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&IDD20460, DBD-DG-01.
DG-V220A	3* (D-8)		Other	Self		-	-	DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b) and 1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V221A	3* (D-8)		Other	Self		-	-	DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b)and 1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V224A	3* (C-8)		Other	Self		-	-	DG main air start valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b)and 1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V225A	3* (G-9)		0.5 Gate	Manual	O	C	-	Starting air compressor discharge Air dryer 6A outlet manual isolation valve. This valve is normally open and is closed to place the backup control air compressor in service. References: P&ID D20460, OS1026.12, DCR 94-044. Added to the SITR Revision 10. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program.

SYSTEM: **DG**
P&ID No.: **D20460**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V226A	NNS (E-9)		0.75 Check	Self		-	-

C-2A air dryer manifold drain line check valve. This valve is classified non-nuclear safety related. Removal of moisture from the compressor discharge is a design requirement for the unit. Satisfactory performance of the air drying equipment is reflected in the reliability of the EDG. Function is continuous for dryer purge flow and intermittent for compressor moisture Removal due to auto start/stop of compressor based on receiver pressure. Per Eng. Eval. 93-39, the maintenance of ISA standard air quality is not required for the safety related function of the starting air system. References: P&ID D20460, DBD-DG-01,.

DG-V253A	3* (E-10)		0.25 Three way	Solenoid		-	-

C-2A solenoid operated drain valve.- operates on timer (valve cycles open for about 30-40 sec. After every 30 minutes of compressor operation) to remove accumulated condensate in the compressor discharge. The operational readiness of this valve is verified through proper compressor operation as well as the reliability of the EDG and associated pneumatic components. Therefore, the valve is excluded per ISTC-1200(c) Also excluded because it is ANS Class 3. References: P&ID D20460, DBD-DG-01.

DG-V258A	3* (F-10)		Relief/Safety	Self	C	O	-

C-2A integral stage relief valve. This RV protects the compressor which is required to support long term EDG operation and is in scope per ISTA-1100. The RV is excluded per ISTC-1200(c) and will be periodically tested as part of the compressor unit. Also excluded because it is ANS Class 3. References: P&ID D20460

DG-V259A	3* (F-10)		Relief/Safety	Self	C	O	-

C-2A integral stage relief valve. This RV protects the compressor which is required to support long term EDG operation and is in scope per ISTA-1100. The RV is excluded per ISTC1200(c)) and will be periodically tested as part of the compressor unit. Also excluded because it is ANS Class 3. References: P&ID D20460

DG-V260A	3* (E-10)		0.5 Check	Self	DE	O	-

EDG starting air compressor discharge check valve. This valve has an open safety function to provide control air for long term EDG operation. There is no safety related closure function since the receiver inlet check valves prevent reverse flow when C-2A is in service, and manual valve DG-V225A is closed when the backup compressor (C-18A) is placed in service. The valve is excluded from IST since the valve open function is adequately verified through maintenance of normal air receiver pressure. Also excluded because it is ANS Class 3. References: P&ID D20460, DBD-DG-01, OS1426.25, OS1026.12, DCR 94-044.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **DG**
P&ID No.: **D20460**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
DG-V269A	3* (D-8)		Other	Self		-	-	DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b)and 1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V325A	3* (F-12)		0.25 Gate	Solenoid	DE	O/C	-	C-18A unloader SOV cycles on receiver pressure. SOV is required to support compressor operation which is required for long term EDG operation. Unloader valve function is to ensure compressor starts against no back pressure. Max operating Differential pressure for this valve is 130 psid. This valve is adequately tested during compressor surveillance testing and is excluded per ISTC-1200(c)Also excluded because it is ANS Class 3. References: P&ID D20460, DBD-DG-01, OS1426.25
DG-V331A	3* (G-1)		0.5 Relief/Safety	Self	C	O	-	EDG backup control air compressor discharge relief valve. Compressor operation is required to support long term EDG operation. Therefore, the RV is in scope per ISTA-1100. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20460, DBD-DG-01, DCR 94-044.
DG-V332A	3* (G-9)		0.5 Ball	Manual	C	O	-	EDG backup control air compressor discharge manual isolation valve. This valve is normally closed, and is opened to place the backup air compressor into service when alarm for receiver pressure at Backup Air Compressor low pressure setpoint is received. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20460, OS1026.12, DCR 94-044.
DG-V333A	3* (G-9)		0.5 Ball	Manual	C	O	-	EDG backup control air compressor discharge manual isolation valve. This valve is normally closed and is opened to place the backup air compressor into service when alarm for receiver pressure at Backup Air Compressor low pressure setpoint is received. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20460, OS1026.12, DCR 94-044.

SYSTEM: **DG**

P&ID No.: **D20460**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V334A	3* (G-9)		0.5 Check	Self	C	O	-

EDG backup control air compressor discharge check valve. This valve is required to open to support long term EDG operation. Reverse closure is not required since the air receiver check valves prevent reverse flow when the compressor is in service, and the manual discharge valves V332A and V333A are closed when the compressor is not in service. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID, DBD-DG-01, OX1426.14.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V335A	3* (E-12)		0.25 Relief/Safety	Self	C	O	-

EDG backup control air compressor integral discharge relief valve- In IST scope per ISTA-1100, but excluded per ISTC-1200(c)Also excluded because it is ANS Class 3. This integral relief valve will be tested periodically with the operation of the compressor. References: P&ID,

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**

P&ID No.: **D20461**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-P120A	3* (G-11)					-	-
Motor driven Jacket Coolant Standby circulating pump. "Keep warm" pump performs a pre-conditioning function only, maintaining engine temp. when < 375 RPM. This portion of the DG jacket coolant water system does not perform a safety function as described in ISTA-1100. Also, this pump is excluded from IST because it is ANS Class 3.							
DG-P121A	3* (F-9)					-	-
The EDG jacket water coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during normal surveillance testing. Therefore it is excluded from IST per ISTB-1200(c)Also excluded because it is ANS Class 3. Reference: DBD-DG-01, revision 1.							
DG-P122A	NNS (E-6)					-	-
The EDG motor driven aux. coolant pump is not required to support EDG operation and is excluded from IST per ISTA-1100. Although fed from an emergency bus, the motor is non-1E. Serves a backup function only. Design basis, as stated in UFSAR, credits the other EDG for Redundancy in the event of a single failure. Reference: DBD-DG-01, revision 1.							
DG-P231A	3* (D-8)					-	-
The EDG air coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during normal surveillance testing. Therefore it is excluded from IST per ISTB1200(c) Also excluded because it is ANS Class 3. Reference: DBD-DG-01,							
DG-PV7A-1	3 (F-7)		6.0 Globe	Self	TH	TH	-
EDG jacket water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20461, DBD-DG-01, 94MMOD506.							
DG-PV7A-2	3 (D-9)		6.0 Globe	Self	TH	TH	-
EDG air cooling water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20461, DBD-DG-01, 94MMOD506.							

SYSTEM: **DG**

P&ID No.: **D20461**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-TCV7A-1	3 (F-9)		6.0 Three way	Air/Diaphragm	TH	TH	O
EDG jacket coolant temperature control valve. Control air is not available to this valve until engine speed exceeds 375 RPM. It then modulates to maintain coolant temperature setpoint. When the engine is not running it is in its pre-start position and has no remote controls or indication. -- Valve will be excluded from IST per ISTC-1200(b). Tested commensurate with its importance to safety in OS1426.25. References: P&ID D20461, DBD-DG-01.							
DG-TCV7A-2	3 (F-9)		6.0 Three way	Air/Diaphragm	TH	TH	O
EDG air coolant temperature control valve. Control air is not available to this valve until engine speed exceeds 375 RPM. It then modulates to maintain coolant temperature setpoint. When the engine is not running it is in its pre-start position and has no remote controls or indication-- valve will be excluded from IST per ISTC-1200(b). Tested commensurate with its importance to safety in OS1426.25. References: P&ID D20461, DBD-DG-01.							
DG-V1A	3 (G-7)		6.0 Check	Self		-	-
Aux coolant pump to jacket cooling header discharge check valve. The aux coolant pump is not required to support EDG operation. This check valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20461, DBD-DG-01.							
DG-V2A	3 (F-9)		6.0 Check	Self	C	O	-
Engine driven jacket coolant pump suction check valve. This valve is closed to prevent flow diversion when the motor driven aux coolant pump is running (not safety related function) . The safety related function for this valve is to open when the engine driven coolant pump is operating. The open function is adequately verified during normal EDG surveillance through maintenance of process temperatures within allowable ranges. Therefore, this valve is excluded from IST per ISTC-1200(c)References: P&ID 20461, DBD-DG-01.							
DG-V4A	3 (D-8)		6.0 Check	Self		-	-
Aux coolant pump to air cooling header discharge check valve. The aux coolant pump is not required to support EDG operation. This check valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20461, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20461**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V5A	3 (D-8)		6.0 Check	Self	C	O	-
EDG air coolant pump discharge check valve- opens to support EDG operation. Non-safety related closure function prevents coolant bypass when the aux coolant pump is operating. The open function for this valve is adequately verified during normal EDG surveillance testing through maintenance of process parameters within allowable ranges. Therefore, this valve is excluded from IST per ISTC-1200(c)References: P&ID 20461, DBD-DG-01.							
DG-V9A	3 (F-7)		6.0 Butterfly	Air/Piston	C	C	-
Aux coolant pump discharge isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Valve is a normally closed Divert valve which opens in response to low coolant pressure signal in the respective engine Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20461, DBD-DG-01.							
DG-V11A	3 (G-6)		6.0 Butterfly	Air/Piston	C	C	-
Aux coolant pump discharge isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Valve is a normally closed Divert valve which opens in response to low coolant pressure signal in the respective engine Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20461, DBD-DG-01.							
DG-V12A	3 (E-6)		6.0 Butterfly	Air/Piston	C	C	-
Aux coolant pump suction isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Valve is a normally closed Divert valve which opens in response to low coolant pressure signal in the respective engine Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20461, DBD-DG-01.							
DG-V13A	3 (D-6)		6.0 Butterfly	Air/Piston	C	C	-
Aux coolant pump suction isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Valve is a normally closed Divert valve which opens in response to low coolant pressure signal in the respective engine Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20461, DBD-DG-01.							

SYSTEM: **DG**

P&ID No.: **D20461**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V86A	3* (G-10)		0.75 Relief/Safety	Self	C	-	-
Jacket coolant standby cir. pump relief valve- This portion of the system is not required to support EDG operation. The standby engine / coolant temperature is essential for EDG Operability, but the keep warm system does not perform a safety related function. Therefore, this valve is not within the IST scope as defined in ISTA-1100 Also excluded because it is ANS Class 3. References: P&ID D20461, DBD-DG-01.							
DG-V87A	3* (G-10)		1.5 Check	Self	O	C	-
Engine coolant keep warm pump (P-120A) discharge check valve is normally open (to warm engine thus minimizing wear) and closes upon engine start to prevent coolant bypass. The reverse closure function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within acceptable ranges. Therefore, this valve is excluded from IST per ISTC-1200(c)Also excluded because it is ANS Class 3. References:							
DG-V94A	3* (G-10)		1.5 Check	Self	O	C	-
Engine coolant keep warm pump (P-120A) discharge check valve is normally open (to warm engine thus minimizing wear) and closes upon engine start to prevent coolant bypass. The reverse closure function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within acceptable ranges. Therefore, this valve is excluded from IST per ISTC-1200(c)Also excluded because it is ANS Class 3. References:							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**

P&ID No.: **D20461**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V271	NNS (E-6)		0.5 Relief/Safety	Self	C	-	-

EDG aux coolant pump relief valve. This portion of the system is not required to support EDG operation. Therefore, this valve is not within the IST scope as defined in ISTA-1100.

References: P&ID D20461, DBD-DG-01.

P&ID No.: **D20462**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-NA1						-	-

There are no valves on this drawing within the IST program scope as defined in ISTA-1100.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20463**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-P115B	3* (G-10)					-	-
The engine driven Lube Oil pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of LO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB-1200(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							
DG-P116B	3* (B-5)					-	-
Motor driven Pre-lube and filter pump. This portion of the DG lube oil system does not perform a safety function as described in ISTA-1100. Also, this pump is excluded from IST because it is ANS Class 3. This serves as the engine "keep warm" pump when the diesel is not running and can remain running with the diesel to serve as a cleanup pump. Per UFSAR 9.5.7.2, the pump motor is non-1E, powered from the associated emergency bus and can be manually shut down when the diesel is running. Sat. operation can be determined by monitoring engine temp. when diesel is shut down.							
DG-P117B	3* (D-11)					-	-
The motor driven aux. lube oil pump is not required to support EDG operation ,and is excluded from IST per ISTA-1100. Per UFSAR 9.5.7.1, 'the malfunction or failure of a component will not result in the loss of function of more than one diesel generator.' Thus, even though this pump starts on falling header pressure, redundancy is provided by the other diesel unit. Reference: DBD- DG-01, revision 1.							
DG-P227B	3* (C-6)					-	-
The motor driven Rocker Arm lube oil pump is not required to support EDG operation ,and is excluded from IST per ISTA-1100. Lube oil pump is not required to support EDG This pre-conditioning pump is run about 10 min. prior to a diesel start. It does not have an auto start feature. Per UFSAR 9.5.7.2, 'actual emergency conditions do not require Starting of the rocker arm prelube pumps.' Reference: DBD- DG-01, revision 1.							
DG-P228B	3* (C-6)					-	-
The engine driven Rocker Arm Lube Oil pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of LO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB-1200(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20463**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Remarks
DG-V8B	3* (E-11)		3.0 Relief/Safety	Self	C	-	-	Motor driven aux LO pump discharge relief valve. This pump is not required to support EDG operation. Therefore the RV is not within the IST scope per ISTA-1100. Also excluded because it is ANS Class 3. References: P&ID D20463, DBD-DG-01.
DG-V18B	3* (C-6)		0.5 Check	Self	O	C	-	Motor driven rocker arm prelube pump discharge check valve. This valve has a safety related close function only. This function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within normal ranges. Therefore, the valve is excluded from IST by ISTC-1200(c). Also excluded because it is ANS Class 3. Pump operation is not required to support EDG operation. The valve is exercised to the closed position by OS1426.25. References: P&ID D20463, DBD-DG-01.
DG-V23B	3 (G-10)		5.0 Check	Self	C	O	-	Engine driven LO pump discharge check valve. This valve must open to support EDG operation. There is no safety related close function for this valve. Valve is adequately tested in the open direction during normal surveillance testing, and may be excluded by ISTC-1200(c) References: P&ID D20463, DBD-DG-01,OS1426.25
DG-V24B	3 (F-10)		5.0 Check	Self	O	C	-	Motor driven aux LO pump discharge check valve. The motor driven pump is not required to support EDG operation. This valve, if open, must close to ensure adequate LO flow to the EDG. This function is adequately tested during normal surveillance testing, through maintenance of normal LO process parameters, and may be excluded by ISTC-1200(c). References: P&ID D20463, DBD-DG-01, OS1426.25.
DG-V29B	3 (C-10)		5.0 Three way	Self	DE	-	-	Self contained lube oil temperature control valve, exempt from IST per ISTC-1200(b). references: P&ID D20463, DBD-DG-01.
DG-V31B	3* (B-5)		2.0 Check	Self	O	C	-	Motor driven prelube and filter pump discharge check valve. This valve is normally open and is closed when the EDG is running to prevent lube oil bypass flow. The closure function is adequately verified during normal surveillance by maintenance of adequate LO pressure and temperatures. Therefore, the valve is excluded from IST by ISTC-1200(c). Also excluded because it is ANS Class 3. References: P&ID D20463, DBD-DG-01.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20463**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
DG-V37B	3* (B-5)		Relief/Safety	Self		-	-	Prelube and filter pump integral discharge relief valve. The pump is not required to support EDG operation. Therefore, the valve is exempt from IST per ISTA-1100 (scope). Also excluded because it is ANS Class 3. References: P&ID D20463, DBD-DG-01.
DG-V41B	3* (D-7)		0.38 Gate	Self		-	-	Lube oil reservoir tank level control valve. This valve performs a safety function (per EWR 97-095) of maintaining lube oil inventory. It is excluded from IST because it is ANS 3 and an integral subcomponent to the lube oil reservoir. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V42B	3* (D-7)		0.5 Relief/Safety	Self	-	-	-	Rocker arm duplex filter outlet pressure regulating valve. Provides pressure regulation in the rocker arm lubricating header at 12 psig, and is excluded from IST by ISTC-1200(b). Also excluded because it is ANS Class 3. Not required to perform a function as described in IISTA - 1100, per EWR 97-095 References: P&ID D20458 , DBD-DG-01 EDG OM Manual C470-1.
DG-V195B	NNS (D-7)		Relief/Safety	Self	C	-	-	Lube oil keep warm filter internal relief valve. This portion of the system is not required to support EDG operation and the valve is not in the IST scope per ISTA-1100. References: P&ID D20463, DBD-DG-01.
DG-V196B	3* (G-10)		Relief/Safety	Self	C	-	-	Engine driven LO pump integral relief valve, adequately verified during pump operation. This valve is in scope per ISTA-1100. However, excluded because it is ANS Class 3 and it is an integral subcomponent to the pump so it is excluded per ISTC -1200(c).. References: P&ID D20463, DBD-DG-01.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**

P&ID No.: **D20463**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V257B	3* (G-6)		0.75 Globe	Self	C	O	-
EDG oil reservoir tank makeup valve. This is a self contained pressure regulator which is exempt from IST per ISTC-1200(b). Also excluded because it is ANS Class 3. References: P&ID D20464, DBD-DG-01.							
DG-V261B	3* (C-6)		0.5 Check	Self	DE	O	-
Engine driven rocker arm lube oil pump discharge check valve. This valve must open to ensure adequate engine lubrication. This valve has no safety related closure function. Operational readiness is verified during normal surveillance testing by maintenance of adequate LO pressure and temperature and may be excluded by ISTC-1200(c) Also excluded because it is ANS Class 3. Both the open and the non- safety closure functions are periodically verified in OS1426.25. References: P&ID D20464, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20464**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-P38B	3 (B-8)					-	-
The fuel oil transfer pumps operate periodically to replenish the EDG day tank. These skid-mounted PD pumps have a specified flow rate of 20 GPM and an actual flow rate of 25 GPM. The FO Transfer pump is required to support EDG operation, and its operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of FO day tank level within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB-1200(c). References: P&ID D20459, FSAR Table 9.5-4, EX1804.23.							
DG-P118B	3* (H-5)					-	-
The motor driven aux fuel oil pump is not required to support EDG operation and is excluded from the IST Program by ISTA-1100. Backup to the engine driven pump. Motor is non-1E. Per UFSAR 9.5.7.1, 'the malfunction or failure of a component will not result in the loss of function of more than one diesel generator.' Thus, even though this pump starts on falling header pressure (less than 20 psig), redundancy is provided by the other diesel unit. Reference: DBD-DG-01, revision 1.							
DG-P119B	3* (G-5)					-	-
The engine driven FO pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of FO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB-1200(c). Also excluded because it is ANS Class 3. Reference:							
DG-V82B	3* (F-7)		1.0 Check	Self	C	O	-
EDG fuel header return check valve. This valve has a safety related open function to return excess fuel to the day tank. This function is adequately verified during normal surveillance testing by maintenance of proper fuel oil process conditions. No other testing or monitoring is required. Also excluded because it is ANS Class 3. References : P&ID D20464, DBD-DG-01.							
DG-V83B	3* (F-7)		1.0 Check	Self	C	O	-
EDG fuel header return check valve. This valve has a safety related open function to return excess fuel to the day tank. This function is adequately verified during normal surveillance testing by maintenance of proper fuel oil process conditions, and is excluded by ISTC-1200(c) No other testing or monitoring is required. Also excluded because it is ANS Class 3. References : P&ID D20464, DBD-DG-01.							

SYSTEM: **DG**

P&ID No.: **D20464**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL	Remarks
DG-V84B	3 (H-7)		1.0 Check	Self	C	C	-	Motor driven aux fuel oil pump discharge check valve. The pump is not required to support EDG operation, and the check valve has a safety close function only to prevent fuel oil bypass. This function is adequately verified during normal surveillance and may be exempted by ISTC-1200(c) References: P&ID D20464, DBD-DG-01.
DG-V85B	3* (G-7)		1.0 Check	Self	C	O	-	Engine driven fuel oil pump discharge check valve. This valve has a safety related open function only which is verified during normal surveillance testing and may be excluded by ISTC-1200(c) Also excluded because it is ANS Class 3.
DG-V99B	3* (H-7)		Relief/Safety	Self	C	-	-	Aux motor driven fuel oil pump integral relief valve. The aux motor driven fuel oil pump is not required to support EDG operation This valve is not in scope per ISTA-1100.References: P&ID D20464, DBD-DG-01.
DG-V100B	3* (H-7)		Relief/Safety	Self	C	O	-	Engine driven fuel oil pump integral relief valve. This valve is in scope per ISTA-1100. However, excluded because it is ANS Class 3. Sat. operation is integral with sat. operation of the pump. Will be tested under other Appendix B program. References: P&ID D20464, DBD-DG-01.
DG-V121	3 (B-10)		1.5 Check	Self	C	O	-	Fuel oil transfer pump 38B discharge check valve has a safety related open function only. Closure to prevent reverse flow is not required since the transfer line enters the top of the day tank. Exercising of this skid-mounted check valve is adequately performed during performance of the fuel oil transfer pump testing conducted for TS 4.8.1.1.2.f.11 every 18 months. References: P&ID D20463, DBD-DG-01, EX1804.23
DG-V155B	NNS (H-12)		4.0 Relief/Safety	Self		-	-	EDG fuel oil day tank relief valve. This valve is classified non-nuclear safety and is for backup protection only. The tank is vented to atmosphere through the DG Bldg. roof with a flame arrestor attached. Tank also has an overflow line back to the storage tank with a line sized twice that of the supply. Level switches are also provided for transfer pump auto control and tank high and low level alarms. References: P&ID D20464, DBD-DG-01.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **DG**

P&ID No.: **D20464**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V209	NNS (D-8)		6.0 Relief/Safety	Self		-	-
Fuel oil storage tank relief valve. This valve is classified non-nuclear safety and provides backup protection only. The tank is vented to atmosphere through the DG Bldg. wall with a flame arrestor attached. References: P&ID D20464, DBD-DG-01.							
DG-V124	3 (C-9)		1.5 X 2 Relief	Self	C	O	-
Fuel Oil transfer pump 38B discharge relief valve. See CR 06-10718 and DCR 00-001, for passive designation. These skid mounted RVs will be tested iaw TS 4.8.1.1.2.f.11.							

SYSTEM: **DG**

P&ID No.: **D20465**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-D-6B-checks	3* (F-4)		0.25 Check	Self	DE	-	-
C-2A air dryer check valves open and close as required by dryer design /operation. The dryer is required to remove moisture to within design limits of the supplied components. Proper operation of the dryer and associated components is verified via proper operation and reliabillity of the EDG and associated pneumatic components which is verified by periodic surveillance testing. Therefore the valve are excluded per ISTC-1200(c) Also excluded because they are ANS Class 3. These valves include DG-V281B, DG-V282B, DG-V286B, and DG-V287B. Will be tested periodically commensurate with their importance to safety under another App. B program. References: P&ID D20465, DBD-DG-01.							
DG-D-6B-SOVs	3* (F-4)		0.25 Globe	Solenoid	DE	-	-
C-2A air dryer solenoid valves open and close as required by dryer design /operation. The dryer is required to remove moisture to within design limits of the supplied components. Proper operation of the dryer and associated components is verified via proper operation and reliabillity of the EDG and associated pneumatic components, which is verified by periodic surveillance testing. Therefore, the valves are excluded per ISTC-1200(c) Also excluded because they are ANS Class 3. These valves include DG-V279B, DG-V280B, DG-V285B, DG-V289B and DG-V288B. Will be tested periodically commensurate with their importance to safety under another App. B program. References: P&ID D20465, DBD-DG-01.							
DG-V52B	3* (C-10)		0.25 Other	Self		-	-
DG control air press. reducing valve. Reduces air pressure from 600 to 100 psig. Performs safety function for control air subsystem according to EWR 97-095. Self contained pressure control valve excluded from IST based on ISTC-1200(b) and -1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to							
DG-V53B	3 (C-10)		0.25 Check	Self		-	-
EDG shutdown air receiver inlet check valve- not required for EDG operation, and the valve is not in the IST scope per ISTA-1100. Maintains and isolates high pressure (600 psig) air volume for engine shutdown. References: P&ID D20465, DBD-DG-01.							

SYSTEM: **DG**

P&ID No.: **D20465**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V54B	3* (C-10)		0.5 Relief/Safety	Self	C	O	-
125 psig control air relief valve- in scope per ISTA-1100. Protects downstream piping in the event of pressure regulator DG-V52B failure, as pressure is reduced from 600 psig to 100 psig by that regulator. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References P&ID D20465, DBD-DG-01.							
DG-V55B	3*		Other	Self		-	-
DELETED per EC 144992 > > > >							
DG-V56B	3*		0.25 Relief/Safety	Self	C	O	-
DELETED per EC 144992 > > >							
DG-V59B	3* (D-8)		Other	Self		-	-
DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b) and -1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V60B	3* (D-8)		Other	Self		-	-
DG main air start valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC1200(b) and -1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							

SYSTEM: **DG**

P&ID No.: **D20465**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
DG-V72B	3* (F-10)		Relief/Safety	Self	C	O	-	Starting air compressor discharge piping relief valve-in scope per ISTA-1100. Protects downstream piping because compressor rating is 700 psig (above system piping design). However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&IDD20465, DBD-DG-01.
DG-V220B	3* (D-8)		Other	Self		-	-	DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b)and -1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V221B	3* (D-8)		Other	Self		-	-	DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b) and -1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V224B	3* (C-8)		Other	Self		-	-	DG main air start valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b)and -1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V225B	3* (G-9)		0.5 Gate	Manual	O	C	-	Starting air compressor discharge Air Dryer 6B outlet manual isolation valve. This valve is normally open and is closed to place the backup control air compressor in service. References: P&ID D20465, OS1026.12, DCR 94-044. Added to SITR revision 10. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **DG**
P&ID No.: **D20465**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V226B	NNS (E-9)		0.75 Check	Self		-	-
C-2B air dryer manifold drain line check valve. This valve is classified non-nuclear safety related. Removal of moisture from the compressor discharge is a design requirement for the unit. Satisfactory performance of the air drying equipment is reflected in the reliability of the EDG. Function is continuous for dryer purge flow and intermittent for compressor moisture Removal due to auto start/stop of compressor based on receiver pressure. Per Eng. Eval. 93-39, the maintenance of ISA standard air quality is not required for the safety related function of the starting air system. References: P&ID D20465, DBD-DG-01, Eng. Eval. 93-39.							
DG-V253B	3* (E-10)		0.25 Three way	Solenoid		-	-
C-2A solenoid operated drain valve.- operates on timer (valve cycles open for about 30-40 sec. After every 30 minutes of compressor operation) to remove accumulated condensate in the compressor discharge. The operational readiness of this valve is verified through proper compressor operation as well as the reliability of the EDG and associated pneumatic components. Therefore, the valve is excluded per ISTC-1200(c)Also excluded because it is ANS Class 3. References: P&ID D20465, DBD-DG-01.							
DG-V258B	3* (F-10)		Relief/Safety	Self	C	O	-
C-2A integral stage relief valve. This RV protects the compressor which is required to support long term EDG operation and is in scope per ISTA-1100. The RV is excluded per ISTC-1200(c) and will be periodically tested as part of the compressor unit. Also excluded because it is ANS Class 3. References: P&ID D20465							
DG-V259B	3* (F-10)		Relief/Safety	Self	C	O	-
C-2A integral stage relief valve. This RV protects the compressor which is required to support long term EDG operation and is in scope per ISTA-1100. The RV is excluded per ISTC-1200(c) and will be periodically tested as part of the compressor unit. Also excluded because it is ANS Class 3. References: P&ID D20465							
DG-V260B	3* (E-10)		0.5 Check	Self	DE	O	-
EDG starting air compressor discharge check valve. This valve has an open safety function to provide control air for long term EDG operation. There is no safety related closure function since the receiver inlet check valves prevent reverse flow when C-2B is in service, and manual valve DG-V225B is closed when the backup compressor (C-18B) is placed in service. The valve is excluded from IST since the valve open function is adequately verified through maintenance of normal air receiver pressure. Also excluded because it is ANS Class 3. References: P&ID D20465, DBD-DG-01, OS1426.25, OS1026.12, DCR 94-044.							

SYSTEM: **DG**

P&ID No.: **D20465**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V269B DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC-1200(b)and -1200(c) and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.	3* (D-8)		Other	Self		-	-
DG-V325B C-18B unloader SOV cycles on receiver pressure. SOV is required to support compressor operation which is required for long term EDG operation. Unloader valve function is to ensure compressor starts against no back pressure. Max operating Differential pressure for this valve is 130 psid. This valve is adequately tested during compressor surveillance testing and is excluded per ISTC-1200(c)Also excluded because it is ANS Class 3. References: P&ID D20465, DBD-DG-01, OS1426.25	3* (F-12)		0.25 Gate	Solenoid	DE	O/C	-
DG-V331B EDG backup control air compressor discharge relief valve. Compressor operation is required to support long term EDG operation. Therefore, the RV is in scope per ISTA-1100. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20465, DBD-DG-01, DCR 94-044.	3* (G-1)		0.5 Relief/Safety	Self	C	O	-
DG-V332B EDG backup control air compressor discharge manual isolation valve. This valve is normally closed, and is opened to place the backup air compressor into service when alarm for receiver pressure at Backup Air Compressor low pressure setpoint is received. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20465, OS1026.12, DCR 94-044.	3* (G-9)		0.5 Ball	Manual	C	O	-
DG-V333B EDG backup control air compressor discharge manual isolation valve. This valve is normally closed and is opened to place the backup air compressor into service when alarm for receiver pressure at Backup Air Compressor low pressure setpoint is received. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20465, OS1026.12, DCR 94-044.	3* (G-9)		0.5 Ball	Manual	C	O	-

SYSTEM: **DG**

P&ID No.: **D20465**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V334B	3* (G-9)		0.5 Check	Self	C	O	-

EDG backup control air compressor discharge check valve. This valve is required to open to support long term EDG operation. Reverse closure is not required since the air receiver check valves prevent reverse flow when the compressor is in service, and the manual discharge valves V332B and V333B are closed when the compressor is not in service. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID, DBD-DG-01, OX1426.14.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V335B	3* (E-12)		0.25 Relief/Safety	Self	C	O	-

EDG backup control air compressor integral discharge relief valve- In IST scope per ISTA-1100, but excluded per ISTC-1200(c)Also excluded because it is ANS Class 3. This integral relief valve will be tested periodically with the operation of the compressor. References: P&ID, DBD-DG-01.

SYSTEM: **DG**

P&ID No.: **D20466**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-P120B Motor driven Jacket Coolant Standby circulating pump. "Keep warm" pump performs a pre-conditioning function only, maintaining engine temp. when < 375 RPM. This portion of the DG jacket coolant water system does not perform a safety function as described in ISTA-1100. Also, this pump is excluded from IST because it is ANS Class 3.	3* (G-11)					-	-
DG-P121B The EDG jacket water coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during normal surveillance testing. Therefore it is excluded from IST per ISTB-1200(b) Also excluded because it is ANS Class 3. Reference: DBD-DG-01, revision 1.	3* (F-8)					-	-
DG-P122B The EDG motor driven aux. coolant pump is not required to support EDG operation and is excluded from IST per ISTA-1100. Although fed from an emergency bus, the motor is non-1E. Serves a backup function only. Design basis, as stated in UFSAR, credits the other EDG for Redundancy in the event of a single failure. Reference: DBD-DG-01, revision 1.	NNS (E-5)					-	-
DG-P231B The EDG air coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during normal surveillance testing. Therefore is is excluded from IST per ISTB-1200(c). Also excluded because it is ANS Class 3. Reference: DBD-DG-01, revision 1.	3* (D-7)					-	-
DG-PV7B-1 EDG jacket water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20466, DBD-DG-01, 94MMOD506.	3 (F-7)		6.0 Globe	Self	TH	TH	-
DG-PV7B-2 EDG air cooling water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20466, DBD-DG-01, 94MMOD506.	3 (D-9)		6.0 Globe	Self	TH	TH	-

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
P&ID No.: **D20466**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-TCV7B-1	3 (F-8)		6.0 Three way	Air/Diaphragm	TH	TH	O
EDG air coolant temperature control valve. Control air is not available to this valve until engine speed exceeds 375 RPM. It then modulates to maintain coolant temperature setpoint. When the engine is not running it is in its pre-start position and has no remote controls or indication-- valve is excluded from IST per ISTC-1200(b). Tested commensurate with its importance to safety in OS1426.25. References: P&ID D20461, DBD-DG-01.							
DG-TCV7B-2	3 (D-8)		6.0 Three way	Air/Diaphragm	TH	TH	O
EDG air coolant temperature control valve. Control air is not available to this valve until engine speed exceeds 375 RPM. It then modulates to maintain coolant temperature setpoint. When the engine is not running it is in its pre-start position and has no remote controls or indication-- valve is excluded from IST per ISTC-1200(b). Tested commensurate with its importance to safety in OS1426.25. References: P&ID D20461, DBD-DG-01.							
DG-V1B	3 (G-7)		6.0 Check	Self		-	-
Aux coolant pump to jacket cooling header discharge check valve. The aux coolant pump is not required to support EDG operation. This check valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20466, DBD-DG-01.							
DG-V2B	3 (F-9)		6.0 Check	Self	C	O	-
Engine driven jacket coolant pump suction check valve. This valve is closed to prevent flow diversion when the motor driven aux coolant pump is running (not safety related function) . The safety related function for this valve is to open when the engine driven coolant pump is operating. The open function is adequately verified during normal EDG surveillance through maintenance of process temperatures within allowable ranges. Therefore, this valve is excluded from IST per ISTC-1200(c)References: P&ID 20466, DBD-DG-01.							
DG-V4B	3 (D-8)		6.0 Check	Self		-	-
Aux coolant pump to air cooling header discharge check valve. The aux coolant pump is not required to support EDG operation. This check valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20466, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**

P&ID No.: **D20466**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-V5B	3 (D-8)		6.0 Check	Self	C	O	-
EDG air coolant pump discharge check valve- opens to support EDG operation. Non-safety related closure function prevents coolant bypass when the aux coolant pump is operating. The open function for this valve is adequately verified during normal EDG surveillance testing through maintenance of process parameters within allowable ranges. Therefore, this valve is excluded from IST per ISTC-1200(c)References: P&ID 20466, DBD-DG-01.							
DG-V9B	3 (F-7)		6.0 Butterfly	Air/Piston	C	C	-
Aux coolant pump discharge isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Valve is a normally closed Divert valve which opens in response to low coolant pressure signal in the respective engine Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20466, DBD-DG-01.							
DG-V11B	3 (G-6)		6.0 Butterfly	Air/Piston	C	C	-
Aux coolant pump discharge isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Valve is a normally closed Divert valve which opens in response to low coolant pressure signal in the respective engine Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20466, DBD-DG-01.							
DG-V12B	3 (E-6)		6.0 Butterfly	Air/Piston	C	C	-
Aux coolant pump suction isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Valve is a normally closed Divert valve which opens in response to low coolant pressure signal in the respective engine Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20466, DBD-DG-01.							
DG-V13B	3 (D-6)		6.0 Butterfly	Air/Piston	C	C	-
Aux coolant pump suction isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Valve is a normally closed Divert valve which opens in response to low coolant pressure signal in the respective engine Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20466, DBD-DG-01.							

SYSTEM: **DG**

P&ID No.: **D20466**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Remarks
					NRM	SAF	FAL	
DG-V86B	3* (G-10)		0.75 Relief/Safety	Self	C	-	-	Jacket coolant standby cir. pump relief valve- This portion of the system is not required to support EDG operation. The standby engine / coolant temperature is essential for EDG Operability, but the keep warm system does not perform a safety related function. Therefore, this valve is not within the IST scope as defined in ISTA-1100 Also excluded because it is ANS Class 3. References: P&ID D20466, DBD-DG-01.
DG-V87B	3* (G-10)		1.5 Check	Self	O	C	-	Engine coolant keep warm pump (P-120A) discharge check valve is normally open (to warm engine thus minimizing wear) and closes upon engine start to prevent coolant bypass. The reverse closure function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within acceptable ranges. Therefore, this valve is excluded from IST per ISTC-1200(c)Also excluded because it is ANS Class 3. References:
DG-V94B	3* (G-10)		1.5 Check	Self	O	C	-	Engine coolant keep warm pump (P-120A) discharge check valve is normally open (to warm engine thus minimizing wear) and closes upon engine start to prevent coolant bypass. The reverse closure function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within acceptable ranges. Therefore, this valve is excluded from IST per ISTC-1200(c)Also excluded because it is ANS Class 3. References:
DG-V272	NNS (E-6)		0.5 Relief/Safety	Self	C	-	-	EDG aux coolant pump relief valve. This portion of the system is not required to support EDG operation. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References: P&ID D20466, DBD-DG-01.

SYSTEM: **DG**

P&ID No.: **D20467**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-NA2						-	-

There are no valves on this drawing within the IST program scope as defined in ISTA-1100.

SYSTEM: **DGA**

P&ID No.: **D20460**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DGA-FY-ACO	3* (D-11)		0.38 Three way	Solenoid	C	O	C

EDG control air isolation valve. This valve is normally closed (vented) and opens to admit control air to the engine components when the engine starts and speed exceeds 375 RPM. Control air is required for engine operation. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program (sov current trace evaluation for exercise and stroke time). This valve is adequately tested during normal surveillance testing through maintenance of engine water and oil temperatures within allowable ranges (e.g., proper operation of TCV's). References: P&ID D20460, DBD-DG-01.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DGA-FY-AS1	3 (B-8)		0.38 Three way	Solenoid	C	O	C

EDG air start solenoid valve- energizes to admit control air to the main air start valve. This valve is adequately tested during normal EDG surveillance, where meeting the EDG minimum start time criterion in TS 4.8.1.1.2.(a).5, verifies the operational readiness of the SOVs and associated main air start valves. Exclude from IST scope per ISTC-1200(c). Equipped with internal spring to counterbalance the control signal. If unit fails to start within 9 seconds of start signal, start is aborted by shutdown of fuel supply. It is assumed that the other EDG has started, so no fail safe test is required. Will be tested periodically commensurate with its importance to safety under another App. B program (sov current trace evaluation for exercise and stroke time). References: P&ID D20460, DBD-DG-01, TS 4.8.1.1.2.a.5, 87TSEV0012.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DGA-FY-AS2	3 (B-9)		0.38 Three way	Solenoid	C	O	C

EDG air start solenoid valve- energizes to admit control air to the main air start valve. This valve is adequately tested during normal EDG surveillance, where meeting the EDG minimum start time criterion in TS 4.8.1.1.2.(a).5, verifies the operational readiness of the SOVs and associated main air start valves. Exclude from IST scope per ISTC-1200(c). Equipped with internal spring to counterbalance the control signal. If unit fails to start within 9 seconds of start signal, start is aborted by shutdown of fuel supply. It is assumed that the other EDG has started, so no fail safe test is required. Will be tested periodically commensurate with its importance to safety under another App. B program (sov current trace evaluation for exercise and stroke time). References: P&ID D20460, DBD-DG-01, TS 4.8.1.1.2.a.5, 87TSEV0012.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DGA**
P&ID No.: **D20460**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DGA-FY-SDS	3 (D-9)		0.38 Three way	Solenoid	C	-	C

EDG air shutdown solenoid. This valve is energized to admit air to move the fuel rack servo to the min fuel position to shutdown the EDG which is not a safety related function. Operation of this valve is not required to support EDG operation and therefore, it is not within the IST scope per ISTA-1100. Per UFSAR 9.5.6.3, this sov is energized by only the emergency overspeed trip, generator differential trip, manually or by 2 out of 3 engine low lube oil pressure trips. All other trip signals are bypassed during the accident. References: P&ID D20460. DBD-DG-01, DCR 94-12.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DGB**
P&ID No.: **D20465**

Valve Number	Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DGB-FY-ACO	EDG control air isolation valve. This valve is normally closed (vented) and opens to admit control air to the engine components when the engine starts and speed exceeds 375 RPM. Control air is required for engine operation. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program (sov current trace evaluation for exercise and stroke time). This valve is adequately tested during normal surveillance testing through maintenance of engine water and oil temperatures within allowable ranges (e.g., proper operation of TCV's). References: P&ID D20465, DBD-DG-01.	3* (D-11)		0.38 Three way	Solenoid	C	O	C
DGB-FY-AS1	EDG air start solenoid valve- energizes to admit control air to the main air start valve. This valve is adequately tested during normal EDG surveillance, where meeting the EDG minimum start time criterion in TS 4.8.1.1.2.(a).5, verifies the operational readiness of the SOVs and associated main air start valves. Exclude from IST scope per ISTC-1200(c). Equipped with internal spring to counterbalance the control signal. If unit fails to start within 9 seconds of start signal, start is aborted by shutdown of fuel supply. It is assumed that the other EDG has started, so no fail safe test is required. Will be tested periodically commensurate with its importance to safety under another App. B program (sov current trace evaluation for exercise and stroke time). References: P&ID D20465, DBD-DG-01, TS 4.8.1.1.2.a.5, 87TSEV0012.	3 (B-8)		0.38 Three way	Solenoid	C	O	C
DGB-FY-AS2	EDG air start solenoid valve- energizes to admit control air to the main air start valve. This valve is adequately tested during normal EDG surveillance, where meeting the EDG minimum start time criterion in TS 4.8.1.1.2.(a).5, verifies the operational readiness of the SOVs and associated main air start valves. Exclude from IST scope per ISTC-1200(c). Equipped with internal spring to counterbalance the control signal. If unit fails to start within 9 seconds of start signal, start is aborted by shutdown of fuel supply. It is assumed that the other EDG has started, so no fail safe test is required. Will be tested periodically commensurate with its importance to safety under another App. B program (sov current trace evaluation for exercise and stroke time). References: P&ID D20465, DBD-DG-01, TS 4.8.1.1.2.a.5, 87TSEV0012.	3 (B-9)		0.38 Three way	Solenoid	C	O	C

SYSTEM: **DGB**

P&ID No.: **D20465**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DGB-FY-SDS	3 (D-9)		0.38 Three way	Solenoid	C	-	C

EDG air shutdown solenoid. This valve is energized to admit air to move the fuel rack servo to the min fuel position to shutdown the EDG which is not a safety related function. Operation of this valve is not required to support EDG operation and therefore, it is not within the IST scope per ISTA-1100. Per UFSAR 9.5.6.3, this sov is energized by only the emergency overspeed trip, generator differential trip, manually or by 2 out of 3 engine low lube oil pressure trips. All other trip signals are bypassed during the accident. References: P&ID D20465. DBD-DG-01, DCR 94-12.

SYSTEM: **DM**

P&ID No.: **D20352**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DM-V274	NNS (D-8)		0.75 Relief/Safety	Self	C	O	-

IRC Demin. Header Relief Valve. This relief valve relieves overpressure in X-36 (DM) adjacent NNS piping to IRC CIV DM-V5 caused by thermal expansion of trapped fluid under accident conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20352, Engineering Evaluation

SYSTEM: **FW**

P&ID No.: **D20426**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
FW-P113	NNS (C-5)					-	-

The startup feedwater pump is operated during plant startup and shutdown and can perform as a backup to the EFW pumps. The pump is capable of starting automatically following a trip of both main feedwater pumps. The pump was specified to deliver 1500 GPM @ 2700 ft TDH (BEP =1845 GPM). The pump is required to deliver a maximum flow rate of 650 GPM to the steam generators. The NNS startup feedwater pump is required to be operable during Modes 1-3 under TS 3.7.1.2. Quarterly surveillance testing is conducted on recirculation at approximately 27% BEP or 500 GPM. Similar testing to Comprehensive testing could be conducted during discharge check valve testing at a flow rate of approximately 650 GPM. The flow instruments in each SG FW line and the recirculation line instrument (CO-FI-4072) could be utilized to determine total pump flow. However, this pump is non-ASME and therefore excluded from IST. Will be tested under other App. B program commensurate with its importance to safety. References: P&ID D20426, FSAR Section 6.8, DBD-EFW-01, revision 1.TS 3.7.1.2, OX1436.08, OX1436.12.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
FW-V99	NNS (C-7)		6.0 Check	Self	C	-	-

Startup feedwater pump discharge check valve. This valve is normally closed and opens when the startup feed pump is operating. This valve does not have a safety related close function and because the SUFP is not required for safe shutdown to Hot Standby, there is no safety function in the open direction either. This valve is also non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20426, TS 3.7.1.2.

SYSTEM: **FW**

P&ID No.: **D20686**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
FW-FCV510	NNS (F-5)		16.0 Globe	Air/Diaphragm	O	-	C
SG A Feed Reg. Valve. This valve is open during power operation and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is not equipped with safety related air. Manual operator action may be required to align this valve in certain conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.							
FW-FCV520	NNS (D-5)		16.0 Globe	Air/Diaphragm	O	-	C
SG B Feed Reg. valve. This valve is open during power operation and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is not equipped with safety related air. Manual operator action may be required to align this valve in certain conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.							
FW-FCV530	NNS (B-5)		16.0 Globe	Air/Diaphragm	O	-	C
SG C Feed Reg. valve. This valve is open during power operation and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is not equipped with safety related air. Manual operator action may be required to align this valve in certain conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.							

SYSTEM: **FW**
P&ID No.: **D20686**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
FW-FCV540	NNS (H-5)		16.0 Globe	Air/Diaphragm	O	-	C

SG D Feed Reg. valve. This valve is open during power operation and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is not equipped with safety related air. Manual operator action may be required to align this valve in certain conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32. (OPEN ITEM: (1)add to IST Program, (2) Active qualification status- and safety classification?)

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
FW-LV4210	NNS (F-5)		4.0 Globe	Air/Diaphragm	C	-	C

SG A Feed Reg. bypass valve. This valve may open during power operation up to 20%, and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to SG A as required by TS 4.7.1.2.2.b. This valve is not equipped with safety related air. Manual operator action may be required to align this valve in certain conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
FW-LV4220	NNS (D-5)		4.0 Globe	Air/Diaphragm	C	-	C

SG B Feed Reg. bypass valve. This valve may open during power operation up to 20%, and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to SG#2 as required by TS 4.7.1.2.2.b. This valve is not equipped with safety related air. Manual operator action may be required to align this valve in certain conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.

SYSTEM: **FW**

P&ID No.: **D20686**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
FW-LV4230	NNS (B-5)		4.0 Globe	Air/Diaphragm	C	-	C	SG C Feed Reg. bypass valve. This valve may open during power operation up to 20%, and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to SG#3 as required by TS 4.7.1.2.2.b. This valve is not equipped with safety related air. Manual operator action may be required to align this valve in certain conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.
FW-LV4240	NNS (H-5)		4.0 Globe	Air/Diaphragm	C	-	C	SG D Feed Reg. bypass valve. This valve may open during power operation up to 20%, and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to SG#4 as required by TS 4.7.1.2.2.b. This valve is not equipped with safety related air. Manual operator action may be required to align this valve in certain conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.
FW-V28	NNS (F-4)		16.0 Gate	Motor	O	-	-	Feed Reg. Block Valve A. This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flow path in the event the primary flow path through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flow path and the components are not supplied from an emergency power source, it is excluded from IST. Also excluded because it is NNS.
FW-V37	NNS (D-4)		16.0 Gate	Motor	O	-	-	Feed Reg. Block Valve B. This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flow path in the event the primary flow path through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flow path and the components are not supplied from an emergency power source, it is excluded from IST. Also excluded because it is NNS.

SYSTEM: **FW**

P&ID No.: **D20686**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
FW-V46	NNS (C-4)		16.0 Gate	Motor	O	-	-
Feed Reg. Block Valve C. This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flow path in the event the primary flow path through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flow path and the components are not supplied from an emergency power source, it is excluded from IST. Also excluded because it is NNS.							
FW-V55	NNS (H-4)		16.0 Gate	Motor	O	-	-
Feed Reg. Block Valve D. This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flow path in the event the primary flow path through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flow path and the components are not supplied from an emergency power source, it is excluded from IST. Also excluded because it is NNS.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **FW**
P&ID No.: **D20687**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
FW-Various3	NNS					-	-
The SUFP and associated flow paths from the CST protected water volume to the SGs, via both the EFW header and the normal FW discharge header, are required by TS 3.7.1.2 to be operable in Modes 1,2 & 3. NNS Components in the TS required flow paths have been identified using the applicable TS surveillance procedures and the FW P&IDs, for inclusion in the scope of components which are important to safety but non-ASME and therefore excluded from IST. Those components will be tested under other App. B program. No components shown on this drawing (P&ID 1-FW-D20687) are in the IST scope.							
FW-PCV4326	NNS (B-8)		3.0 Globe	Air/Diaphragm	TH	-	O
This is the SUFP recirculation flow control valve, maintains SUFP discharge pressure at setpoint value. The valve is set off the seat about 1/2" to provide a 200 GPM recirculation flow even when the valve is closed. The minimum floe required for the SUFP is 375 GPM. Excluded from IST per ISTC-1200(b) and because it is non-ASME. This valve is adequately tested during normal SUFP surveillance testing. References: P&ID D20426, TS 3.7.1.2, DBD-EFW-01 Revision 1.							
FW-PCV4377	NNS (A-8)		0.75 Gate	Air/Diaphragm	C	-	-
Startup Feed Pump Pressure Control. This is a self-contained pressure control valve which is excluded from IST per ISTC 1.2b. It is also excluded because it is NNS. This valve is adequately tested during normal SUFP surveillance testing. References: TS 4.7.1.2.2b, DBD-EFW-01 Revision 1.							
FW-PCV4378	NNS (A-7)		0.75 Gate	Air/Diaphragm	C	-	-
Startup Feed Pump Pressure Control. This is a self-contained pressure control valve which is excluded from IST per ISTC 1.2b. It is also excluded because it is NNS. This valve is adequately tested during normal SUFP surveillance testing. References: TS 4.7.1.2.2b, DBD-EFW-01 Revision 1.							
FW-V1	NNS (D-4)		20.0 Check	Self	O	-	-
A Feed Pump Discharge Check Valve. Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.							

SYSTEM: **FW**

P&ID No.: **D20687**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
FW-V2 A Feed Pump Discharge Isolation Valve. This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flow path in the event the primary flow path through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flow path and the components are not supplied from an emergency power source, it is excluded from IST.	NNS (D-4)		20.0 Gate	Motor	O	-	-
FW-V12 B Feed Pump Discharge Check Valve. Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.	NNS (D-7)		20.0 Check	Self	O	-	-
FW-V13 B Feed Pump Discharge Isolation Valve. This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flow path in the event the primary flow path through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flow path and the components are not supplied from an emergency power source, it is excluded from IST.	NNS (D-7)		20.0 Gate	Motor	O	-	-
FW-V23 26A Heater Outlet Isolation. This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flow path in the event the primary flow path through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flow path and the components are not supplied from an emergency power source, it is excluded from IST.	NNS (G-3)		24.0 Gate	Motor	O	-	-
FW-V25 26B Heater Outlet Isolation. This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flow path in the event the primary flow path through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flow path and the components are not supplied from an emergency power source, it is excluded from IST.	NNS (G-6)		24.0 Gate	Motor	O	-	-

SYSTEM: **FW**

P&ID No.: **D20687**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
FW-V100	NNS (B-8)		6.0 Gate	Manual	O	-	-
SUFP discharge isolation valve. This valve is normally open, closed prior to starting FW-P113, and then reopened to align the SUFP to the normal feedwater header. It is also closed when aligning the SUFP to the EFW discharge header. Note this is a TS required flow path per TS 4.7.1.2.2.b. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20426, OX1436.05 &.12, TS 3.7.1.2							
FW-V102	NNS (E-4)		18.0 Check	Self	C	-	-
Feed Pump Bypass Check Valve. Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.							
FW-V163	NNS (B-7)		6.0 Gate	Motor	C	-	-
Startup feedwater pump discharge to the EFW header isolation valve. This valve is normally closed, and is opened to align the SUFP to the EFW discharge header. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20688, TS 3.7.1.2.							
FW-V456	NNS (D-7)		0.75 Check	Self	C	-	-
B Feed Pump Discharge Bypass Check Valve. Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.							
FW-V458	NNS (D-4)		0.75 Check	Self	C	-	-
A Feed Pump Discharge Bypass Check Valve. Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.							

SYSTEM: **FW**

P&ID No.: **D20687**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
FW-V465	NNS (B-7)		0.75 Globe	Manual	C	-	-
SUFP discharge isolation bypass valve. This valve is normally closed, opened during SUFP startup, and then reclosed when the pump discharge valve is open. Note this is a TS required flow path per TS 4.7.1.2.2.b. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20687, TS 3.7.1.2, OX1436.12.							
FW-V156	NNS (H-4)		6.0 Gate	Motor	C	-	-
Startup feedwater pump discharge to the EFW header isloation valve. This valve is normally closed, and is opened to align the SUFP to the EFW discharge header. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20688, TS 3.7.1.2.							
FW-V258	3* (B-5)		0.5 Relief/Safety	Self	TH	-	-
Turbine Driven EFW pump lube oil pressure regulating valve. This pressure valve regulates the LO pressure at 14-16 psig and is excluded from IST per ISTC 1.2 (b). This valve is also excluded from IST because it is non-ASME (ANS Class 3). Satisfactory operation of this regulating valve is demonstrated during normal pump surveillance testing. References: P&ID							
FW-V467	3* (C-5)		0.25 Relief/Safety	Self	C	-	-
Turbine Driven EFW pump turbine shell steam pressure relief valve. This valve is excluded from IST per ISTC 1.2 (b). This valve is also excluded from IST because it is non-ASME (ANS Class 3). Satisfactory operation of this regulating valve is demonstrated during normal pump surveillance testing. References: P&ID D20688.							
FW-Various2						-	-
There are no accident mitigating or safe shutdown components shown on this drawing P&ID 1-FW-D20689.							

SYSTEM: **FW**

P&ID No.: **D20690**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
FW-Various1						-	-
Feedwater Wet Layup System. SG recirculation and wet layup subsystem is non-ASME, not safety related and not imporatant to nuclear safety. There are no accident mitigating or safe shutdown components shown on this drawing P&ID 1-FW-D20690.							
FW-Various4	NNS					-	-
The startup feed pump lube oil is normally provided by a shaft driven pump. A skid mounted motor driven pump (P-161) supplies the lube oil during startup and in the event of a failure of the shaft driven pump. The entire lube oil system including the check valves (V120, V122,V123 V469, V470), pressure regulating valve V124, and the lube oil pumps, is adequately tested during normal pump surveillance testing, and is therefore excluded from IST per ISTC-1200(c) Also excluded because it is NNS equipment. References: P&ID D20691, DBD-EFW-01, Revision 1.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **IA**
P&ID No.: **B20644**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
IA-V545	3* (G-12)		1.0 Check	Self	O	C	-

Alternate air supply to MS-V395, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow 1-MS-TK-243 to supply nitrogen to the MS-V393 actuator. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program References: P&ID B20644, DBD-EFW-01, revision 1, FSAR Section 9.3.1, OX1436.02.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
IA-V546	3* (G-12)		1.0 Check	Self	O	C	-

Alternate air supply to MS-V395, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow 1-MS-TK-243 to supply nitrogen to the MS-V393 actuator. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20644, DBD-EFW-01, revision 1, FSAR Section 9.3.1, OX1436.02.

SYSTEM: **IA**

P&ID No.: **B20647**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
IA-Various1	3*					-	-
There are several N2 PCVs and SOVs in the alternate supply to the pneumatic valves shown on this drawing. The PCVs are excluded from IST per ISTC-1200(b). The SOVs are tested as an integral part of the associated control valve, and are excluded from IST per ISTC-1200(c) Furthermore, these components are all ANSI Class 3.							
IA-V547	3* (F-10)		0.75 Check	Self	O	C	-
Alternate N2 supply to MS-V394 & MS-PV3002, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647,							
IA-V548	3* (F-10)		0.75 Check	Self	O	C	-
Alternate N2 supply to MS-V394 & MS-PV3002, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647,							
IA-V549	3* (H-10)		0.75 Check	Self	O	C	-
Alternate N2 supply to MS-V393 & MS-PV3001, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647,							

SYSTEM: **IA**

P&ID No.: **B20647**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
IA-V550	3* (H-10)		0.75 Check	Self	O	C	-

Alternate N2 supply to MS-V393 & MS-PV3001, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647,

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
IA-V8030	3* (B-10)		1.0 Check	Self	O	C	-

Backup air supply to CC-TV2171-1,-2, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
IA-V8031	3* (B-11)		1.0 Check	Self	O	C	-

Alternate N2 supply to CC-TV2171-1,-2, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647,

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
IA-V8032	3* (D-11)		1.0 Check	Self	O	C	-

Alternate N2 supply to CC-TV2271-1,-2, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647,

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **IA**

P&ID No.: **B20647**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
IA-V8033	3* (D-10)		1.0 Check	Self	O	C	-

Alternate N2 supply to CC-TV2271-1,-2, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. This permits operation remotely from the MCB or Remote Shutdown Panel and allows sufficient time so that immediate operator action is not required before the N2 bottles bleed down and the valve moves to its failed position. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1, OX1412.01.

SYSTEM: **MS**

P&ID No.: **D20582**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
MS-V129	3* (E-6)		4.0 Globe	Manual	O	O/C	-

Turbine driven EFW pump trip and throttle valve. This valve is normally open when the pump is in standby, and remains open during the auto start process. The valve is manually closed and opened during periodic pump testing and will trip closed on turbine over speed. The operation of this valve is adequately tested during pump surveillance testing, and it is excluded from IST per ISTC 1.2 (c). Also excluded because it is ANS Class 3. References: P&ID D20582, FSAR Section 6.8, DBD-EFW-01, revision 1.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **NG**

P&ID No.: **D20135**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
NG-V47	2 (C-5)		1.0 Check	Self	DE	C	-

Nitrogen supply to VCT check valve. The VCT and its related components upstream of CS-LCV112B and CS-LCV112C do not perform a safety function as described in ISTA-1100. Water suction source is from RWST and ECCS containment sump.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
NG-V187	2 (C-6)		1.0 Check	Self		-	-

Nitrogen supply to VCT check valve. The VCT and its related components upstream of CS-LCV112B and CS-LCV112C do not perform a safety function as described in ISTA-1100. Water suction source is from RWST and ECCS containment sump.

SYSTEM: **NG**

P&ID No.: **D20136**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

NG-V18	2	1.0	Self	C	-	-
	(G-6)	Check				

Nitrogen supply to SI Accum A check valve. This valve serves no safety function as described in ISTA-1100. Any Accum gas leakage is contained by the normally closed AOV upstream of this check valve. References: ACR 96-89, ES1850.001

NG-V20	2	1.0	Self	C	-	-
	(G-6)	Check				

Nitrogen supply to SI Accum B check valve. This valve serves no safety function as described in ISTA-1100. Any Accum gas leakage is contained by the normally closed AOV upstream of this check valve. References: ACR 96-89, ES1850.001

NG-V22	2	1.0	Self		-	-
	(G-6)	Check				

Nitrogen supply to SI Accum C check valve. This valve serves no safety function as described in ISTA-1100. Any Accum gas leakage is contained by the normally closed AOV upstream of this check valve. References: ACR 96-89, ES1850.001

NG-V24	2	1.0	Self		-	-
	(F-6)	Check				

Nitrogen supply to SI Accum D check valve. This valve serves no safety function as described in ISTA-1100. Any Accum gas leakage is contained by the normally closed AOV upstream of this check valve. References: ACR 96-89, ES1850.001

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **RC**

P&ID No.: **D20218**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
RC-V147	2 (H-8)		0.38 Gate	Air/Piston	O	-	O
Reactor vessel flange leakoff to the RCDT. Provided for vessel flange leak detection only. The position of this valve is inconsequential and it serves no safety function as described in							
RC-Various1						-	-
RCS Loop 2 P&ID. There are no valves (shown in function) on this drawing which are within the IST scope as defined in ISTA-1100.							

P&ID No.: **D20843**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
RC-V81	1 (B-8)		3.0 Gate	Motor	O	-	-
Letdown Isolation from loop 3. This valve has no safety function as described in ISTA-1100, as letdown is isolated by downstream valves RC-LCV459 and RC-LCV460 to provide the RCS Class 1 boundary. Letdown is not used during DBA conditions nor for safe shutdown, so this valve has no open safety function either. Maintenance valve only.							
RC-PCV455B	1 (G-5)		4.0 Ball	Air/Diaphragm	C	-	C
Pressurizer Spray Control valve from Loop 1. This valve is used for operating convenience and is not required for safe shutdown. Excluded per ISTC-1200(b) and ISTA-1100 scope.							

P&ID No.: **D20846**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
RC-PCV455A	1 (F-5)		4.0 Ball	Air/Diaphragm	C	-	C
Pressurizer Spray Control valve from Loop 3. This valve is used for operating convenience and is not required for safe shutdown. Excluded per ISTC-1200(b) and ISTA-1100 scope.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **RH**

P&ID No.: **D20662**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
RH-V8	2 (E-9)		0.75 Globe	Manual	C	-	-
RH-P-8A discharge local grab sample valve. Although listed in UFSAR Table 7.4-1 as 'equipment required for safe shutdown', per EWR 97-095 guidance this valve is not considered active since it is repositioned for a short period of time, administratively controlled and is for the sole purposes of drawing a sample. Therefore, it is excluded from IST requirements.							
RH-V18	2 (G-12)		2.0 Globe	Manual	C	-	-
RHR Train A to CVCS Purification (slipstream) isolation. This valve is normally closed and is opened to initiate Train A RHR slipstream flow. It is required to be closed in the event of a NNS piping break downstream to preserve RHR inventory while in slipstream operation and therefore is considered active per EWR 97-095. But, since slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station, this valve will not be tested under the IST program as it does not perform a safety function as described in ISTA-1100 for this station. Will be tested under other App. B program commensurate with its importance to safety.							

SYSTEM: **RH**

P&ID No.: **D20663**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
RH-V19	2 (G-12)		2.0 Globe	Manual	C	-	-
RHR Train B to CVCS Purification (slipstream) isolation. This valve is normally closed and is opened to initiate Train B RHR slipstream flow. It is required to be closed in the event of a NNS piping break downstream to preserve RHR inventory while in slipstream operation and therefore is considered active per EWR 97-095. But, since slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station, this valve will not be tested under the IST program as it does not perform a safety function as described in ISTA-1100 for this station. Will be tested under other App. B program commensurate with its importance to safety .							
RH-V33	2 (G-9)		8.0 Gate	Manual	C	C	-
RHR to CBS-P-9B suction. This valve is normally locked closed and is administratively restricted from operation in Modes 1-4.							
RH-V44	2 (E-9)		0.75 Globe	Manual	C	-	-
RH-P-8B discharge local grab sample valve. Although listed in UFSAR Table 7.4-1 as 'equipment required for safe shutdown', per EWR 97-095 guidance this valve is not considered active since it is repositioned for a short period of time, administratively controlled and is for the sole purposes of drawing a sample. Therefore, it is excluded from IST requirements.							

SYSTEM: **RMW**

P&ID No.: **D20360**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
RMW-V107	NNS (H-5)		1.5 Relief/Safety	Self	C	O	-
RMW IRC header relief valve. This valve provides over pressure protection for containment penetration adjacent piping (X-36) and RMW-V29, where the overpressue condition is caused by thermal expansion of trapped fluid under accident conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20360, Engineering Evaluation SS-EV-960023, revision 0.							
P&ID No.: **D20729**							
RMW-V36	2 (E-5)		2.0 Globe	Manual	C	C	-
Reactor makeup water isolation to the CCP suction. This valve is normally closed and remains closed for SSD and accident mitigation. This valve is verified closed in OS1200.01. Upstream valves RMW-V31 & V34 are active and closed/verified closed in OS1200.01 providing the necessary barrier for dilution potential and therefore RMW-V36 serves no active function, regardless of its position.							
RMW-V37	2 (E-5)		2.0 Check	Self	DE	-	-
RMW to charging pump suction isolation check valve. Has no safety function. OS1202.04 for Emergency Boration provides instructions for closing RMW-V31 and V34 to avoid dilution during boron insertion. Emerg. Boration is from the BAT, thus reverse closure would be the intended function, but the multiple barriers provided by the closed manual valves provide the required isolation.							

SYSTEM: **SB**

P&ID No.: **D20841**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
SB-V2	2 (C-11)		2.0 Gate	Manual	C	-	-
SG A alternate blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTA-1100. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V189	2 (C-11)		3.0 Globe	Manual	O	-	-
SG A blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTA-1100. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V4	2 (C-5)		2.0 Gate	Manual	C	-	-
SG B alternate blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTA-1100. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V191	2 (C-5)		3.0 Globe	Manual	O	-	-
SG B blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTA-1100. Only the containment isolation valves downstream provide a safety function for this system.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT
TABLES

SYSTEM: **SB**

P&ID No.: **D20843**

SB-V6	2 (E-6)		2.0 Gate	Manual	C	-	-
SG C alternate blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTA-1100. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V193	2 (E-6)		3.0 Globe	Manual	O	-	-
SG C blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTA-1100. Only the containment isolation valves downstream provide a safety function for this system.							

P&ID No.: **D20844**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
SB-V8	2 (E-10)		2.0 Gate	Manual	C	-	-
SG D alternate blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTA-1100. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V195	2 (E-10)		3.0 Globe	Manual	O	-	-
SG D blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTA-1100. Only the containment isolation valves downstream provide a safety function for this system.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **SF**
P&ID No.: **D20482**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
SF-P10A	3 (D-7)					-	-
The spent fuel cooling pump operates continuously to remove decay heat from spent fuel elements stored in the spent fuel pool. The Spent Fuel Pumps do not meet the criteria for the functions as described in ISTA-1100. Therefore, they are excluded from IST References: P&ID D20482, DCR 00-001, and FSAR Table 9.1-3,							
SF-P10B	3 (D-4)					-	-
The spent fuel cooling pump operates continuously to remove decay heat from spent fuel elements stored in the spent fuel pool. The Spent Fuel Pumps do not meet the criteria for the functions as described in ISTA-1100. Therefore, they are excluded from IST References: P&ID D20482, DCR 00-001, and FSAR Table 9.1-3,							
SF-P10C	3 (B-5)					-	-
The spent fuel cooling pump operates continuously to remove decay heat from spent fuel elements stored in the spent fuel pool. The Spent Fuel Pumps do not meet the criteria for the functions as described in ISTA-1100. Therefore, they are excluded from IST References: P&ID D20482, DCR 00-001, and FSAR Table 9.1-3,							
SF-V3	3 (D-4)		6.0 Check	Self	DE	O/C	-
Spent fuel pool cooling pump P-10B discharge check valve. This valve opens when the SFPC pump is running and closes when the pump is secured to prevent reverse bypass flow from the redundant parallel pumps. Since the SF Pumps serve no safety function as described in ISTA-1100, this valve is not active and serves no safety function as described in ISTA-1100 References: P&ID D20482.							
SF-V7	3 (D-7)		6.0 Check	Self	DE	O/C	-
Spent fuel pool cooling pump P-10A discharge check valve. This valve opens when the SFPC pump is running and closes when the pump is secured to prevent reverse bypass flow from the redundant parallel pumps. Since the SF Pumps serve no safety function as described in ISTA-1100, this valve is not active and serves no safety function as described in ISTA-1100 References: P&ID D20482.							

SYSTEM: **SF**

P&ID No.: **D20482**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
SF-V197	3 (B-5)		8.0 Check	Self	DE	O/C	-
Spent fuel pool cooling pump P-10C discharge check valve. This valve opens when the SFPC pump is running and closes when the pump is secured to prevent reverse bypass flow from the redundant parallel pumps. Since the SF Pumps serve no safety function as described in ISTA-1100, this valve is not active and serves no safety function as described in ISTA-1100 References: P&ID D20482.							
SF-V45	3 (G-11)		0.75 Relief/Safety	Self	C	O	-
SF-E-15B thermal relief valve - Since the SF Pumps serve no safety function as described in ISTA-1100, the system heat exchanger serves no safety function as described in the ASME OM Code and this valve is not active and serves no safety function as described in ISTA-1100 References: P&ID D20482.							
SF-V74	3 (G-9)		0.75 Relief/Safety	Self	C	O	-
SF-E-15A thermal relief valve - Since the SF Pumps serve no safety function as described in ISTA-1100, the system heat exchanger serves no safety function as described in the ASME OM Code and this valve is not active and serves no safety function as described in ISTA-1100 References: P&ID D20482.							

P&ID No.: **D20484**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
SF-V110	3 (G-4)		3.0 Check	Self	C	C	-
CVCS Filter F1 Inlet check valve from SF. This purification and chemistry control portion of CVCS does not perform a safety function as described in ISTA-1100							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **SF**

P&ID No.: **D20796**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
SF-V183	3 (F-5)		0.75 Relief/Safety	Self	C	O	-

Alternate SFP heat exchanger SF-E-15C thermal relief valve - Since the SF Pumps serve no safety function as described in ISTA-1100, the system heat exchanger serves no safety function as described in the ASME OM Code and this valve is not active and serves no safety function as described in ISTA-1100 References: P&ID D20796.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **SI**

P&ID No.: **D20447**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	 SAF	 FAL
SI-V297	2 (H-6)		4.0 Check	Self		O	-

Hi Head SI to RCS cold legs check valve. Internals were removed from this valve during OR04 in accordance with MMOD 90-598.

P&ID No.: **D20450**

SI-V314	NNS (G-12)		0.75 Relief/Safety	Self	C	O	-

SI Test line header thermal relief valve. This valve provides overpressure protection for IRC penetration X-35 adjacent NNS piping and is in scope per ISTA-1100 However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20450, DCR 97-0008.

SYSTEM: **SW**
P&ID No.: **D20794**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
SW-V63	NNS (F-4)		38.0 Butterfly	Motor	O	O	-
Service water pump discharge isolation to the discharge transition structure. This valve is normally locked open with power removed. Would only be re-positioned in very limited circumstances to provide tunnel heat treatment (THT). This function is no longer employed, generally, because the chlorination system performs the intended function. References: P&ID D20794, DBD-SW-01, revision 1.							
SW-V64	NNS (G-4)		38.0 Butterfly	Motor	O	O	-
Service water pump discharge isolation to the intake transition structure. This valve is normally locked closed with power removed. Would only be re-positioned in very limited circumstances to provide tunnel heat treatment (THT). This function is no longer employed, generally, because the chlorination system performs the intended function. References: P&ID D20794, DBD-SW-01, revision 1.							
SW-V179	3* (B-8)		1.0 Check	Self	C	O/C	-
SW cooling tower pump (P-110A) vacuum breaker. This valve opens when the pump stops to allow air into the system to preclude water hammer when the pump restarts. The valve closes when the pump starts to preclude water discharge. However, this valve is non-ASME (ANS Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20794, DBD-SW-01, revision 1.							
SW-V180	3* (B-7)		1.0 Check	Self	C	O/C	-
SW cooling tower pump (P-110B) vacuum breaker. This valve opens when the pump stops to allow air into the system to preclude water hammer when the pump restarts. The valve closes when the pump starts to preclude water discharge. However, this valve is non-ASME (ANS Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20794, DBD-SW-01, revision 1.							

SYSTEM: **SW**
P&ID No.: **D20795**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
SW-V66	3 (C-12)		24.0 Butterfly	Manual	C	O	-	Train B Service water strainer S-11 bypass valve. Based on system design and operating characteristics, it is unlikely that the plant will experience a large ingress of material which will cause rapid and simultaneous strainer blockage. Although this valve is included for possible operation in abnormal operating procedure OS1201.16 for a degraded ultimate heat sink, the event of this valve's operation for that purpose is beyond the design basis of the plant. Therefore this valve is considered not to have an active safety function per EWR 97-095. References: P&ID D20795, DBD-SW-01, revision 1, OS1016.03
SW-V69	3 (A-11)		24.0 Butterfly	Manual	C	O	-	Train A Service water strainer S-10 bypass valve. Based on system design and operating characteristics, it is unlikely that the plant will experience a large ingress of material which will cause rapid and simultaneous strainer blockage. Although this valve is included for possible operation in abnormal operating procedure OS1201.16 for a degraded ultimate heat sink, the event of this valve's operation for that purpose is beyond the design basis of the plant. Therfore this valve is considered not to have an active safety function per EWR 97-095. References: P&ID D20795, DBD-SW-01, revision 1, OS1016.03

SYSTEM: **SW**

P&ID No.: **D20796**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
SW-V214	3 (D-6)		1.5 Relief/Safety	Self	C	O	-

SW system Alternate SFP heat exchanger SF-E-15C thermal relief valve - Since the SF Pumps serve no safety function as described in ISTA-1100, the system heat exchanger serves no safety function as described in the ASME OM Code and this valve is not active and serves no safety function as described in ISTA-1100
References: P&ID D20796.

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
SW-V224	3* (F-9)		1.0 Check	Self	C	O/C	-

SF HX 15C inlet Service water vacuum breaker check valve. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. The alternate SFC heat exchanger is placed into service when both CC trains are out of service for maintenance. Under this condition, this is the only available SFC cooling path. However, this valve is non-ASME (ANS Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20796,

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
SW-V225	3* (D-9)		1.0 Check	Self	C	O/C	-

SF HX 15C outlet Service water vacuum breaker check valve. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. The alternate SFC heat exchanger is placed into service when both CC trains are out of service for maintenance. Under this condition, this is the only available SFC cooling path. However, this valve is non-ASME (ANS Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20796,

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **WG**

P&ID No.: **D20773**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
WG-V53	2 (G-12)		1.0 Check	Self	DE	-	-

WG to VCT check valve. The VCT and its related components upstream of CS-LCV112B and CS-LCV112C do not perform a safety function as described in ISTA-1100 The RWST and ECCS containment sumps are the water source for DBA.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **WLD**

P&ID No.: **D20218**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
WLD-V277	NNS (F-11)		0.75 Relief/Safety	Self	C	O	-

RCDT IRC WLD line relief valve. This relief valve relieves overpressure in X-32 adjacent NNS piping caused by thermal expansion of trapped fluid under accident conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20218, Engineering Evaluation SS-EV-960023, revision 0.

P&ID No.: **D20219**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
WLD-V211	NNS (D-11)		0.75 Relief/Safety	Self	C	O	-

IRC Waste Liquid Drains Header relief valve. This relief valve relieves overpressure in X-34 adjacent NNS piping caused by thermal expansion of trapped fluid under accident conditions. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20218, Engineering Evaluation SS-EV-960023, revision 0