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

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.

Eric McCartney // Site Vice President NextEra Energy Seabrook, LLC

Attachment

cc w/o attachment:

NRC Regional Administrator NRC Resident Inspector NRC Project Manager

A041 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

<u>Section</u>	Description	Page
PART I	SEABROOK STATION PUMP AND VALVE INSERVICE	1-1.1
	TESTING (IST) PROGRAM PLAN	
<u>1.0</u>	Introduction	1-1.2
1.1	Objective	1-1.2
1,2	Definitions	1-1.2
1.3	Organization	1-1.3
1.4	Responsibilities	1-1.4
$\frac{2.0}{3.0}$	References	1-2.1 thru 1-2.2
<u>3.0</u>	Scope	1-3.1
3.1	Objective	1-3.1
3.2	Safe Shutdown	1-3.1
3.3	Accident Mitigation	1-3.2
3.4	Component Selection	1-3.2
3.5	Exclusion Justification	1-3.3
3.6	Leakage Rate Testing	1-3.3
3.7	Skid Mounted Components	1-3.3
3.8	Cold Shutdown / Refueling Testing Rationale	1-3.4
3.9	Position Indication Augmented by System Parameter	1-3.5
	Observation	
3.10	Relief Request Rationale	1-3.6
3.11	Testing of Non-Code and Skid-mounted Components	1-3.7
<u>4.0</u>	Pumps	1-4.1
4.1	Reference Values	1-4.1
4.2	Establishing Limits / Analysis	1-4.2
4.3	Pump Instrumentation	1-4.4
4.4	Trending	1-4.5
4.5	Acceptance Criteria	1-4.5
<u>5.0</u>	Valves	1-5.1
5.1	Power Operated valves	1-5.1
5.2	Check Valves	1-5.5
5.3	Pressure Relief & Safety Valves	1-5.8
5.4	Manual Valves	1-5.9
5.5	Valve Leakage Rate Tests	1-5.10
5.6	Categories of Valves	1-5.10
5.7	Inservice Test Requirements	1-5.11
<u>6.0</u>	Cold Shutdown Testing	1-6.1
<u>7.0</u>	IST Trending Analysis	1-7.1 thru 1-7.3
<u>Figure 1</u>	IST Technical Positions	1-F1.1 thru 1-F1.7
<u>Figure 2</u>	IST Pump Test Table	1-F2.1 thru 1-F2.7
	specific pump relief requests -	
	<u>CBS PR-1</u>	1-F2.8
	<u>CBS PR-2</u>	1-F2.9

INSERVICE TESTING REFERENCE (SITR)

Figure 3	IST General Relief Requests	1-F3.1
Figure 4	<u>IST Valve Test Tables – format</u> <u>Valve Tables</u>	1-F4.1 thru 1-F4.10 1-F4.11 thru 1-F4.144
Figure 5	<u>Cold shutdown and refueling justifications</u> IST Program General Relief Requests (administrative)	1-F4.145 thru 1-F4.187 1-F5.1

INSERVICE TESTING REFERENCE (SITR)

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Table of Contents

<u>Sec</u> PART	<u>etion</u>	<u>Description</u> SEABROOK STATION PUMP AND VALVE INSERVICE	<u>Page</u> 2-1.1
FARI		TESTING (IST) PROGRAM PLAN EXCLUSION	2-1.1
		JUSTIFICATION DOCUMENT	
1.0		Introduction	2-1.2
	1.1	Objective	2-1.2
-	1.2	Definitions	2-1.2
-	1.3	Responsibilities	2-1.2
<u>2.0</u>		References	2-2.1
<u>2.0</u> <u>3.0</u>		Scope	2-3.1
3	3.1	Pumps	2-3.1
	3.2	Valves	2-3.1
3	3.3	Approach	2-3.1
3	3.4	Other Components not Included	2-3.2
	3.5	Component Exclusion Justification Tables	2-3.2
<u>4.0</u>		Pumps	2-4.1
2	4.1	Pump Exclusion	2-4.1
<u>5.0</u>		Valves	2-5.1
4	5.1	Valve Exclusion	2-5.1
<u>6.0</u>		Component Exclusion Justification Table Nomenclature	2-6.1
<u>7.0</u>		Component Exclusion Justification Table Format	2-7.1 thru 2-7.4
Figure	<u>e 6</u>	Exclusion Justification Document Tables	2-F6.1 thru
			2-F6.93

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

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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

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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:

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- 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
- 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 <u>SCOPE</u>

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 values 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

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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 postmaintenance 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 values 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 value) would be taken and assumed to function satisfactorily. Not all of the EOP power operated values 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 <u>PUMPS</u>

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:

1-4.1

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-5321-1 and 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.

Quantity	Preservice Test	Group A Test	Group B Test	Comprehensive Test	Remarks
Speed ,N	X	x	X	X	If variable speed
Differential Pressure, ΔP	Х	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	Х	Х		Х	Measure either Vd - Peak to peak or Vv - Peak

TABLE ISTB-3000-1

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.

Required Instrument Accuracy			
Quantity	Group A & B Tests	Comprehensive and	
		Preservice Tests	
Pressure	<u>+</u> 2%	<u>+1/2%</u>	
Flow Rate	<u>+</u> 2%	<u>+2%</u>	
Speed	<u>+</u> 2%	<u>+</u> 2%	
Vibration	<u>+</u> 5%	<u>+</u> 5%	
Differential	<u>+2%</u>	<u>+1/2%</u>	
Pressure			

Table ISTB-3510-1 Required Instrument Accurac

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

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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 <u>VALVES</u>

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 <u>Reference Stroke Time (RST) (ISTC-3300)</u>

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 values shall be measured to at least the nearest second. (ISTC-5113 (c))

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

TABLE 1 VALVE STROKE TIME LIMIT TABLE

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 <u>Corrective Action (ISTC-5123)</u>

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 <u>not</u> 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 values to be tested are listed in the Value Test Tables of this program plan. As specified in ISTC-5240, Category C safety and relief values 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 value testing program elements.

5.3.1 Scope

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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

Class 1 (I 1.3.3)

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)

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Test equipment used to determine valve set pressure, has an overall combined accuracy of not greater than $\pm 1\%$ 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 <u>10CFR50</u>, 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 <u>Pressure Isolation Valve Leakage Rates (See Reference 2.4.b)</u>

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)

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- 1. <u>Category A</u> Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required function(s).
- 2. <u>Category B</u> Valves for which seat leakage in the closed position is inconsequential for fulfillment of their required function(s).
- 3. <u>Category C</u> 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. <u>Category D</u> Valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosively actuated valves.

SITR Rev. 23

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:

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

INSERVICE TESTING REQUIREMENTS

NOTES:

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- 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:

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)

Valve Test and Examination Codes

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 <u>each</u> 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).

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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. <u>Pumps</u> 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. <u>Valves</u> 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

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Technical Position:	TP-1: Testing of Dual Train Solenoid Actuation Valves
Component:	SB-V9, SB-V10, SB-V11 and SB-V12
Category:	В
Code Class:	2
Function:	Containment Isolation Valves
Test Requirements	Active Valve: Exercise, Fail-Safe-Closed, Stroke Time – Closed Direction only and Position Indication Test
<u>Basis for Position:</u>	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.

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Technical Position:	TP-2: System Leakage
Component:	Valves with Consequential Leakage
Category:	Α
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
<u>Basis For Position:</u>	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.

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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.

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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.

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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.

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Technical Position:	TP-6: Fail Safe Valve Testing
<u>Valves</u> :	Fail Safe Valves
Category:	A and B
Code Class:	1, 2 and 3
<u>Function</u> :	(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.

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

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

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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.

Pump Table Nomenclature

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

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N	=	Rotative Speed
ΔP	=	Differential Pressure
$Q_{\mathbf{f}}$	=	Flow Rate
V	=	Vibration Amplitude
Х	=	Measurement/Observation per ISTB
PG	=	Pump General Relief Request
PR	=	Pump Relief Request

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Figure F2 <u>Pump Test Table</u>

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Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	ΔP (2)	Q _f	V	Remarks
CBS-P9A	1-CBS-D20233	2	Α	Fixed	(1)	X	X	X	PR-1, PR-2
Containment		(A-12)							
Spray Pump	_ []								
CBS-P9B	1-CBS-D20233	2	A	Fixed	$(\overline{1})$	X	X	X	PR-1, PR-2
Containment		(A-9)							
Spray Pump						- f	[
CC-P11A	1-CC-D20205	3	A	Variable	(1)	X	X	X	
Component		(C-7)							
Cooling									
Water Pump									
CC-P11B	1-CC-D20211	3	A	Variable	(1)	X	X	X	
Component		(C-11)							
Cooling		(0)							
Water Pump									
CC-P11C	1-CC-D20205	3	A	Variable	(1)	X	X	- X	
Component		(C-11)	1			1			
Cooling		(0)					ļ		
Water Pump									
CC-P11D	1-CC-D20211	3	A	Variable	(1)	X	X	- X	
Component		(C-7)	· ·				1		
Cooling									
Water Pump									
CS-P2A	1-CS-D20725	2	A	Fixed	(1)	X	X	X	
Centrifugal	1 00 020125	(A-9)		Fixed				Δ	
Charging		(11-2)							
Pump									•
CS-P2B	1-CS-D20725	2	A	Fixed	(1)	- <u>x</u>	X	X	+ + + + + + + + + + + + + + + + + + + +
Centrifugal	1-00-1020723	(C-10)		I IACU				Δ	
Charging		(0-10)	1		1]			
Pump									
CS-P3A	1-CS-D20729	3	A	Variable	(1)	X	X		<u> </u>
Boric Acid	1-05-020729		A	variable			Λ	Λ	
Transfer		(C-12)					1		
Pump	_ <u>l</u>			I	_Ľ				

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	

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Figure F2	
Pump Test Table	

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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	

NOTES

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

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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 <u>PUMP TEST TABLE</u>

Relief Request:	PR-1
Pumps:	CBS-P9A, CBS-P9B
<u>Code Class:</u> <u>Function:</u> <u>Test Requirements:</u>	 2 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. 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
Basis For Relief:	at the highest practical flow rate. 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

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 \pm 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

FIGURE F2

PUMP TEST TABLE

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.

FIGURE F2 PUMP TEST TABLE

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 This was performed one time ECCS Containment Sumps. 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.

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

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Alternate Testing:

FIGURE F2

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PUMP TEST TABLE

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 <u>PUMP TEST TABLE</u>

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Relief request:	PR-2
Pumps:	CBS-P9A, CBS-P9B
Code Class: Function:	2 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 \geq 600 RPM.
<u>Basis For Relief:</u>	 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. 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

1-F2.9 1

SITR Rev. 23

FIGURE F2 PUMP TEST TABLE

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

1-F2.9 2

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SITR Rev. 23

FIGURE F2

PUMP TEST TABLE

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.

SITR Rev. 23

FIGURE F3 GENERAL RELIEF REQUEST

There are no General Relief Request for the Third Interval

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

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.

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:

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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:

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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 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

FIGURE F4 <u>VALVE TEST TABLES</u>

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.

VALVE TEST TABLE NOMENCLATURE

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

Valve Type	Actuator Type
BFV- Butterfly Valve BLV- Ball Valve	APA - Air/Piston ADA- Air/Diaphragm
CHV- Check Valve	DIA - Diaphragm
DIV - Diaphragm Valve	HOA- Hydraulic
GLV- Globe Valve GTV- Gate Valve	MAA- Manual MOA- Motor
PGV- Plug Valve REV- Relief Valve	NPA- Nitrogen/Piston NDA- Nitrogen/Diaphragm
SAV- Saunders Weir Valve SCV- Stop Check Valve SEV- Safety Valve	SEA- Self SOA- Solenoid
TMV- Three Way Valve	Stroke Direction
Normal Position	O Classification Open
INOTHIAL L'OSICION	O - Closed to Open
O - Open	C - Open to Closed
	-
O - Open	-
O - Open C - Closed	-
O-OpenC-ClosedLO-Locked Open	-

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

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.							

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

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

VALVE LIST (Continued)

	System	P&ID No.	<u>Page No.</u>
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

FIGURE F4

SYSTEM: AS

IST VALVE TEST TABLE

P&ID No.: D20569

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	IS	Relief Reg			C	Progr Commi Commi	tmer	nt				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	Dİ	FE	FS	LJ	L۴	K PE	Ρl	RT	ST	CME
AS-V175	3 (D5)	В	12.0 Gate	Motor	0	С	-			X	Dpen	Test F	req:		Х		Х	
Auxiliary steam Train A iso References: P&ID D20569			open and will clo	se following a HE	LB in the I	PAB.				C	RV F	Test F S Test	req: Dir:	Quarte Close				
AS-V176	3 (D-5)	В	12.0 Gate	Motor	0	С	-			x	Open	Test F	req:		Х		Х	
Auxiliary steam Train B iso References: P&ID D20569	olation valve. This valv		open and will clo	se following a HE	LB in the i	PAB.				C	RV F	Test F S Test	req: Dir:		•			

SYSTEM: CAH

IST VALVE TEST TABLE

P&ID No.: **D20504**

Valve Number	Class and	Valve	Size (in.) and	Actuator	F	Position	S	Relief Req			C	Program ommitm ommitm	ent				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK PE	ΡI	RT	ST	CME
CAH-FV6572 Containment gas & particulate penetration X-52A- subject to service, and receives a "T" ise	Appendix J Type C	LLRT. This v	alve is normally	open when the rad	. monitor	C / for is in	С				ose 1 RV 1 FS	est Fre Test D	q: 2 Yea	d		х	
CAH-FV6573 Containment gas & particulat penetration X-52A- subject to service, and receives a "T" is	Appendix J Type C	LLRT. This v	alve is normally	open when the rad	. monitor	C ′ for is in	С				lose 1 RV 1 FS	est Fre Test D	q: 2 Yea	d		х	
CAH-FV6574 Containment gas & particulat penetration X-52B- subject to service, and receives a "T" is	Appendix J Type C	C LLRT. This \	valve is normally	open when the rad	. monitor	C / for is in	С				lose RV FS	Test Fre Test D	q: 2 Yea	d		х	
CAH-V12 Containment gas & particulat to Appendix J Type C LLRT. the containment isolation fun	This valve is norma	illy open wher	n the rad, monitor	is in service, and	O ion X-52E closes to	C 8- subje perform	- ct ו				lose RV FS	X Fest Fre Fest Fre Fest Fre Test D Test D	q: q: ir:				х

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### SYSTEM: CBS

# IST VALVE TEST TABLE

#### P&ID No.: **D20233**

| Valve Number                                                                                                                                                    | Class                              |                                       | Size (in.)                                | <b>A</b> - <b>L</b> - <b>L</b> -       |            | D                |     |                          |       | С                     | Progra<br>ommitr               | nent               |        |    |    |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------|-------------------------------------------|----------------------------------------|------------|------------------|-----|--------------------------|-------|-----------------------|--------------------------------|--------------------|--------|----|----|-----|
| Remarks                                                                                                                                                         | and<br>Coord                       | Valve<br>(CAT)                        | and<br>Type                               | Actuator<br>Type                       |            | Position:<br>SAF | FAL | Relief Req<br>C.S. Just. | DI FE | -                     | ommitr<br>LJ                   | LK F               | E PI   | RT | ST | CME |
| <b>CBS-V2</b><br>Containment spray pump A RWST<br>injection phase of system operation<br>phase of system operation. There<br>94-031. References: P&ID D2023     | n (S signal), a<br>are no specifio | nd is closed<br>seat leakage          | by operator action<br>limits for this val | n during the sump<br>ve per Engineerin | recircula  | tion             | -   |                          | >     | Close -<br>RV -<br>FS | Test Fr<br>Test Fr<br>3 Test I | • *                | rterly |    | х  |     |
| CBS-V3<br>Containment spray pump A RWST<br>operation, and is closed during the<br>limits for this valve per Engineering                                         | recirculation                      | phase of syste                        | em operation. The                         | ere are no specifi                     | c seat lea |                  | -   |                          |       | FS                    |                                | eq:<br>eq:<br>Dir: |        |    |    | Х   |
| CBS-V5<br>Containment spray pump B RWS <sup>3</sup><br>injection phase of system operatio<br>phase of system operation. There<br>94-031. References: P&ID D2023 | n (S signal), a<br>are no specifio | nd is closed <b>i</b><br>seat leakage | by operator action<br>limits for this val | during the sump<br>ve per Engineerin   | recirculat | ion              | -   |                          | >     | Close<br>RV<br>FS     | Test Fr<br>Test Fr<br>5 Test I |                    | rterly |    | х  |     |
| CBS-V7<br>Containment spray pump B RWS<br>operation, and is closed during the<br>limits for this valve per Engineering                                          | recirculation                      | phase of syste                        | em operation. The                         | ere are no specifi                     | c seat lea |                  | -   |                          |       | FS                    |                                | eq:<br>eq:<br>Dir: |        |    |    | Х   |
| <b>CBS-V8</b><br>Containment Recirc sump Tank 10<br>ECCS/CBS sump recirculation. Th<br>References: P&ID D20233, UFSA                                            | is containmen                      | t isolation val                       | ve is exempt from                         |                                        |            |                  | -   | CBS-CSJ-1                | )     | Close<br>RV<br>FS     | Test Fr<br>Test Fr<br>S Test I |                    | D      |    | х  |     |

SYSTEM: CBS

# IST VALVE TEST TABLE

#### P&ID No.: D20233

|                                                                                                                                                               |                               |                                   | Size (in.)                               |                                                  |                            |                |     |            |    |                  | Program<br>commitm                                            |                      |       |    |    |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------|------------------------------------------|--------------------------------------------------|----------------------------|----------------|-----|------------|----|------------------|---------------------------------------------------------------|----------------------|-------|----|----|----------|
| Valve Number                                                                                                                                                  | Class<br>and                  | Valve                             | and                                      | Actuator                                         |                            | Position       | s   | Relief Req |    |                  | ommitm                                                        |                      |       |    |    |          |
| Remarks                                                                                                                                                       | Coord                         | (CAT)                             | Туре                                     | Туре                                             | NRM                        | SAF            | FAL | C.S. Just. | DI | FE FS            | LJ                                                            | lk pe                | E Pl  | RT | ST | CME      |
| CBS-V9<br>Containment spray pump A sump s<br>recirculation phase of system oper<br>RHR pump during the injection pha                                          | ation. Closure                | is required to                    | prevent diversion                        | n of CBS pump su                                 | iction flow                | to the         | -   |            |    | Close<br>RV<br>F | Test Free<br>Test Free<br>Test Free<br>S Test D<br>T Test D   | q:<br>q:<br>ir:      |       |    |    | X        |
| <b>CBS-V11</b><br>Containment spray discharge X14<br>containment spray signal (P signal<br>manual closure may be required fo<br>References: P&ID D20233, UFSA | ) to admit CB<br>r containmen | S pump discha<br>t isolation. Thi | arge to the conta<br>is CIV is subject t | inment spray hea                                 | ders. Ren                  | note           | -   |            |    | Close<br>RV<br>F | X<br>Test Fre<br>Test Fre<br>Test Fre<br>S Test D<br>T Test D | q: Quar<br>q:<br>ir: | terly | ed | х  |          |
| CBS-V12<br>Containment spray discharge X14<br>admit CBS pump discharge to the<br>This CIV is subject to Appendix J T<br>6.2-83                                | containment                   | spray headers                     | s. Closure may be                        | e required for cont                              | ainment i                  | solation.      | -   |            |    | Close<br>RV<br>F | X<br>Test Fre<br>Test Fre<br>Test Fre<br>S Test D<br>T Test D | q:<br>q:<br>ir:      |       |    |    | Х<br>-   |
| <b>CBS-V14</b><br>Containment recirc. sump Tank 10<br>ECCS/CBS sump recirculation. Th<br>References: P&ID D20233, UFSA                                        | is containmer                 | nt isolation val                  | ve is exempt from                        | Motor<br>nally closed and o<br>n Appendix J Type | C<br>pens to in<br>C LLRT. | O/C<br>iitiate | -   | CBS-CSJ-1  |    | Close<br>RV<br>F | Test Fre<br>Test Fre<br>Test Fre<br>S Test D<br>T Test D      | q: CSD<br>q:<br>ir:  |       |    | х  |          |
| <b>CBS-V15</b><br>Containment spray pump B sump<br>recirculation phase of system open<br>RHR pump during the injection ph                                     | ation. Closure                | e is required to                  | o prevent diversio                       | n of CBS pump su                                 | uction flov                | v to the       | -   |            |    | Close<br>RV<br>F | Test Fre<br>Test Fre<br>Test Fre<br>S Test D<br>T Test D      | q:<br>q:<br>ir:      |       |    |    | <b>X</b> |

1-F4.14 SITR Rev. 23

SYSTEM: CBS

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## IST VALVE TEST TABLE

P&ID No.: **D20233** 

|                                                                                                                                                                                                                                  |                                                                                     |                                                                      |                                                                                                              |                                                                                         |                                                     |                         |     |            | IST Program Plan                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-----|------------|-------------------------------------------------------------------------------------------|
| Valve Number                                                                                                                                                                                                                     | Class<br>and                                                                        | Valve                                                                | Size (in.)<br>and                                                                                            | Actuator                                                                                | F                                                   | osition                 |     | Relief Reg | Commitment<br>Commitment                                                                  |
| Remarks                                                                                                                                                                                                                          | Coord                                                                               | (CAT)                                                                | Туре                                                                                                         | Туре                                                                                    |                                                     |                         | FAL | C.S. Just. | DI FE FS LJ LK PE PI RT ST CME                                                            |
| CBS-V17                                                                                                                                                                                                                          | 2<br>(E-6)                                                                          | А                                                                    | 8.0<br>Gate                                                                                                  | Motor                                                                                   | С                                                   | O/C                     | -   |            | X X X X<br>Open Test Freq: Quarterly                                                      |
| Containment spray discharge X15 C<br>containment spray signal (P signal)<br>manual closure may be required for<br>References: P&ID D20233, UFSAR                                                                                 | to admit CBS<br>containment                                                         | pump discha                                                          | arge to the contai<br>s CIV is subject to                                                                    | nment spray head                                                                        | lers. Rem                                           | ote                     |     |            | Close Test Freq: Quarterly<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: Open/Closed   |
| CBS-V18                                                                                                                                                                                                                          | 2                                                                                   | A/C                                                                  | 8.0                                                                                                          | Self                                                                                    | С                                                   | O/C                     | -   |            | X X                                                                                       |
| Containment spray discharge X15 I                                                                                                                                                                                                |                                                                                     |                                                                      |                                                                                                              |                                                                                         |                                                     |                         |     |            | Open Test Freq:<br>Close Test Freq:                                                       |
| admit CBS pump discharge to the of This CIV is subject to Appendix J Ty                                                                                                                                                          |                                                                                     |                                                                      |                                                                                                              |                                                                                         |                                                     |                         |     |            | RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:                                             |
| CBS-V25                                                                                                                                                                                                                          | 2<br>(A-7)                                                                          | С                                                                    | 16.0<br>Check                                                                                                | Self                                                                                    | С                                                   | O/C                     | -   |            | X<br>Open Test Freg:                                                                      |
| RHR pump B containment sump su-<br>operation, and opens upon transfer<br>placed in service during normal plar<br>DCR 87-311. Should the back seat<br>30 GPM. This ensures that the pote<br>installed to protect the lower pressu | ction check v<br>to ECCS sun<br>it cooldown. /<br>test fail a leal<br>ntial leakage | np recirculation<br>A back seat te<br>kage test mus<br>while in mode | ve is closed during<br>on. This valve also<br>est is required to b<br>t be performed to<br>e 4 does not exce | o closes when the<br>be performed perio<br>o verify that the lea<br>bed the capacity of | RHR syst<br>odically pe<br>kage is le               | em is<br>er<br>ess than |     |            | Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:                         |
| CBS-V26                                                                                                                                                                                                                          | 2                                                                                   | С                                                                    | 16.0                                                                                                         | Self                                                                                    | С                                                   | O/C                     | -   |            | X                                                                                         |
| RHR pump A containment sump su<br>operation, and opens upon transfer<br>placed in service during normal plar<br>DCR 87-311. Should the back seat<br>30 GPM. This ensures that the pote<br>installed to protect the lower pressu  | to ECCS sun<br>it cooldown. <i>i</i><br>test fail a leal<br>ntial leakage           | np recirculation<br>A back seat to<br>kage test mus<br>while in mode | on. This valve also<br>est is required to b<br>it be performed to<br>e 4 does not exce                       | o closes when the<br>be performed period<br>verify that the lead<br>bed the capacity of | RHR syst<br>odically pe<br>kage is le<br>the relief | em is<br>er<br>ess than |     |            | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:      |
| CBS-V31                                                                                                                                                                                                                          | 2<br>(E-6)                                                                          | В                                                                    | 4.0<br>Butterfly                                                                                             | Air/Piston                                                                              | С                                                   | С                       | С   |            | X X X X X<br>Open Test Freq:                                                              |
| Containment spray pump B min-flov<br>if open, and remains closed for the<br>valve per Engineering Evaluation 9<br>94-031.                                                                                                        | v to RWST is<br>duration of th                                                      | e accident mi                                                        | This valve will clo<br>tigation period. Th                                                                   | nere is no seat lea                                                                     | kage limit                                          | on this                 | n   |            | Close Test Freq: Quarterly<br>RV Test Freq:<br>FS Test Dir: Closed<br>ST Test Dir: Closed |

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SYSTEM: CBS

## IST VALVE TEST TABLE

P&ID No.: **D20233** 

| Valve Number<br>Remarks                                                                                                                                                                                                                                                       | Class<br>and<br>Coord                                                                                                                                | Valve<br>(CAT)                                                                                | Size (in.)<br>and<br>Type                                                                                                                            | Actuator<br>Type                                                                                         | F<br>NRM                                                        | Positions<br>SAF F/              | Relief Req<br>AL<br>C.S. Just. | IST Program Plan<br>Commitment<br>Commitment<br>DI FE FS LJ LK PE PI RT ST CME                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------|
| CBS-V32                                                                                                                                                                                                                                                                       | 2<br>(E-6)                                                                                                                                           | В                                                                                             | 4.0<br>Butterfly                                                                                                                                     | Air/Piston                                                                                               | С                                                               | C (                              |                                | X X X X X<br>Open Test Freq:                                                                                 |
| Containment spray pump A min<br>if open, and remains closed for<br>valve per Engineering Evaluatio<br>94-031.                                                                                                                                                                 | the duration of th                                                                                                                                   | e accident mi                                                                                 | tigation period. Th                                                                                                                                  | nere is no seat lea                                                                                      | akage limit                                                     | on this                          |                                | Close Test Freq: Quarterly<br>RV Test Freq:<br>FS Test Dir: Closed<br>ST Test Dir: Closed                    |
| CBS-V33                                                                                                                                                                                                                                                                       | 2<br>(E-6)                                                                                                                                           | В                                                                                             | 4.0<br>Butterflv                                                                                                                                     | Air/Piston                                                                                               | С                                                               | C o                              | C                              | X X X X X<br>Open Test Frea:                                                                                 |
| Containment spray pump min-fl<br>signal, if open, and remains clos<br>on this valve per Engineering E<br>Evaluation 94-031.                                                                                                                                                   | low to RWST corr<br>sed for the duration                                                                                                             | on of the acci                                                                                | n valve. This valve<br>dent mitigation pe                                                                                                            | riod. There is no                                                                                        | seat leaka                                                      | ge limit                         |                                | Close Test Freq: Quarterly<br>RV Test Freq:<br>FS Test Dir: Closed<br>ST Test Dir: Closed                    |
| <b>CBS-V38</b><br>Spray Additive Tank outlet isola<br>to flow to the RWST mixing cha                                                                                                                                                                                          |                                                                                                                                                      | •                                                                                             |                                                                                                                                                      | •                                                                                                        | C<br>T NaOH sc                                                  | O ·                              |                                | X X X<br>Open Test Freq: Quarterly<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: Open |
| CBS-V43                                                                                                                                                                                                                                                                       | 2                                                                                                                                                    | в                                                                                             | 6.0                                                                                                                                                  | Motor                                                                                                    | c                                                               | 0                                | -                              | x x x                                                                                                        |
| Spray Additive Tank outlet isola to flow to the RWST mixing cha                                                                                                                                                                                                               |                                                                                                                                                      |                                                                                               |                                                                                                                                                      |                                                                                                          | Г NaOH sc                                                       | blution                          |                                | Open Test Freq: Quarterly<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: Open          |
| CBS-V55                                                                                                                                                                                                                                                                       | 2<br>(B-12)                                                                                                                                          | С                                                                                             | 12.0<br>Check                                                                                                                                        | Self                                                                                                     | С                                                               | O/C                              | -                              | X<br>Open Test Freg:                                                                                         |
| RHR pump A RWST suction ch<br>phase of operation, and closes<br>system is placed in service duri<br>per DCR 87-311. Should the ba<br>is less than 30 GPM. This ensu<br>relief valve installed to protect th<br>during the sump recirculation m<br>D20233, DCR 87-311, EX1804. | eck valve. This va<br>upon transfer to E<br>ng normal plant c<br>ack seat test fail a<br>res that the poten<br>he lower pressure<br>node of ECCS ope | ECCS sump r<br>ooldown. A b<br>leakage test<br>tial leakage v<br>RWST sucti<br>eration per En | n SI actuation and<br>ecirculation. This<br>ack seat test is re<br>must be performer<br>while in mode 4 do<br>on piping. There i<br>gineering Evalua | valve also closes<br>quired to be perfo<br>d to verify that th<br>bes not exceed th<br>s no seat leakage | when the<br>ormed perio<br>e leakage<br>e capacity<br>requireme | RHR<br>odically<br>of the<br>ent |                                | Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:                                            |

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#### SYSTEM: CBS

## **IST VALVE TEST TABLE**

#### P&ID No.: D20233

| Valve Number<br>Remarks                                                                                                                                                                                                                                                                                                     | Class<br>and<br>Coord                                                                                    | Valve<br>(CAT)                                                                                    | Size (in.)<br>and<br>Type                                                                                                      | Actuator<br>Type                                                                                           | F<br>NRM                                                       | Positions<br>SAF                 | FAL | Relief Req | DI | FE | .Cor | ogram<br>nmitme<br>nmitme<br>LJ L | ent<br>ent          | EF    | PI | RT | ST | CME      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------|-----|------------|----|----|------|-----------------------------------|---------------------|-------|----|----|----|----------|
| <b>CBS-V56</b><br>RHR pump B RWST suction check<br>phase of operation, and closes upo<br>system is placed in service during r<br>per DCR 87-311. Should the back s<br>is less than 30 GPM. This ensures<br>relief valve installed to protect the lo<br>during the sump recirculation mode<br>D20233, DCR 87-311, EX1804.20, | n transfer to B<br>formal plant of<br>seat test fail a<br>that the poter<br>ower pressure<br>of ECCS ope | ECCS sump re<br>ooldown. A ba<br>leakage test<br>tial leakage w<br>RWST suction<br>partion per En | ecirculation. This<br>ack seat test is re<br>must be performe<br>hile in mode 4 do<br>on piping. There is<br>gineering Evaluat | valve also closes<br>quired to be perfo<br>d to verify that the<br>es not exceed the<br>s no seat leakage  | when the<br>rmed perio<br>e leakage<br>e capacity<br>requireme | RHR<br>odically<br>of the<br>ent | -   | C.S. Just. |    |    |      | st Freq                           | ;<br> :<br> :       |       |    |    |    | <b>X</b> |
| <b>CBS-V94</b><br>CBS heat exchanger B relief valve.<br>to the CBS system piping during Pc                                                                                                                                                                                                                                  |                                                                                                          |                                                                                                   |                                                                                                                                |                                                                                                            |                                                                | O<br>1 piping                    | -   |            |    |    |      | st Freq                           | i:<br>i: 10 Y<br>r: | ears  |    | х  |    |          |
| CBS-V96<br>CBS heat exchanger A relief valve.<br>to the CBS system piping during Pc                                                                                                                                                                                                                                         |                                                                                                          |                                                                                                   |                                                                                                                                |                                                                                                            |                                                                | O<br>n piping                    | -   |            |    |    |      | st Freq                           | ι:<br>ι: 10 Υ<br>r: | 'ears |    | x  |    |          |
| <b>CBS-V145</b><br>RHR pump A RWST suction check<br>phase of operation, and closes upo<br>system is placed in service during n<br>per DCR 87-311. Should the back s<br>is less than 30 GPM. This ensures i<br>relief valve installed to protect the lo<br>during the sump recirculation mode                                | n transfer to B<br>formal plant o<br>seat test fail a<br>that the poter<br>ower pressure                 | ECCS sump re<br>ooldown. A ba<br>leakage test<br>itial leakage w<br>RWST suction                  | ecirculation. This<br>ack seat test is re<br>must be performe<br>rhile in mode 4 do<br>on piping. There is                     | valve also closes<br>quired to be perfo<br>d to verify that the<br>ses not exceed the<br>s no seat leakage | when the<br>rmed perio<br>e leakage<br>e capacity<br>requireme | RHR<br>odically<br>of the<br>ent | -   |            |    |    |      | st Freq                           | ;<br>;;<br>;;       |       |    |    |    | х        |

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.

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SYSTEM: CBS

## IST VALVE TEST TABLE

#### P&ID No.: D20233

| Valve Number<br>Remarks                                                                                                                                                                                                                                                                                                            | Class<br>and<br>Coord                                                                                                                   | Valve<br>(CAT)                                                                                                     | Size (in.)<br>and<br>Type                                                                                                                                        | Actuator<br>Type                                                                                                                     | Po                                                                                         | ositions<br>SAF FA                               | Relief Req<br>L | DI |           | IST Prog<br>Comm<br>Comm<br>FS LJ                       | itment<br>itment                  |       | Pl  | RT | ST | СМЕ |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------|----|-----------|---------------------------------------------------------|-----------------------------------|-------|-----|----|----|-----|
| CBS-V146<br>RHR pump B RWST suction check v<br>phase of operation, and closes upon<br>system is placed in service during no<br>per DCR 87-311. Should the back se<br>is less than 30 GPM. This ensures th<br>relief valve installed to protect the low<br>during the sump recirculation mode of<br>D20233, DCR 87-311, EX1804.20,2 | 2<br>(C-8)<br>alve. This val<br>transfer to Er<br>ormal plant co<br>rat test fail a l<br>nat the potent<br>ver pressure<br>of ECCS oper | C<br>ve opens on<br>CCS sump re<br>oldown. A ba<br>eakage test n<br>ial leakage wi<br>RWST suctio<br>ation per Eng | 12.0<br>Check<br>SI actuation and<br>circulation. This<br>ck seat test is re-<br>nust be performe<br>nile in mode 4 do<br>n piping. There is<br>ineering Evaluat | Self<br>remains open du<br>valve also closes<br>quired to be perfo<br>d to verify that the<br>es not exceed the<br>s no seat leakage | C<br>when the inje<br>when the R<br>rmed period<br>e leakage<br>e capacity c<br>requiremen | O/C -<br>ection<br>HR<br>dically<br>of the<br>nt | C.S. Just.      |    | Op<br>Clo | en Test I<br>se Test I<br>RV Test I<br>FS Tes<br>ST Tes | Freq:<br>Freq:<br>Freq:<br>t Dir: |       |     |    |    | x   |
| <b>CBS-V147</b><br>RHR pump A containment sump suc<br>operation, and opens upon transfer t<br>placed in service during normal plant<br>DCR 87-311. Should the back seat to<br>30 GPM. This ensures that the poten<br>installed to protect the lower pressure                                                                       | o ECCS sum<br>cooldown. A<br>est fail a leak<br>tial leakage v                                                                          | p recirculation<br>back seat te<br>age test must<br>vhile in mode                                                  | n. This valve also<br>st is required to b<br>be performed to<br>4 does not exce                                                                                  | closes when the<br>be performed perio<br>verify that the lea<br>ed the capacity of                                                   | ase of ECC<br>RHR syste<br>odically per<br>akage is les<br>f the relief v                  | m is<br>s than<br>alve                           |                 |    | Clo       | en Test  <br>se Test  <br>RV Test  <br>FS Tes<br>ST Tes | Freq:<br>Freq:<br>t Dir:          |       |     |    |    | x   |
| CBS-V148<br>RHR pump B containment sump suc<br>operation, and opens upon transfer t<br>placed in service during normal plant<br>DCR 87-311. Should the back seat to<br>30 GPM. This ensures that the poter<br>installed to protect the lower pressure                                                                              | o ECCS sum<br>t cooldown. A<br>est fail a leak<br>itial leakage v                                                                       | p recirculation<br>back seat te<br>age test must<br>while in mode                                                  | n. This valve also<br>st is required to b<br>be performed to<br>4 does not exce                                                                                  | o closes when the<br>be performed perio<br>verify that the lead<br>ed the capacity of                                                | RHR syste<br>odically per<br>akage is les<br>f the relief v                                | m is<br>r<br>s than<br>alve                      |                 |    | Clo       | en Test  <br>se Test  <br>RV Test  <br>FS Tes<br>ST Tes | Freq:<br>Freq:<br>t Dir:          |       |     |    |    | х   |
| <b>CBS-V149</b><br>RHR pump A RWST suction relief v<br>during RHR operation- In scope per                                                                                                                                                                                                                                          |                                                                                                                                         | s the low pres                                                                                                     |                                                                                                                                                                  |                                                                                                                                      |                                                                                            | O -<br>eakage                                    |                 |    | Clo       | en Test i<br>se Test i<br>RV Test<br>FS Tes<br>ST Tes   | Freq:<br>Freq: 1<br>t Dir:        | 0 Yea | ars | х  |    |     |

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#### SYSTEM: CBS

## IST VALVE TEST TABLE

P&ID No.: **D20233** 

| Valve Number<br>Remarks                                              | Class<br>and<br>Coord | Valve<br>(CAT) | Size (in.)<br>and<br>Type | Actuator<br>Type | NRM | Position<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | DI | FE  | Co<br>Co              | ommitr<br>ommitr                               | ment                  | n<br>PE | Pl | RT | ST | CME |
|----------------------------------------------------------------------|-----------------------|----------------|---------------------------|------------------|-----|-----------------|----------|--------------------------|----|-----|-----------------------|------------------------------------------------|-----------------------|---------|----|----|----|-----|
| CBS-V150                                                             | 2                     | С              | 0.75                      | Self             | С   | О               | -        |                          |    |     |                       |                                                |                       |         |    | х  |    |     |
| RHR pump B RWST suction relief<br>during RHR operation- In scope per |                       |                |                           |                  |     | leakage         |          |                          |    | Cic | ose To<br>RV To<br>FS | est Fr<br>est Fr<br>est Fr<br>Test I<br>Test I | eq:<br>eq: 10<br>Dir: | 0 Yea   | rs |    |    |     |
| CBS-V151                                                             | 2                     | С              | 0.75                      | Self             | С   | 0               | -        |                          |    | -   | _                     |                                                |                       |         |    | Х  |    |     |
| RHR pump A containment sump su<br>back leakage during RHR operatior  |                       |                |                           |                  |     |                 | 001.     |                          |    | Cic | ose To<br>RV To<br>FS | est Fr<br>est Fr<br>est Fr<br>Test I<br>Test I | eq:<br>eq: 10<br>Dir: | 0 Yea   | rs |    |    |     |
| CBS-V152                                                             | 2                     | С              | 0.75                      | Self             | С   | 0               | -        |                          |    |     |                       |                                                |                       |         |    | х  |    |     |
| RHR pump B containment sump su<br>back leakage during RHR operation  |                       |                |                           |                  |     |                 | 001.     |                          |    | Cic | ose To<br>RV To<br>FS | est Fr<br>est Fr<br>est Fr<br>Test I<br>Test I | eq:<br>eq: 1<br>Dir:  | 0 Yea   | rs |    |    |     |

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#### SYSTEM: CBS

## IST VALVE TEST TABLE

#### P&ID No.: D20446

| Valve Number<br>Remarks                                                                                                                                                | Class<br>and<br>Coord        | Valve<br>(CAT) | Size (in.)<br>and<br>Type | Actuator<br>Type    | <sup>'</sup> NRM | Positions<br>SAF | FAL | Relief Req<br>C.S. Just. | IST Program<br>Commitme<br>Commitme<br>DI FE FS LJ L                                 | nt<br>nt         | ат ст | CME |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------|---------------------------|---------------------|------------------|------------------|-----|--------------------------|--------------------------------------------------------------------------------------|------------------|-------|-----|
| <b>CBS-V47</b><br>SI pump 6A RWST suction isolation<br>ECCS operation, and closes during<br>this valve during ECCS recirculation<br>6.3, Engineering Evaluation 94-031 | the recircula<br>per Enginee | tion phase of  | ECCS operation.           | There is no seat    | leakage li       | mit for          | -   |                          | X<br>Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir | Quarterly        | х     |     |
| CBS-V48<br>SI pump 6A RWST suction check ve<br>during the recirculation phase of op<br>per Engineering Evaluation 94-031.                                              | eration. There               | is no seat le  | akage limit for this      | s valve during EC   | CCS recirc       | ulation          | -   |                          | Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir      |                  |       | х   |
| <b>CBS-V49</b><br>SI pump A suction isolation valve. T<br>operation. Closure may be required<br>Section 6.3.                                                           |                              | v 1            |                           | • •                 |                  |                  | -   | CBS-CSJ-2                | X<br>Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir | : CSD<br>:       | х     |     |
| <b>CBS-V51</b><br>SI pump 6B RWST suction isolation<br>ECCS operation, and closes during<br>this valve during ECCS recirculation<br>6.3, Engineering Evaluation 94-031 | the recircula<br>per Enginee | tion phase of  | ECCS operation.           | There is no seat    | leakage li       | imit for         | -   |                          | X<br>Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir | : Quarterly<br>: | Х     |     |
| CBS-V52<br>SI pump 6B RWST suction check v<br>closes during the recirculation phas<br>recirculation per Engineering Evalua<br>Evaluation 94-031.                       | e of operation               | . There is no  | seat leakage limit        | t for this valve du | iring ECCS       | 5                | -   |                          | Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir      | :                |       | x   |

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#### SYSTEM: CBS

## IST VALVE TEST TABLE

| P&ID No.: <b>D20446</b>                                                                                  |                                  |                |                                            |                   |          |           |                  |    |     |                                                             |                      |     |    |    |     |
|----------------------------------------------------------------------------------------------------------|----------------------------------|----------------|--------------------------------------------|-------------------|----------|-----------|------------------|----|-----|-------------------------------------------------------------|----------------------|-----|----|----|-----|
| Valve Number                                                                                             | Class<br>and                     | Valve          | Size (in.)<br>and                          | Actuator          |          | Positions | Relief Rec       | a  | }   | IST Progra<br>Commit<br>Commit                              | ment                 |     |    |    |     |
| Remarks                                                                                                  | Coord                            | (CAT)          | Туре                                       | Туре              | NRM      | SAF F     | AL<br>C.S. Just. | Di | FE  | FS LJ                                                       | LK PE                | ΡI  | RT | ST | CME |
| CBS-V53                                                                                                  | 2<br>(A-11)                      | В              | 6.0<br>Gate                                | Motor             | 0        | O/C       | -                |    |     | en Test Fi                                                  |                      | х   |    | х  |     |
| SI pump B suction isolation valve. T<br>operation. Closure may be required<br>Section 6.3.               |                                  | •••            | •                                          |                   |          |           |                  |    |     | RV Test Fi<br>FS Test                                       |                      |     | d  |    |     |
| CBS-V62                                                                                                  | 2<br>(B-11)                      | С              | 0.75<br>Relief/Safety                      | Self              | С        | 0         | -                |    | Op  | en Test Fi                                                  | req:                 |     | х  |    |     |
| SI Pump common suction relief valv<br>Pump Train separation. Reference:                                  |                                  |                |                                            | essure protection | when pro | viding SI |                  |    |     | ose Test Fi<br>RV Test Fi<br>FS Test<br>ST Test             | req: 10 Ye<br>Dir:   | ars |    |    |     |
| P&ID No.: <b>D20725</b>                                                                                  |                                  |                |                                            |                   |          |           |                  |    |     |                                                             |                      |     |    |    |     |
| CBS-V58                                                                                                  | 2                                | С              | 8.0                                        | Self              | c        | O/C       | -                |    | 0.  | an Toot E                                                   |                      |     |    |    | х   |
| Charging pump 2B -RWST Suction<br>phase, and is closed during ECCS<br>value. Reference: UFSAR Section 6  | recirculation                    | phase. Leaka   | ige in the closed di                       |                   |          |           |                  |    | CİC | ben Test F<br>ose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir: |     |    |    |     |
| CBS-V60                                                                                                  | 2<br>(C-8)                       | С              | 8.0<br>Check                               | Self              | С        | °O/C      | -                |    | Or  | oen Test F                                                  | rea.                 |     |    |    | х   |
| Charging pump 2A -RWST Suction<br>phase,and is closed during ECCS r<br>value. Reference: UFSAR Section 6 | line check va<br>recirculation p | hase. Leaka    | e is normally close<br>ge in the closed di |                   |          |           |                  |    | Clo | ose Test F<br>RV Test F<br>FS Test                          | req:<br>req:         |     |    |    |     |
|                                                                                                          | .o, Engineen                     | ing Lvaluation | 1 0 0 1.                                   |                   |          |           |                  |    |     | ST Test                                                     |                      |     |    |    | •   |

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FIGUĸÉ F4

SYSTEM: CC

IST VALVE TEST TABLE

| P&ID No.: D20205 | Class | | | | | | | | | | ⁻ Program F
Commitmer | | | | | |
|--|--------------------|-----------------|-----------------------|----------------------|------------|-----------|-----|------------|----|------------------|--|---------|---------|----|----|-----|
| valve Number | Class
and | Valve | Size (in.)
and | Actuator | | Positions | 3 | Relief Reg | | | Commitmer | | | | | |
| Remarks | Coord | (CAT) | Туре | Туре | | SAF | FAL | C.S. Just. | DI | FE FS | | - | Ρl | RT | ST | CME |
| CC-TV2171-1 | 3
(F-10) | В | 24.0
Butterfly | Air/Piston | ΤH | ΤH | 0 | | | X X
Open | Test Freg: | Refueli | X
na | | Х | |
| CC heat exchanger E-17A outl
bypass valve to maintain CC H
post LOP. This valve fails oper
DBD-CC-01, Rev.1. | IX outlet temperat | ure at a prese | t value. Backup a | ir bottles are provi | ided for o | peration | | CC-RJ-1 | | RV
F | Test Freq:
Test Freq:
S Test Dir:
T Test Dir: | • | Ū | | | |
| CC-TV2171-2 | 3
(F-10) | В | 24.0
Butterfly | Air/Piston | TH | тн | с | | | X X
Open | Test Freq: | | х | | х | |
| CC heat exchanger E-17A byp
outlet valve to maintain CC HX
post LOP. This valve fails close
DBD-CC-01, Rev.1. | outlet temperatur | e at a preset v | value. Backup air | bottles are provid | ed for ope | eration | | CC-RJ-1 | | RV
F | Test Freq:
Test Freq:
S Test Dir:
T Test Dir: | Closed | Ū | | | |
| CC-V1 | 3 | С | 24.0 | Self | DE | O/C | - | | | 0 | T | | | | | х |
| CC pump 11C discharge check
is secured to prevent bypass | | | | | | the pum | p | | | Close
RV
F | Test Freq:
Test Freq:
Test Freq:
S Test Dir:
T Test Dir: | | | | | |
| CC-V4 | 3
(D-7) | С | 24.0
Check | Self | DE | O/C | - | | | Onen | Test Freg: | | | | | х |
| CC pump 11A discharge check
is secured to prevent bypass | valve. This valve | | the CC pump is c | • • | | the pump | p | | | Close
RV
F | Test Freq:
Test Freq:
S Test Dir:
T Test Dir: | | | | · | |
| CC-V30 | 3
(C-4) | С | 0.75
Relief/Safetv | Self | С | 0 | - | | | Open | Test Frea: | | | х | | |
| CC return header from CS-P2 | N = 17 | valve-in scope | | Reference: P&ID [| D20205. | | | | | Close
RV
F | Test Freq:
Test Freq:
Test Freq:
S Test Dir:
T Test Dir: | 10 Yea | rs | | | |

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1-F4.22 SITR Rev. 23



SYSTEM: CC

IST VALVE TEST TABLE

P&ID No.: D20205

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | NRM | Position:
SAF | s
FAL | Relief Req | DI | IS
FE F | T Prog
Comm
Comm
S LJ | iitmen
iitmen | t | PI | RT | ST | СМЕ |
|--|--|--------------------------------|--|---------------------|-----------|------------------|----------|------------|----|------------------|--|--------------------------|----------------------------|-----|----|----|-----|
| | Coola | (0,11) | .,,,,, | 1),00 | | 0/11 | , , | C.S. Just. | 5. | | 0 20 | L., | | ••• | | 0. | 0 |
| CC-V32 | 3 | В | 10.0 | Air/Piston | 0 | С | С | | | x | - | _ | | Х | | Х | |
| CC supply to SF-E15A isolation valve P&ID D20205. | (D-6)
ve. This valve | is normally (| Butterfly
open and receives | a "T" closure signa | al. Refer | ence: | | | | Close
R\
I | / Test ł
-S Tes | Freq:
Freq:
t Dir: | Quarte
Closed
Closed | - | | | |
| CC-V409 | 3 | С | 1.5 | Self | С | 0 | - | | | _ | | _ | | | х | | |
| CC return header from EAH-AC-2A | (E-4)
relief valve-in | i scope per I | Relief/Safety
STA-1100. Referei | nce: P&ID D20205 | | | | | | Close
R\ | n Test I
e Test I
/ Test I
=S Tes
ST Tes | Freq:
Freq:
t Dir: | 10 Yea | rs | | | |
| CC-V647 | 3 | С | 1.5 | Self | С | 0 | - | | | | | | | | х | | |
| CC return header from SF-E-15A re | (C-4)
lief valve-in s | cope per IST | Relief/Safety
A-1100. Referenc | e: P&ID D20205. | | | | | | Close
R\ | n Test I
e Test I
/ Test I
=S Tes
ST Tes | Freq:
Freq:
t Dir: | 10 Yea | rs | | | |
| CC-V975 | 3
(H-11) | в | 1.0
Globe | Air/Diaphragm | ο | с | с | | | X X | <
1 Test I | Frea: | | х | | х | |
| CC Loop A radiation monitor RE-65
closure signal on low CC surge (hea
DBD-CC-01, revision 1. This valve
design of the NNS piping and asso | 16 inlet isola
ad) tank level
was added to | to isolate the
the IST prog | nis valve is normal
connected NNS p | oiping. References | P&ID D | 020205, | с | | | Close
R\ | e Test I
/ Test I
FS Tes | Freq:
Freq:
t Dir: | Quarte
Closed
Closed | rly | | | |

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SYSTEM: CC

IST VALVE TEST TABLE

| P&ID No.: D20205 | | | | | | | | IST Program Plan | | |
|---|---|--|--|---|--|-------------------|-------|---|-----------|---------|
| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | Positions | Relief Req | | Commitment
Commitment | DT | 07 0115 |
| Remarks | Coord | (CAT) | Туре | Туре | NRM SAF I | FAL
C.S. Just. | DI FE | E FS LJ LK PE PI | RT \$ | ST CME |
| CC-V1277
CC return header cross connect relivalves to add operational flexibility werefueling outages when the core is fmaintain recommended 140 deg F
Exchangers to be supplied from one supply and return headers. Addition tank levels. A supply, return and heat contains 2 normally locked closed is cross-connect from overpressure. | when one train
fully off-loaded
limit in the Sta
train of PCC
ally, a balanc
ad tank outlet
solation valves | n of PCCW is
d, both SFP (
andard Revie
W. Cross-co
ing line (4") i
line cross-co
s. This is the | out of service duri
Cooling Heat Excha
W Plan. This cross
nnect is located in
s required to elimin
ponnect are supplied | ing an outage. Du
angers will be red
-connect will allo
the PAB between
ate the difference
I. Each cross-cor | uring future
quired in service to
ow both Heat
n the A and B
æ in the 2 head
nnect line | - | | Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir: | x | |
| CC-V1278
CC supply header cross connect rel
valves to add operational flexibility v
refueling outages when the core is f
maintain recommended 140 deg F
Exchangers to be supplied from one
supply and return headers. Addition
tank levels. A supply, return and hea
contains 2 normally locked closed is
cross-connect from overpressure. | when one trai
fully off-loaded
limit in the St
train of PCC
ally, a balanc
ad tank outlet
solation valve | n of PCCW is
d, both SFP
andard Revia
W. Cross-co
ing line (4") i
line cross-co
s. This is the | s out of service dur
Cooling Heat Excha
ew Plan. This cross
nnect is located in
s required to elimin
pnnect are supplied | ing an outage. D
angers will be rea
connect will allo
the PAB betwee
nate the differenc
d. Each cross-cor | uring future
quired in service to
pw both Heat
n the A and B
the A and B
the A head
nnect line | - | | Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir: | x | |
| CC-V1279
CC surge tank cross connect relief
valves to add operational flexibility or
refueling outages when the core is a
maintain recommended 140 deg F
Exchangers to be supplied from one
supply and return headers. Addition
tank levels. A supply, return and he
contains 2 normally locked closed is
cross-connect from overpressure. | when one trai
fully off-loade
limit in the St
e train of PCC
nally, a balanc
ad tank outlet
solation valve | n of PCCW is
d, both SFP
andard Revie
XW. Cross-co
sing line (4")
t line cross-c
s. This is the | s out of service dur
Cooling Heat Exch
ew Plan. This cross
onnect is located in
is required to elimir
onnect are supplied | ing an outage. D
angers will be re-
s-connect will allo
the PAB betwee
nate the difference
d. Each cross-col | During future
quired in service to
pow both Heat
en the A and B
be in the 2 head
nnect line | - | | Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
FS Test Dir:
ST Test Dir: | х | |

1-F4.24 SITR Rev. 23

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SYSTEM: CC

IST VALVE TEST TABLE

P&ID No.: D20205

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| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | I | Position | S | Relief Req | | | Co | ommit | am Pla
Iment
Iment | an | | | | |
|--------------------------------------|---------------|-----------------|-------------------|--|------------|----------|-----------|------------|----|----|------------|-------|--------------------------|--------|-----|----|----|-----|
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | | DI | FE | FS | LJ | LK | PE | Pl | RT | ST | CME |
| | | | | | | | | C.S. Just. | | | | | | | | | | |
| CC-V1282 | 3 | С | 2.0 | Self | 0 | 0 | - | | | | | | | | | | | Х |
| | (B-6) | | Check | | | | | | | С |)
pen T | est F | rea: | | | | | |
| CC supply to CS-P-2A oil cooler cl | | is valve must | open to supply C | C to the charging | / ECCS p | ump oii | | | | С | lose T | | | | | | | |
| cooler. References: P&ID D20205. | | | | | | | | | | | RV T | | • | | | | | |
| | | | | | | | | | | | | Test | | | | | | |
| | | | | | | | | | | | ST | Test | Dir: | | | | | |
| CC-V1298 | 3 | в | 1.0 | Air/Piston | ·O | С | С | | | x | х | | | | х | | х | |
| 00 11200 | (B-12) | U | Ball | All ISLOI | | 0 | 0 | | | | pen T | act F | roa. | | ~ | | ~ | |
| CC Loop A radiation monitor RE-6 | · · · | lation valve. T | | ally open and rece | eives an a | uto | | | | | | | | Quarte | rlv | | | |
| closure signal on low CC surge (he | | | | • • | | alo | | | | 0 | | est F | | guaric | | | | |
| This valve was added to the IST p | | | | | hateinea | rad mo | aitor ski | Ч | | | | | | Closed | | | | |
| and deletion of the return line che | • | | • | | | | | | | | | | | Closed | | | | |
| and deletion of the fetutti line che | un vaives per | DUIX 00-20. I | Vererences. For | D_{2} D_{2} D_{2} D_{2} D_{3} D_{3 | 0-01, IEV | SIULT, | 00100 | -20. | | | 31 | 1851 | Dii. (| Juseu | | | | |

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SYSTEM: CC

IST VALVE TEST TABLE

P&ID No.: D20206

| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | F | ositions | ; | Relief Reg | | | | nitmen
nitmen | t | | | | |
|---|----------------|-------|-----------------------|------------|-----|-----------|-----|------------|----|--------|---|---------------------------|----------------------------|-----|----|----|-----|
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | Dİ | FE | FS L | | | PI | RT | ST | CME |
| CC-V341 | 3
(B-9) | В | 6.0
Butterfly | Air/Piston | 0 | С | С | CC-CSJ-1 | | x
o | X
pen Tesi | Freg: | | Х | | x | |
| CC Train A CS-E4 letdown HX ret
signal to isolate non-essential load | | | s valve is normally | | | | | | | | ose Tes
RV Tes
FS Te | Freq:
Freq:
st Dir: | CSD
Closed
Closed | | | | |
| CC-V342 | 3
(B-10) | С | 0.75
Relief/Safety | Self | С | 0 | - | | | 0 | pen Test | From | | | х | | |
| Seal Water Heat Exchanger A (CS following isolation of non-safety loa | S-E-5A) relief | | ne is within safety | | | | | | | | ose Tes
RV Tes
FS Te | Freq:
Freq: | 10 Yea | ars | | | |
| CC-V343
Letdown Heat Exchanger (CS-E-4)
isolation of non-safety loads. Ther | | | | | | O
wing | - | | | | pen Tesi
ose Tesi
RV Tesi
FS Te
ST Te | Freq:
Freq: | 10 Ye | ars | х | | |
| CC-V426 | 3
(H-12) | В | 20.0
Butterfly | Air/Piston | 0 | С | С | | | x | X
pen Test | Fred | | х | | Х | |
| CC Train A SC-3-NNS supply line
signal to isolate non-essential load | isolation valv | | is valve is normall | | | | | | | | ose Tes
RV Tes
FS Te | Freq:
Freq:
st Dir: | Quarte
Closee
Closee | t | | | |
| CC-V427 | 3
(B-9) | В | 20.0
Butterfly | Air/Piston | 0 | С | С | | | x
o | X
pen Tes | Freq: | | Х | | х | |
| CC Train A SC-3-NNS return line
signal to isolate non-essential load | | | | | | | | | | C | | Freq:
st Dir: | Quarte
Closed
Closed | ż | | | |

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1-F4.26 SITR Rev. 23

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IST Program Plan

### SYSTEM: CC

## IST VALVE TEST TABLE

P&ID No.: **D20207** 

| Valve Number<br>Remarks                                                                                                                    | Class<br>and<br>Coord          | Valve<br>(CAT)    | Size (in.)<br>and<br>Type                 | Actuator<br>Type         | NRM | Position:<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | DI | C                     | Program F<br>ommitmer<br>ommitmer<br>LJ LK                         | it<br>it | Pl      | RT | ST | CME |
|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------------------|--------------------------|-----|------------------|----------|--------------------------|----|-----------------------|--------------------------------------------------------------------|----------|---------|----|----|-----|
| CC-V26<br>CC return header from SI-P-6A reli                                                                                               | 3<br>(E-9)<br>ief valve-in scr | C<br>ope per ISTA | 0.75<br>Relief/Safety<br>1100. Reference: | Seif<br>: P&ID D20205.   | С   | 0                | -        |                          |    | Close T<br>RV T<br>FS | est Freq:<br>est Freq:<br>est Freq:<br>Test Dir:<br>Test Dir:      | 10 Year  | S       | х  |    |     |
| CC-V57<br>CC supply IRC isolation for X20- su<br>"P" isolation signal. Valve fails close<br>air only (see technical position TP-           | ed on loss of a                | air and fails a   | s-is on loss of pow                       | ver. Valve will be t     |     |                  | С        | CC-RJ-3                  |    | Close 1<br>RV 1<br>FS | X<br>est Freq:<br>est Freq:<br>est Freq:<br>Test Dir:<br>Test Dir: | Closed   | X<br>Ig |    | х  |     |
| <b>CC-V121</b><br>CC return IRC isolation for X21- sul<br>isolation signal. Valve fails closed of<br>air only (see technical position TP-6 | on loss of air a               | and fails as-is   | on loss of power.                         | Valve will be test       |     |                  | C<br>pu  | CC-RJ-3                  |    | Close 1<br>RV 1<br>FS | X<br>est Freq:<br>est Freq:<br>est Freq:<br>Test Dir:<br>Test Dir: | Closed   | X<br>ng |    | Х  |     |
| CC-V122<br>CC return ORC isolation for X21- so<br>"P" isolation signal. Valve fails close<br>air only (see technical position TP-          | ed on loss of a                | air and fails a   | s-is on loss of pow                       | ver. Valve will be t     |     |                  | С        | CC-RJ-3                  |    | Close T<br>RV T<br>FS | X<br>est Freq:<br>est Freq:<br>est Freq:<br>Test Dir:<br>Test Dir: | Closed   | X<br>1g |    | х  |     |
| CC-V135<br>CC return header from CBS-P-9A                                                                                                  | 3<br>(F-9)<br>relief valve-in  | C<br>scope per IS | 0.75<br>Relief/Safety<br>TA-1100. Referen | Self<br>ce: P&ID D20205. | С   | 0                | -        |                          |    | Close T<br>RV T<br>FS | est Freq:<br>est Freq:<br>est Freq:<br>Test Dir:<br>Test Dir:      | 10 Yeai  | s       | х  |    |     |

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#### SYSTEM: CC

## IST VALVE TEST TABLE

P&ID No.: **D20207** 

| Valve Number<br>Remarks                                                                                                                   | Class<br>and<br>Coord    | Valve<br>(CAT)  | Size (in.)<br>and<br>Type          | Actuator<br>Type  | NRM      | Position<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | IST Program F<br>Commitmer<br>Commitmer<br>DI FE FS LJ LF                                     | nt<br>nt            | PI I   | RT | ST | CME |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------|------------------------------------|-------------------|----------|-----------------|----------|--------------------------|-----------------------------------------------------------------------------------------------|---------------------|--------|----|----|-----|
| CC-V137                                                                                                                                   | 3                        | В               | 14.0                               | Motor             | С        | 0               | -        |                          | x                                                                                             |                     | х      |    | х  |     |
| CC outlet from containment spray he<br>References: P&ID D20207                                                                            | (G-9)<br>eat exchange    | er A. This val  | Butterfly<br>ve is normally close  | ed and receives a | "P" oper | ı signal.       |          |                          | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:          | -                   | ,      |    |    |     |
| CC-V141                                                                                                                                   | 3                        | С               | 0.75<br>Relief/Safetv              | Self              | С        | 0               | -        |                          | Onen Test Frem                                                                                |                     |        | Х  |    |     |
| CC return header from RH-P-8A rel                                                                                                         | (E-9)<br>lief valve-in s | cope per IST    |                                    | : P&ID D20205.    |          |                 |          |                          | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:          | 10 Years            |        |    |    |     |
| CC-V143                                                                                                                                   | 3                        | С               | 3.0                                | Self              | С        | 0               | -        |                          |                                                                                               |                     |        | х  |    |     |
| CC return header from RH-E-9A rel                                                                                                         | (D-9)<br>lief valve-in s | cope per IST    | Relief/Safety<br>A-1100. Reference | : P&ID D20205.    | 1        |                 |          |                          | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:          | 10 Years            |        |    |    |     |
| CC-V145                                                                                                                                   | 3                        | В               | 16.0                               | Motor             | 0        | , O             | -        |                          | X                                                                                             |                     | х      |    | х  |     |
| CC outlet from RHR heat exchanged<br>P&ID D20207. These valves are thre                                                                   |                          |                 |                                    |                   |          |                 |          |                          | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:                                          |                     | /      |    |    |     |
| The RHR Hx. See DCR 00-0019.                                                                                                              |                          |                 |                                    |                   |          |                 |          |                          | FS Test Dir:<br>ST Test Dir:                                                                  |                     |        |    |    |     |
| <b>CC-V168</b><br>CC supply ORC isolation for X20- so<br>"P" isolation signal. Valve fails close<br>air only (see technical position TP-6 | d on loss of             | air and fails a | is-is on loss of pow               | er. Valve will be |          |                 | С        | CC-RJ-3                  | X X X<br>Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: | Refueling<br>Closed | a<br>X |    | х  |     |

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#### SYSTEM: CC

## IST VALVE TEST TABLE

P&ID No.: **D20207** 

| Valve Number<br>Remarks                                                             | Class<br>and<br>Coord         | Vaive<br>(CAT)       | Size (in.)<br>and<br>Type                               | Actuator<br>Type         | NRM            | Position<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | DI |                  | Commi<br>Commi                                 | tment                      | PE    | ΡI | RT       | ST | CME |
|-------------------------------------------------------------------------------------|-------------------------------|----------------------|---------------------------------------------------------|--------------------------|----------------|-----------------|----------|--------------------------|----|------------------|------------------------------------------------|----------------------------|-------|----|----------|----|-----|
| CC-V407<br>CC return header from CBS-E16A                                           | 3<br>(G-9)<br>relief valve-ir | C<br>scope per IS    | 1.5<br>Relief/Safety<br>STA-1100. Referen               | Self<br>ce: P&ID D20205  | C<br>5.        | Ο               | -        |                          |    | Close<br>R\<br>F | Test F<br>Test F<br>Test F<br>S Test<br>T Test | req:<br>req: 10<br>Dir:    | ) Yea | rs | х        |    |     |
| <b>CC-V410</b><br>PCCW containment return Penetral<br>1100. Reference: P&ID D20207. | 2<br>(B-6)<br>tion X-21 the   | A/C<br>rmal RV, subj | 1.5<br>Relief/Safety<br>ject to Appendix J <sup>-</sup> | Self<br>Type C LLRT-in s | C<br>cope per  | o/c<br>Ista-    | -        |                          |    | Close<br>R\<br>I |                                                | req: Po<br>req: 10<br>Dir: |       |    | x J<br>X |    |     |
| <b>CC-V845</b><br>PCCW containment supply Penetra<br>1100. Reference: P&ID D20207.  | 2<br>(H-9)<br>ation X-20 the  | A/C<br>ermal RV, sub | 1.5<br>Relief/Safety<br>oject to Appendix J             | Self<br>Type C LLRT-in : | C<br>scope per | O/C<br>ISTA-    | -        |                          |    | Close<br>R\      |                                                | req: P<br>req: 10<br>Dir:  |       |    | × 1<br>X |    |     |

SYSTEM: CC

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## IST VALVE TEST TABLE

P&ID No.: D20209

| Valve Number                                                                                                                                                                   | Class<br>and                       | Valve                        | Size (in.)<br>and                             | Actuator                               |                          | Positions            | 3   | Relief Req | IST Progra<br>Commi<br>Commi | ment                         |    |    |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------|-----------------------------------------------|----------------------------------------|--------------------------|----------------------|-----|------------|------------------------------|------------------------------|----|----|-----|
| Remarks                                                                                                                                                                        | Coord                              | (CAT)                        | Туре                                          | Туре                                   | NRM                      | SAF                  | FAL | C.S. Just. | DI FE FS LJ                  | LK PE PI                     | RT | ST | CME |
| CC-MM-762                                                                                                                                                                      | 3<br>(C-5)                         | D                            | 10.0<br>Relief/Safety                         | Self                                   | С                        | 0                    | -   | 0.5. Just. | Open Test F                  | rea:                         | х  |    |     |
| RCP thermal barrier loop head pipe<br>following a thermal barrier coil ruptur<br>penetration piping for X-48 and X49                                                           | rupture disc.<br>re. The IST sa    | afety function               | provides overpress<br>is OPP for the SC       | -2 closed loop c                       | ontainmei                | nt                   | 1.  |            | Close Test F                 | req:<br>req: 5 Years<br>Dir: |    |    |     |
| CC-MM-763                                                                                                                                                                      | 3<br>(C-6)                         | D                            | 10.0<br>Relief/Safetv                         | Self                                   | С                        | 0                    | -   |            | Open Test F                  |                              | Х  |    |     |
| RCP thermal barrier loop head pipe<br>following a thermal barrier coil ruptu<br>penetration piping for X-48 and X49                                                            | rupture disc.<br>re. The IST sa    | afety function               | provides overpress<br>is OPP for the SC       | -2 closed loop c                       | ontainmei                | าเป็                 | 1.  |            | Close Test F                 | req:<br>req: 5 Years<br>Dir: |    |    |     |
| CC-V1092                                                                                                                                                                       | 2                                  | В                            | 6.0                                           | Motor                                  | 0                        | С                    | -   |            | X                            | Х                            |    | Х  |     |
| CC to thermal barrier HX B containm<br>normally open and remains open du<br>in the event of an abnormality such a<br>the evaluations and commitments co<br>UFSAR Table 6.2-83. | ring all plant o<br>as penetration | operating con<br>leakage. Th | nditions, including a<br>his valve is include | accidents. It wou<br>d in the IST prog | ld be clos<br>ram as a   | ed only<br>result of |     | CC-RJ-4    | RV Test F<br>FS Test         | req: Refueling<br>req:       |    |    |     |
| CC-V1095                                                                                                                                                                       | 2                                  | В                            | 6.0<br>Dutte of 1                             | Motor                                  | 0                        | С                    | -   |            | X                            | х                            |    | х  |     |
| CC to thermal barrier HX B containm<br>normally open and remains open du<br>in the event of an abnormality such a<br>the evaluations and commitments co<br>UFSAR Table 6.2-83. | ring all plant o<br>as penetration | operating con<br>leakage. Th | nditions, including a<br>nis valve is include | accidents. It wou<br>d in the IST prog | ild be clos<br>iram as a | ed only<br>result of |     | CC-RJ-4    | RV Test F<br>FS Test         | req: Refueling<br>req:       |    |    |     |
| CC-V1101                                                                                                                                                                       | 2                                  | В                            | 6.0                                           | Motor                                  | 0                        | С                    | -   |            | X                            | х                            |    | х  |     |
| CC to thermal barrier HX A containm<br>normally open and remains open du<br>in the event of an abnormality such a<br>the evaluations and commitments co<br>UFSAR Table 6.2-83. | ring all plant o<br>as penetration | operating con<br>leakage. Th | nditions, including a<br>nis valve is include | accidents. It wou<br>d in the IST prog | ild be clos<br>ram as a  | ed only<br>result of |     | CC-RJ-4    | RV Test F<br>FS Test         | req: Refueling<br>req:       |    |    |     |

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#### SYSTEM: CC

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## IST VALVE TEST TABLE

P&ID No.: D20209

| Valve Number<br>Remarks                                                                                                                                             | Class<br>and<br>Coord                                               | Valve<br>(CAT)                                       | Size (in.)<br>and<br>Type                                                       | Actuator<br>Type                                                      | F<br>NRM                                    | Positions<br>SAF F   | FAL | Relief Req | DI | FE | Con                                                   | imiti                   | am Pla<br>ment<br>ment<br>LK | n<br>PE | PI  | RT | ST | CME |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------|----------------------|-----|------------|----|----|-------------------------------------------------------|-------------------------|------------------------------|---------|-----|----|----|-----|
| CC-V1105<br>CC containment penetration (X-49<br>the containment penetration piping<br>accident conditions. References: F                                            | boundary fror                                                       | n over pressu                                        | re caused by the                                                                | rmal expansion of                                                     | trapped fl                                  |                      | -   | C.S. Just. |    |    | pen Tes<br>ose Tes<br>RV Tes<br>FS T                  | st Fr<br>st Fr          | req:<br>req: 1               | 0 Yea   | Irs | х  |    |     |
| <b>CC-V1109</b><br>CC to thermal barrier HX A contain<br>normally open and remains open d<br>in the event of an abnormality such<br>the evaluations and commitments | 2<br>(G-11)<br>Iment isolation<br>Iuring all plant<br>as penetratio | B<br>valve (X-49)-<br>operating cor<br>n leakage. Th | 6.0<br>Butterfly<br>exempt from Ap<br>ditions, including<br>is valve is include | Motor<br>pendix J Type C L<br>accidents. It wou<br>ed in the IST prog | O<br>LRT. This<br>ld be close<br>ram as a r | ed only<br>result of | -   | CC-RJ-4    |    |    | ST T<br>pen Tes<br>lose Tes<br>RV Tes<br>FS T<br>ST T | st Fr<br>st Fr<br>st Fr | req:<br>req: R<br>req:       |         | Ū   |    | x  |     |
| UFSAR Table 6.2-83.<br><b>CC-V1112</b><br>CC containment penetration (X-48<br>the containment penetration piping<br>accident conditions. References: F              | boundary fror                                                       | n over pressu                                        | re caused by the                                                                | rmal expansion of                                                     | trapped fl                                  |                      | -   |            |    |    | pen Tes<br>lose Tes<br>RV Tes<br>FS T<br>ST T         | st Fr<br>st Fr<br>est   | req:<br>req: 1<br>Dir:       | 0 Yea   | ırs | x  |    |     |

### SYSTEM: CC

## IST VALVE TEST TABLE

P&ID No.: **D20211** 

| FOID NO DZUZII                                                                                                               |                                                   |                                       |                                                                 |                                                  |                                  |                         |        |            | 10T Dragona Dian                                                                                                        |    |     |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------|-----------------------------------------------------------------|--------------------------------------------------|----------------------------------|-------------------------|--------|------------|-------------------------------------------------------------------------------------------------------------------------|----|-----|
| Valve <sup>:</sup> Number                                                                                                    | Class<br>and                                      | Valve                                 | Size (in.)<br>and                                               | Actuator                                         |                                  | Positions               | ;      | Relief Req | IST Program Plan<br>Commitment<br>Commitment                                                                            |    |     |
| Remarks                                                                                                                      | Coord                                             | (CAT)                                 | Туре                                                            | Туре                                             | NRM                              | SAF                     | FAL    | C.S. Just. | DI FE FS LJ LK PE PI RI                                                                                                 | ST | CME |
| CC-TV2271-1<br>CC heat exchanger E-17B outlet fl<br>bypass valve to maintain CC HX o<br>post LOP. This valve fails open on   | utlet temperat                                    | ure at a prese                        | et value. Backup a                                              | air bottles are prov                             | vided for o                      | peration                | 0      | CC-RJ-1    | X X X<br>Open Test Freq: Refueling<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir: Open<br>ST Test Dir: Open       | Х  |     |
| CC-TV2271-2<br>CC heat exchanger E-17B bypass<br>outlet valve to maintain CC HX out<br>post LOP. This valve fails closed o   | let temperatu                                     | e at a preset                         | value. Backup air                                               | r bottles are provid                             | ded for op                       | eration                 | С      | CC-RJ-1    | X X X X<br>Open Test Freq:<br>Close Test Freq: Refueling<br>RV Test Freq:<br>FS Test Dir: Closed<br>ST Test Dir: Closed | х  |     |
| <b>CC-V295</b><br>CC pump 11B discharge check va<br>is secured to prevent bypass flow                                        | 3<br>(D-10)<br>lve. This valve<br>/ from the alte | C<br>opens when<br>rnate pump i       | 24.0<br>Check<br>the CC pump is o<br>n the same train.          | Self<br>operating, and clo<br>References: P&II   | DE<br>ses when<br>DD20211        | O/C<br>the pum          | -<br>p |            | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:                                    |    | X   |
| <b>CC-V298</b><br>CC pump 11D discharge check va<br>is secured to prevent bypass flow                                        | 3<br>(D-7)<br>ive. This valve<br>/ from the alte  | C<br>e opens when<br>rnate pump i     | 24.0<br>Check<br>the CC pump is<br>n the same train.            | Self<br>operating, and clo<br>References: P≪     | DE<br>ses when<br>D D20211       | O/C<br>the pum          | -<br>p |            | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:                                    |    | х   |
| <b>CC-V320</b><br>Charging Pump CS-P-128 (PDP)<br>within safety related boundary of 0<br>this valve is in scope per ISTA-110 | CC piping follo                                   | C<br>f valve. Altho<br>wing isolation | 0.75<br>Relief/Safety<br>ugh PDP is not ir<br>of non-safety loa | Self<br>n safety related sc<br>ads. Therefore, O | C<br>ope, this li<br>PP is an is | O<br>ine is<br>ssue and | -      |            | ><br>Open Test Freq:<br>Close Test Freq:<br>RV Test Freq: 10 Years<br>FS Test Dir:<br>ST Test Dir:                      |    |     |

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SYSTEM: CC

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## IST VALVE TEST TABLE

| P&ID No.: <b>D20211</b>                                                                                                                                        |                                    |                             |                                             |                           |              |          |     |            |     | 10               |                                                           | DI                           |        |     |    |    |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------|---------------------------------------------|---------------------------|--------------|----------|-----|------------|-----|------------------|-----------------------------------------------------------|------------------------------|--------|-----|----|----|-----|
| Valve Number                                                                                                                                                   | Class<br>and                       | Valve                       | Size (in.)<br>and                           | Actuator                  | 1            | Position | s   | Relief Req |     |                  | T Progr<br>Commi<br>Commi                                 | itment<br>itment             |        |     |    |    |     |
| Remarks                                                                                                                                                        | Coord                              | (CAT)                       | Туре                                        | Туре                      | NRM          | SAF      | FAL | C.S. Just. | DII | FE F             | S LJ                                                      | LK                           | ΡE     | ΡI  | RT | ST | CME |
| <b>CC-V321</b><br>CC return header from CS-P2B o                                                                                                               | 3<br>(C-4)<br>il cooler relief v   | C<br>alve-in scop           | 0.75<br>Reliẹf/Safety<br>e per ISTA-1100. R | Self<br>Reference: P&ID E | C<br>020211. | 0        | -   |            |     | Close<br>R\<br>I | n Test F<br>e Test F<br>/ Test F<br>S Test<br>ST Test     | Freq:<br>Freq: ↑<br>t Dir:   | 10 Yea | rs  | Х  |    |     |
| CC-V442<br>CC return header from EAH-AC-2                                                                                                                      | 3<br>(E-4)<br>2B relief valve-in   | C<br>scope per l            | 1.5<br>Relief/Safety<br>STA-1100. Referer   | Self                      | C            | 0        | -   |            |     | Close<br>R\      | n Test F<br>e Test F<br>/ Test F<br>-S Tes<br>ST Tes      | =req:<br>=req:<br>t Dir:     | 10 Yea | ırs | Х  |    |     |
| <b>CC-V986</b><br>CC Loop B radiation monitor RE-<br>closure signal on low CC surge (f<br>DBD-CC-01, revision 1. This valv<br>design of the NNS piping and ass | nead) tank level<br>e was added to | to isolate the the IST prog | e connected NNS p                           | piping. References        | s: P&ID D    | 20211    | C   |            |     | Close            | (<br>n Test I<br>e Test I<br>/ Test I<br>FS Tes<br>ST Tes | Freq: 0<br>Freq:<br>t Dir: 0 | Closed |     |    | х  |     |

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### SYSTEM: CC

## IST VALVE TEST TABLE

P&ID No.: **D20211** 

| Valve Number<br>Remarks                                                    | Class<br>and<br>Coord                                                                                                        | Valve<br>(CAT) | Size (in.)<br>and<br>Type | Actuator<br>Type | NRM | Position<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | Di | FE | Co                   | Program<br>ommitm<br>ommitm<br>LJ      | ent<br>ent     | PE  | Pl | RT | ST | CME |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|------------------|-----|-----------------|----------|--------------------------|----|----|----------------------|----------------------------------------|----------------|-----|----|----|----|-----|
| CC-V1283                                                                   | 3<br>(R.6)                                                                                                                   | С              | 2.0<br>Check              | Self             | 0   | 0               | -        |                          |    | C  | inen T               | est Fre                                | <b>.</b>       |     |    |    |    | Х   |
| CC supply to CS-P-2B oil cooler che<br>cooler. References: P&ID D20211.    | (B-6) Check<br>C supply to CS-P-2B oil cooler check valve. This valve must open to supply CC to the charging / ECCS pump oil |                |                           |                  |     |                 |          |                          |    |    | lose T<br>RV T<br>FS | est Fre<br>est Fre<br>Test D<br>Test D | 4:<br>7:<br>r: |     |    |    |    |     |
| CC-V1301                                                                   | 3<br>(A-11)                                                                                                                  | В              | 1.0<br>Ball               | Air/Piston       | 0   | С               | С        |                          |    | x  | X<br>)pen T          | est Fre                                | q:             |     | х  |    | х  |     |
| closure signal on low CC surge (hea<br>This valve was added to the IST pro | · · · · · · · · · · · ·                                                                                                      |                |                           |                  |     |                 |          |                          |    |    | RV T<br>FS           | est Fre<br>est Fre<br>Test D<br>Test D | q:<br>ir: Clo  | sed |    |    |    |     |

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1-F4.34 SITR Rev. 23

#### SYSTEM: CC

## IST VALVE TEST TABLE

P&ID No.: **D20212** 

| Valve Number<br>Remarks                                                                   | Class<br>and<br>Coord            | Valve<br>(CAT)       | Size (in.)<br>and<br>Type                | Actuator<br>Type                 |                 | Position<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | DI | FE | IST Progra<br>Commit<br>Commit<br>FS LJ                           | ment<br>ment             |        | PI  | RT | ST | CME |
|-------------------------------------------------------------------------------------------|----------------------------------|----------------------|------------------------------------------|----------------------------------|-----------------|-----------------|----------|--------------------------|----|----|-------------------------------------------------------------------|--------------------------|--------|-----|----|----|-----|
| CC-V171<br>CC return header from SF-E-15B                                                 | 3<br>(B-10)<br>relief valve-in s | C<br>scope per IST   | 1.5<br>Relief/Safety<br>A-1100. Referenc | Self<br>e: P&ID D20212.          | С               | 0               | -        |                          |    | Ci | pen Test F<br>ose Test F<br>RV Test F<br>FS Test<br>ST Test       | req:<br>req: 1<br>Dir:   | 0 Yea  | rs  | х  |    |     |
| <b>CC-V445</b><br>CC supply to SF-E15B isolation va<br>P&ID D20212.                       | 3<br>(B-12)<br>alve. This valve  | B<br>e is normally o | 10.0<br>Butterfly<br>open and receives   | Air/Piston<br>a "T" close signa  | O<br>I. Referer | C<br>ice:       | С        |                          |    | CI | X<br>pen Test F<br>ose Test F<br>RV Test F<br>FS Test<br>ST Test  | req: C<br>req:<br>Dir: C | Closed | · . |    | х  |     |
| CC-V447<br>CC supply to WPB SC-3 / NNS iso<br>isolate NNS loads under accident            |                                  |                      |                                          | Air/Piston<br>receives a "T" clo | O<br>se signal  | C<br>to         | С        |                          |    | CI | X<br>pen Test F<br>ose Test F<br>RV Test F<br>FS Test<br>ST Test  | req: (<br>req:<br>Dir: ( | Closed |     |    | х  |     |
| CC-V448<br>CC return from WPB SC-3 / NNS<br>isolate NNS loads under accident              |                                  |                      |                                          | Air/Piston<br>d receives a "T" c | O<br>Slose sign | C<br>al to      | С        |                          |    | CI | X<br>pen Test F<br>lose Test F<br>RV Test F<br>FS Test<br>ST Test | req: (<br>req:<br>Dir: ( | Closed | •   |    | х  |     |
| <b>CC-V1168</b><br>Seal Water Heat Exchanger B (C<br>following isolation of non-safety lo |                                  |                      |                                          |                                  |                 |                 | -        |                          |    |    | pen Test F<br>lose Test F<br>RV Test F<br>FS Test<br>ST Test      | req:<br>req: 1<br>Dir:   | 0 Yea  | rs  | х  |    |     |

1-F4.35 SITR Rev. 23

SYSTEM: CC

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## IST VALVE TEST TABLE

P&ID No.: D20213

| Valve Number<br>Remarks                                                                                                                   | Class<br>and<br>Coord          | Valve<br>(CAT)    | Size (in.)<br>and<br>Type                  | Actuator<br>Type         |   | Position<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | DI | FE | Co<br>Co                      | Program<br>ommitr<br>ommitr<br>LJ                       | nent<br>nent             | n<br>PE | ΡI      | RT | ST | CME |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|--------------------------------------------|--------------------------|---|-----------------|----------|--------------------------|----|----|-------------------------------|---------------------------------------------------------|--------------------------|---------|---------|----|----|-----|
| <b>CC-V175</b><br>CC supply ORC isolation for X23- su<br>"P" isolation signal. Valve fails close<br>air only (see technical position TP-6 | d on loss of a                 | ir and fails as   | s-is on loss of pow                        | ver. Valve will be t     |   |                 | С        | CC-RJ-3                  |    |    | lose T<br>RV T<br>FS          | X<br>est Fre<br>est Fre<br>est Fre<br>Test I<br>Test I  | eq:R<br>eq:Dir:C         |         | X<br>ng |    | х  |     |
| CC-V176<br>CC supply IRC isolation for X23- sul<br>"P" isolation signal. Valve fails close<br>air only (see technical position TP-6       | d on loss of a                 | ir and fails as   | s-is on loss of pow                        | ver. Valve will be t     |   |                 | С        | CC-RJ-3                  |    |    | pen T<br>lose T<br>RV T<br>FS | X<br>est Fre<br>est Fre<br>fest Fre<br>Test I<br>Test I | əq: R<br>əq:<br>Dir: C   |         | X<br>ng |    | х  |     |
| CC-V256<br>CC return IRC isolation for X22- sub<br>isolation signal. Valve fails closed o<br>air only (see technical position TP-6        | n loss of air a                | nd fails as-is    | on loss of power.                          | Valve will be test       |   |                 | C<br>)"  | CC-RJ-3                  |    | -  | lose T<br>RV T<br>FS          | X<br>est Fro<br>est Fro<br>est Fro<br>Test I<br>Test I  | eq: R<br>eq: R<br>Dir: C |         | X<br>ng |    | х  |     |
| CC-V257<br>CC return ORC isolation for X22- su<br>"P" isolation signal. Valve fails close<br>air only (see technical position TP-6        | d on loss of a                 | ir and fails as   | s-is on loss of pow                        | /er. Valve will be t     |   |                 | С        | CC-RJ-3                  |    |    | pen T<br>lose T<br>RV T<br>FS | X<br>est Fre<br>est Fre<br>est Fre<br>Test [<br>Test ]  | eq: R<br>eq:<br>Dir: C   |         | א<br>וg |    | х  |     |
| CC-V262<br>CC return header from CBS-P-9B re                                                                                              | 3<br>(F-5)<br>elief valve-in s | C<br>scope per IS | 0.75<br>Relief/Safety<br>IA-1100. Referenc | Self<br>ce: P&ID D20213. | С | Ο               | -        |                          |    |    | lose T<br>RV T<br>FS          | est Fre<br>est Fre<br>est Fre<br>Test I<br>Test I       | eq:<br>eq: 1(<br>Dir:    | 0 Year  | ſS      | х  |    |     |

SYSTEM: CC

# IST VALVE TEST TABLE

P&ID No.: **D20213** 

| Valve Number<br>Remarks                                                                                      | Class<br>and<br>Coord                          | Valve<br>(CAT)                       | Size (in.)<br>and<br>Type                                    | Actuator<br>Type                             | NRM                          | Position<br>SAF           | s<br>FAL    | Relief Req | IST Program Pla<br>Commitment<br>Commitment<br>DI FE FS LJ LK                                 |          | RT | ST | CME |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------|--------------------------------------------------------------|----------------------------------------------|------------------------------|---------------------------|-------------|------------|-----------------------------------------------------------------------------------------------|----------|----|----|-----|
| CC-V264<br>CC return header from CBS-E16B r                                                                  | 3<br>(G-4)                                     | С                                    | 1.5<br>Relief/Safety                                         | Self                                         | C<br>3.                      | 0                         | -           | C.S. Just. | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq: 1<br>FS Test Dir:<br>ST Test Dir:        | 10 Years | х  |    |     |
| <b>CC-V266</b><br>CC outlet from containment spray he<br>References: P&ID D20213                             | 3<br>(G-4)<br>eat exchange                     | B<br>er B. This valv                 | 14.0<br>Butterfly<br>ve is normally close                    | Motor<br>d and receives a                    | C<br>a "P" oper              | O<br>n signal.            | -           |            | X<br>Open Test Freq: C<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: C |          |    | x  |     |
| CC-V269<br>CC return header from RH-P-8B relie                                                               | 3<br>(F-5)<br>ef valve-in se                   | C<br>cope per IST/                   | 0.75<br>Relief/Safety<br>A-1100. Reference:                  | Self<br>P&ID D20213.                         | С                            | 0                         | -           |            | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq: 1<br>FS Test Dir:<br>ST Test Dir:        | 10 Years | х  |    |     |
| <b>CC-V271</b><br>CC return header from RH-E9B relie                                                         | 3<br>(D-5)<br>f valve-in sc                    | C<br>ope per ISTA                    | 3.0<br>Relief/Safety<br>-1100. Reference:                    | Self<br>P&ID D20213.                         | С                            | 0                         | -           |            | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:          | 10 Years | х  |    |     |
| <b>CC-V272</b><br>CC outlet from RHR heat exchanger<br>P&ID D20213. These valves are thr<br>See DCR 00-0019. | 3<br>(D-4)<br>r B. This valv<br>rottled open t | B<br>ve is normally<br>to achieve be | 16.0<br>Butterfly<br>closed and receive<br>tween 3000 and 50 | Motor<br>es a "T" open sig<br>000 gpm PCCW t | O<br>nal: Refe<br>flow throu | O<br>rences:<br>ugh the I | -<br>RHR HX | ζ.         | X<br>Open Test Freq: (<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: ( | ·        |    | х  |     |

#### SYSTEM: CC

P&ID No.: **D20213** 

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## IST VALVE TEST TABLE

| Valve Number                                                     | Class                   | Mahua         | Size (in.)                           | A studte s       |           | Desition |     | DellefDee  |    | 1   | Co                   | mmitr                                             |                          | a     |    |     |    |      |
|------------------------------------------------------------------|-------------------------|---------------|--------------------------------------|------------------|-----------|----------|-----|------------|----|-----|----------------------|---------------------------------------------------|--------------------------|-------|----|-----|----|------|
| Domarka                                                          | and                     | Valve         | and                                  | Actuator         |           | Position |     | Relief Req | ы  |     |                      | mmitr                                             |                          | DE    | m  | пт  | ст | CNAF |
| Remarks                                                          | Coord                   | (CAT)         | Туре                                 | Туре             | NRM       | SAF      | FAL | C.S. Just. | DI | FE  | FS                   | LJ                                                | LK                       | PE    | ΡI | RT  | ST | CME  |
| CC-V322                                                          | 3<br>(E-5)              | С             | 0.75<br>Relief/Safety                | Self             | С         | 0        | -   |            |    | 0-  | on T.                | nat Er                                            |                          |       |    | Х   |    |      |
| CC return header from SI-P-6B rel                                |                         | cope per ISTA |                                      | P&ID D20213.     |           |          |     |            |    | Cio | se Te<br>RV Te<br>FS | est Fre<br>est Fre<br>est Fre<br>Test D<br>Test D | eq:<br>eq: 10<br>Dir:    | ) Yea | rs |     |    |      |
| CC-V474                                                          | 2<br>(B-5)              | A/C           | 1.5<br>Relief/Safety                 | Self             | C         | O/C      | -   |            |    | On  | en Tr                | X<br>est Fre                                      | ea.                      |       |    | х   |    |      |
| PCCW Containment return Penetra<br>1100. Reference: P&ID D20213. | · ·                     | rmal RV, sub  | •                                    | Type C LLRT-in s | scope per | ISTA-    |     |            |    | Cio | se To<br>RV To<br>FS | est Fre                                           | eq: Pe<br>eq: 10<br>Dir: |       |    | хJ  |    |      |
| CC-V840                                                          | 2                       | A/C           | 1.5<br>Doliaf/Safaty                 | Self             | С         | O/C      | -   |            |    | 0-  | 7                    | X                                                 |                          |       |    | х   |    |      |
| PCCW Containment supply Penetra<br>1100. Reference: P&ID D20213. | (H-5)<br>ation X-23 the | ermal RV, sul | Relief/Safety<br>oject to Appendix J | Type C LLRT-in   | scope pe  | r ISTA-  |     |            |    | Clo | se To<br>RV To       |                                                   | eq: Pe<br>eq: 10         |       |    | x J |    |      |

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1-F4.38 SITR Rev. 23

ST Test Dir:

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SYSTEM: CGC

IST VALVE TEST TABLE

P&ID No.: B20612

EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | Positions
NRM SAF FAL | |
|--|--|--|---|---|--|---|
| CGC-V3
"A" train hydrogen analyzer retuvalve is normally closed and op hydrogen concentration reading recombiners into service, or to requirements, LLRT performed outside containment, through satthese items when necessary).
OS1023.71, TS 3.3.3.6, 3.6.4.1 | ened post LOCA
i is utilized by the
take other action
on valve as cons
ample bombs and
References: P&II | to place the h
operators, p
s as directed
ervative meas
analyzer cab | ydrogen analyze
ost LOCA, to dete
by the TSC. Altho
sure to ensure into
inets (especially | r into service. The
ermine when to pla
ough exempt from
egrity of piping loc
useful following m | e containment
ace the
App J test
op (no leakage)
naintenance on | C.S. Just.
X X
Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: |
| CGC-V4
"A" train hydrogen analyzer retu
check valve is normally closed a
hydrogen concentration reading
recombiners into service, or to
requirements, LLRT performed
outside containment, through sa
these items when necessary).
OS1023.71, TS 3.3.3.6, 3.6.4.1 | and opens post L
is utilized by the
take other action
on valve as cons
ample bombs and
References: P&II | OCA to place
operators, p
s as directed
ervative meas
analyzer cat | the hydrogen and
ost LOCA, to dete
by the TSC. Altho
sure to ensure into
intets (especially | alyzer into service
ermine when to pla
bugh exempt from
egrity of piping loc
useful following m | 2. The containment
ace the
App J test
op (no leakage)
naintenance on | X X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: |
| CGC-V10
"A" train hydrogen analyzer inlevalve is normally closed and op
hydrogen concentration reading
recombiners into service, or to
requirements, LLRT performed
outside containment, through sa
these items when necessary).
OS1023.71, TS 3.3.3.6, 3.6.4.1 | ened post LOCA
is utilized by the
take other action
on valve as cons
ample bombs and
References: P&II | to place the h
operators, p
s as directed
ervative meas
d analyzer cat | nydrogen analyze
ost LOCA, to dete
by the TSC. Altho
sure to ensure into
binets (especially | r into service. The
ermine when to pla
bugh exempt from
egrity of piping loc
useful following m | e containment
lace the
App J test
op (no leakage)
naintenance on | X X
Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: |
| CGC-V12
"A" train hydrogen analyzer inle
the hydrogen analyzer into sen
post LOCA, to determine when
TSC. Although exempt from Ap
integrity of piping loop (no leaka
useful following maintenance of
EOP-E-1_OS1023.71_TS.3.3 | vice. The contain
to place the reco
p J test requirem
age) outside cont
n these items wh | ment hydroge
ombiners into
ents, LLRT pe
ainment, throu | n concentration re
service, or to tak
erformed on valve
ugh sample bomb | eading is utilized to
e other actions as
as conservative r
s and analyzer ca | by the operators,
s directed by the
measure to ensure
abinets (especially | X X
Open Test Freq: Quarterly
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: |

FIGUKÉ F4

SYSTEM: CGC

P&ID No.: B20612

IST VALVE TEST TABLE

| | | | | | | | | | | | | - | | | | |
|---|--|------------------------------|---|---|-----------------------|---------|-----|------------|----|----|--|----------------------|-------------|--------|------|-----|
| Valve Number | Class | | Size (in.) | | | | | | | | IST Progr.
Commi | | | | | |
| | and | Valve | and | Actuator |] | osition | s | Relief Req | | | Commi | | | | | |
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | DI | FE | FS LJ | LK | PE § | PI R | r st | CME |
| CGC-V13 | 2
(F-5) | В | 1.0
Diaphragm | Manual | С | 0 | - | | | x |)
pen Test F | rog: (| Quarterly | | | |
| "A" train hydrogen analyzer CP-1
place the hydrogen analyzer into
operators, post LOCA, to determ
directed by the TSC. References: | 73 inlet isolation
service. The co
ine when to pla | ntainment hy
ce the recom | valve is normally
drogen concentra
biners into servic | tion reading is utiliz
e, or to take other | ed by th
actions a | e
Is | | | | | lose Test F
RV Test F
FS Test
ST Test | req:
req:
Dir: | Quarteriy | | | |
| CGC-V14 | 2
(G-9) | А | 2.0
Globe | Motor | С | С | - | | | x | X
Dpen Test F | rog. | | х | х | |
| Containment Purge IRC-CIV for p | | / X75. This va | | osed and receives | a "T" clo | sure | | | | | lose Test F | | Quarterly | | | |
| signal. The containment purge fu | | | | | | | | | | | RV Test F | req: | | | | |
| recombiners, and would be place
generation rate was significantly | | | | | | | | | | | FS Test
ST Test | | Classed | | | |
| non-safety related systems such | | | | | | | | | | | STIES | DIr. C | Juseu | | | |
| mitigation. This valve is subject to Table 6.2-83, OS1023.72. | | | | | | | | | | | | | | | | |
| CGC-V15 | 2
(G-9) | А | 2.0
Globe | Manual | LC | LC | - | | | c | X
Open Test F | roa. | | | | |
| Containment Purge ORC-CIV for | | 2 / X75. This | | ormally closed and | l has no | active | | | | | lose Test F | | Per Appe | ndix J | | |
| safety function. The containment | purge function | is a defense | in depth backup t | o the redundant- sa | afety rela | ted | | | | | RV Test F | req: | | | | |
| hydrogen recombiners, and would
hydrogen generation rate was sig | | | | | | | | | | | FS Test
ST Test | | | | | |
| relies on non-safety related syste | | | | | | | | | | | 51 1651 | Dir. | | | | |
| accident mitigation. This valve is 6.2.5, Table 6.2-83, OS1023.72. | subject to Appe | ndix J Type (| LLRT. Reference | es: P&ID B20612, | UFSĀR | Section | | | | | | | | | | |
| CGC-V24 | 2
(C-9) | В | 1.0
Globe | Manual | LC | 0 | - | | | x | X | | Ou ordenalu | | | |
| "B" train hydrogen analyzer returi | ₹ = 7 . | penetration X | | from Appendix .I Ty | vne C I I | RT Thi | s | | | | Dpen Test F
lose Test F | | Juaneny | | | |
| valve is normally closed and oper | | | | | | | • | | | Ŭ | RV Test F | | | | | |
| hydrogen concentration reading i | s utilized by the | operators, p | ost LOCA, to dete | ermine when to pla | ce the | | | | | | FS Test | | | | | |
| recombiners into service, or to ta
requirements, LLRT performed or | | | | | | | | | | | ST Test | Dir: | | | | |
| outside containment, through san | | | | | | | | | | | | | | | | |
| these items when necessary). Re | | | | | | | | | | | | | | | | |
| OS1023.71, TS 3.3.3.6, 3.6.4.1. | | | | | | | | | | | | | | | | |

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FIGUKÉ F4

SYSTEM: CGC

P&ID No.: B20612

EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

•...

IST VALVE TEST TABLE

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | | sitions
SAF FAL | Relief Req
C.S. Just. | DI | FE | IST Prog
Comm
Comm
FS LJ | itment
itment | | PI | RT | ST | CME |
|---|--|--|---|--|---|-----------------------------------|--------------------------|----|----|--|-----------------------------------|--------|------|----|----|-----|
| CGC-V25
"B" train hydrogen analyzer ret
check valve is normally closed
hydrogen concentration reading
recombiners into service, or to
requirements, LLRT performed
outside containment, through s
these items when necessary).
OS1023.71, TS 3.3.3.6, 3.6.4.1 | and opens post L
g is utilized by the
take other action
on valve as cons
ample bombs and
References: P&II | OCA to place
operators, p
s as directed
ervative meas
d analyzer cat | the hydrogen and
ost LOCA, to dete
by the TSC. Altho
sure to ensure into
binets (especially | alyzer into service
ermine when to pl
ough exempt from
egrity of piping loo
useful following n | e. The contai
lace the
n App J test
op (no leakag
naintenance | nment
ge)
on | 0.0.000 | | | X
Ipen Test I
lose Test I
RV Test I
FS Tes
ST Tes | Freq:
Freq:
Freq:
t Dir: | | | | | х |
| CGC-V28
Containment Purge IRC-CIV for
signal. The containment purge
recombiners, and would be plat
generation rate was significantl
non-safety related systems suc
mitigation. This valve is subject
EOP-E-1, OS1023.71, TS 3.3.3 | function is a defe
ced into service of
y greater than the
h as service air,
to Appendix J Ty | nse in depth t
only if both rec
e design basis
and is not req | backup to the redu
combiners failed o
generation rate.
juired to function f | undant- safety rela
r if the post LOCA
The purge subsy
for SSD or design | ated hydroge
A hydrogen
ystem relies o
n basis accide | en
on
ent | | | | X
open Test
lose Test
RV Test
FS Tes
ST Tes | Freq:
Freq:
Freq:
t Dir: | | | | x | |
| CGC-V32
"B" train hydrogen analyzer inlevelve is normally closed and op
hydrogen concentration reading
recombiners into service, or to
requirements, LLRT performed
outside containment, through s
these items when necessary).
OS1023.71, TS 3.3.3.6, 3.6.4.1 | pened post LOCA
g is utilized by the
take other action
on valve as cons
ample bombs and
References: P&II | to place the l
operators, p
s as directed
ervative meas
d analyzer cal | nydrogen analyze
ost LOCA, to dete
by the TSC. Altho
sure to ensure int
binets (especially | r into service. The
ermine when to plough exempt from
egrity of piping loo
useful following n | e containmer
lace the
n App J test
op (no leaka
naintenance | nt
ge)
on | | | | X
open Test
lose Test
RV Test
FS Tes
ST Tes | Freq:
Freq:
Freq:
t Dir: | Quarte | ərly | | | |
| CGC-V34
"B" train hydrogen analyzer inte
the hydrogen analyzer into ser
post LOCA, to determine when
TSC. Although exempt from Ap
integrity of piping loop (no leak
useful following maintenance o | vice. The contain
to place the reco
op J test requirem
age) outside cont
n these items wh | ment hydroge
ombiners into
ents, LLRT pe
ainment, throl | en concentration r
service, or to tak
erformed on valve
ugh sample bomb | eading is utilized
te other actions as
as conservative
as and analyzer ca | by the opera
s directed by
measure to
abinets (espe | tors,
the
ensure
ecially | | | | X
Open Test
Iose Test
RV Test
FS Tes
ST Tes | Freq:
Freq:
Freq:
t Dir: | Quarte | ərly | | | |

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#### SYSTEM: CGC

## IST VALVE TEST TABLE

#### P&ID No.: **B20612**

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | I   | Position | S   | Relief Reg |
|--------------|--------------|-------|-------------------|----------|-----|----------|-----|------------|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF      | FAL | C.S. Just. |
| CGC-V35      | 2<br>(C-5)   | В     | 1.0<br>Globe      | Manual   | С   | 0        | -   |            |

"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.

| CGC-V36 | 2     | А | 2.0   | Manual | LC | LC | - |
|---------|-------|---|-------|--------|----|----|---|
|         | (D-9) |   | Globe | ••     |    |    |   |

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.

| CGC-V43  | 2          | А | 2.0  | Manual | LC | : | LC | - |
|----------|------------|---|------|--------|----|---|----|---|
|          | (B-8)      |   | Gate |        |    |   |    |   |
| <u> </u> | 1 000 0010 |   |      |        |    |   |    |   |

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.

|         |   |       |   |      |        | · · · |    |   |
|---------|---|-------|---|------|--------|-------|----|---|
| CGC-V44 |   | 2     | А | 2.0  | Manuai | LC    | LC | - |
|         | • | (B-8) |   | Gate |        |       |    |   |

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.

#### **IST Program Plan** Commitment Commitment DI FE FS LJ LK PE PI RT ST CME Х Open Test Freq: Quarterly Close Test Freq: RV Test Frea: FS Test Dir: ST Test Dir: Х **Open Test Freq:** Close Test Freq: Per Appendix J RV Test Frea: FS Test Dir: ST Test Dir:

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

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

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#### SYSTEM: CGC

## IST VALVE TEST TABLE

#### P&ID No.: B20612

|                                     |                  |                |                     |                      |              |          |     |            |    |    | IST F | Prodra | m Plan  |     |       |     |    |     |  |
|-------------------------------------|------------------|----------------|---------------------|----------------------|--------------|----------|-----|------------|----|----|-------|--------|---------|-----|-------|-----|----|-----|--|
| Valve Number                        | Class            |                | Size (in.)          |                      |              |          |     |            |    |    |       | ommite |         |     |       |     |    |     |  |
|                                     | and              | Valve          | and                 | Actuator             | F            | ositions | 6   | Relief Req |    |    | Co    | ommiti | nent    |     |       |     |    |     |  |
| Remarks                             | Coord            | (CAT)          | Туре                | Туре                 | NRM          | SAF      | FAL |            | DI | FE | FS    | LJ     | LK F    | Έ   | Pl    | RT  | ST | CME |  |
|                                     |                  |                |                     |                      |              |          |     | C.S. Just. |    |    |       |        |         |     |       |     |    |     |  |
| CGC-V45                             | 2                | А              | 10.0                | Manual               | LC           | LC       | -   |            |    |    |       | Х      |         |     |       |     |    |     |  |
|                                     | (B-8)            |                | Gate                |                      |              |          |     |            |    | O  | pen T | est Fr | eq:     |     |       |     |    |     |  |
| Containment alternate Purge (po     | rtable air compr | essor) supply  | ORC-CIV for per     | netration X76 / X3   | 8. This ma   | nual     |     |            |    | Cİ | ose T | est Fr | eq: Per | App | pendi | хJ  |    |     |  |
| valve is normally closed and has    | no active safety | function. Th   | e containment pu    | irge function is a c | defense in o | depth    |     |            |    |    | RV T  | est Fr | eq:     |     |       |     |    |     |  |
| backup to the redundant- safety     | related hydrogei | n recombiners  | s, and would be p   | laced into service   | only if both | ่        |     |            |    |    | FS    | Test I | Dir:    |     |       |     |    |     |  |
| recombiners failed or if the post I | OCA hydrogen     | generation ra  | ite was significant | tly greater than th  | e design ba  | asis     |     |            |    |    | ST    | Test I | Dir:    |     |       |     |    |     |  |
| generation rate. The purge subs     |                  |                |                     |                      |              | required | Ł   |            |    |    |       |        |         |     |       |     |    |     |  |
| to function for SSD or design ba    |                  |                |                     | Appendix J Type      | C LLRT.      |          |     |            |    |    |       |        |         |     |       |     |    |     |  |
| References: P&ID B20612, UFS        | AR Section 6.2.  | 5, Table 6.2-8 | 3, OS1023.72.       |                      |              |          |     |            |    |    |       |        |         |     |       |     |    |     |  |
| CGC-V46                             | 2                | A/C            | 10.0                | Self                 | С            | С        | -   |            |    |    |       | ·x     |         |     |       |     |    |     |  |
|                                     | (B-10)           |                | Check               |                      | •            | -        |     |            |    | O  | pen T | est Fr | ea:     |     |       |     |    |     |  |
| Containment Purge supply IRC-0      | · · ·            | on X76 / X38.  |                     | e is normally close  | ed and has   | no       |     |            |    |    |       |        | eq: Per | Apr | pendi | x J |    |     |  |
| active safety function. The conta   | •                |                |                     |                      |              |          |     |            |    |    | RV T  | est Fr | eq:     |     |       |     |    |     |  |
| related hydrogen recombiners, a     |                  |                |                     |                      |              |          |     |            |    |    | FS    | Test   | Dir:    |     |       |     |    |     |  |
| hydrogen generation rate was sig    |                  |                |                     |                      |              |          |     |            |    |    | ST    | Test   | Dir:    |     |       |     |    |     |  |
| relies on non-safety related syste  |                  |                |                     |                      |              |          |     |            |    |    |       |        |         |     |       |     |    |     |  |
| accident mitigation. This valve is  | subject to Appe  | ndix J Type C  | LLRT. Reference     | ces: P&ID B20612     | 2, UFSAR S   | Section  |     |            |    |    |       |        |         |     |       |     |    |     |  |
| 6.2.5, Table 6.2-83, OS1023.72.     |                  |                |                     |                      | •            |          |     |            |    |    |       |        |         |     |       |     |    |     |  |

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1-F4.43 SITR Rev. 23

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#### SYSTEM: CO

#### P&ID No.: D20426

| Valve Number<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Class<br>and<br>Coord                                  | Valve<br>(CAT)                                | Size (in.)<br>and<br>Type                                    | Actuator<br>Type                                                | F<br>NRM                    | Positions<br>SAF | s<br>FAL | Relief Req | DI | FE  | C<br>C             | <sup>D</sup> rograr<br>Dmmitn<br>Dmmitn<br>LJ        | nent<br>nent       | PI | RT | ST | CME |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------|------------------|----------|------------|----|-----|--------------------|------------------------------------------------------|--------------------|----|----|----|-----|
| CO-V421<br>Condensate transfer pump discha                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3<br>(G-10)<br>arge to CST che                         | C<br>ck valve (SC                             | 2.0<br>Check<br>-3-NNS interface)                            | Self<br>). This valve has r                                     | DE<br>no safety re          | C<br>elated      | -        | C.S. Just. |    | CÌc | se T               | est Fre                                              | ed:                |    |    |    | X   |
| open function, and if open, must of<br>penetrate the CST below the elev<br>though the upstream lines from the<br>though the upstream lines from the<br>though the upstream lines from the<br>the upstream lines from the upstream lin | ation which def                                        | ines the dedic                                | ated EFW volum                                               | e must close whe                                                | n required                  | (even            |          |            |    |     | FS                 | est Fre<br>Test D<br>Test D                          | )ir:               |    |    |    |     |
| CO-V422<br>Condensate transfer pump dischar<br>open function, and if open, must of<br>penetrate the CST below the elev<br>though the upstream lines from the                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | close to isolate t<br>ation which def                  | the CST prote<br>ines the dedic               | ected water suppl<br>cated EFW volum                         | y. Check valves ir<br>le must close whe                         | n lines which<br>n required | ch<br>(even      | -        |            |    | Clo | se T<br>RV T<br>FS | Test Fre<br>Test Fre<br>Test Fre<br>Test D<br>Test D | eq:<br>eq:<br>)ir: |    |    |    | X   |
| <b>CO-V434</b><br>Condensate spill line/Startup aux<br>is normally closed, opens when th<br>supply. Check valves in lines whic<br>volume must close when required<br>extend above the elevation required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ne SUFP is ope<br>ch penetrate the<br>I (even though t | rating , and is<br>CST below t<br>he upstream | required to close<br>he elevation whic<br>lines from the Tu  | e to isolate the CS<br>ch defines the ded<br>rbine Building are | T protecte                  | d water<br>W     | -<br>e   |            |    | Clo | rv 1<br>RV 1<br>FS | est Fre<br>est Fre<br>est Fre<br>Test D<br>Test D    | eq:<br>eq:<br>Dir: |    |    |    | x   |
| CO-V435<br>Condensate spill line/Startup aux<br>is normally closed, opens when th<br>supply. Check valves in lines which<br>volume must close when required<br>extend above the elevation required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ne SUFP is ope<br>ch penetrate the<br>I (even though t | rating , and is<br>CST below t<br>he upstream | required to close<br>he elevation which<br>lines from the Tu | e to isolate the CS<br>ch defines the ded<br>rbine Building are | T protecte                  | d water<br>W     | e        |            |    | Cic | se 1<br>RV 1<br>FS | Test Fre<br>Test Fre<br>Test Fre<br>Test D<br>Test D | eq:<br>eq:<br>Dir: |    |    |    | x   |

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1-F4.44 SITR Rev. 23

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## IST VALVE TEST TABLE

| P&ID No.: <b>D20504</b>                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                                   |                                            |                                       |           |           |     |            |    |                                             | <b>T</b> D              | Disa       |    |    |    |     |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------|--------------------------------------------|---------------------------------------|-----------|-----------|-----|------------|----|---------------------------------------------|-------------------------|------------|----|----|----|-----|--|--|--|--|
| Valve Number                                                                                                                                                                                                                                                                                                                                                                                                                          | Class<br>and                      | Valve                             | Size (in.)<br>and                          | Actuator                              | F         | Positions |     | Relief Req |    | n Plan<br>nent<br>nent                      |                         |            |    |    |    |     |  |  |  |  |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                               | Coord                             | (CAT)                             | Туре                                       | Туре                                  | NRM       | SAF F     | FAL | C.S. Just. | DI | FE F                                        | S LJ                    | LK PE      | Ρĺ | RT | ST | CME |  |  |  |  |
| COP-V1                                                                                                                                                                                                                                                                                                                                                                                                                                | 2<br>(D-8)                        | А                                 | 8.0<br>Butterfly                           | Air/Piston                            | LC        | LC        | С   |            |    | • -                                         | Κ Χ<br>η Test Fre       | eq:        | Х  |    | х  |     |  |  |  |  |
| Containment online purge supply isolation valve- ORC for penetration X-18- subject to Appendix J Type C LLRT.<br>This valve may be open during power operation to provide filtered air for purging the containment (manually<br>controlled by operator to adjust containment pressure to 0.50 +/- 0.15 psig) and receives a Containment Ventilation<br>Isolation Signal (CVIS) to close. References: P&ID D20504, UFSAR Table 6.2-83. |                                   |                                   |                                            |                                       |           |           |     |            |    | Close Test Freq: Quarterly<br>RV Test Freq: |                         |            |    |    |    |     |  |  |  |  |
| <b>COP-V2</b><br>Containment online purge supply i<br>This valve may be open during por<br>controlled by operator to adjust co<br>Isolation Signal (CVIS) to close. R                                                                                                                                                                                                                                                                 | wer operation t<br>ntainment pres | o provide filte<br>sure to 0.50 · | ered air for purging<br>+/- 0.15 psig) and | g the containment<br>receives a Conta | (manually | ,         | С   | •          |    | Ope<br>Clos                                 | / Test Fre<br>FS Test D | eq: Quarte | ł  | ·  | х  |     |  |  |  |  |
| <b>COP-V3</b><br>Containment online purge exhaust<br>This valve may be open during por<br>controlled by operator to adjust co<br>Isolation Signal (CVIS) to close. R                                                                                                                                                                                                                                                                  | wer operation t<br>ntainment pres | o provide filte<br>sure to 0.50   | ered air for purging<br>+/- 0.15 psig) and | g the containment<br>receives a Conta | (manually | '         | С   |            |    | Ope<br>Clos<br>R                            | / Test Fre<br>FS Test I | eq: Quarte | ł  |    | x  |     |  |  |  |  |
| <b>COP-V4</b><br>Containment online purge exhaust<br>This valve may be open during por<br>controlled by operator to adjust co<br>Isolation Signal (CVIS) to close. R                                                                                                                                                                                                                                                                  | wer operation t<br>ntainment pres | o provide filte<br>sure to 0.50   | ered air for purging<br>+/- 0.15 psig) and | g the containment<br>receives a Conta | (manually | /         | С   |            |    | Ope<br>Clos<br>R                            | √ Test Fre<br>FS Test [ | eq: Quarte | ł  |    | х  |     |  |  |  |  |

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1-F4.45 SITR Rev. 23

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# IST VALVE TEST TABLE

#### P&ID No.: **D20233**

| Valve Number                                                                                                                                                                                                                                                                                                                                                              | Class<br>and | Valve   | Size (in.)<br>and                                                                            | Actuator |     | Position | s   | Relief Reg | IST Program Plan<br>Commitment<br>Commitment |    |         |                   |            |        |       |         |    |    |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|----------------------------------------------------------------------------------------------|----------|-----|----------|-----|------------|----------------------------------------------|----|---------|-------------------|------------|--------|-------|---------|----|----|-----|
| Remarks                                                                                                                                                                                                                                                                                                                                                                   | Coord        | (CAT)   | Туре                                                                                         | Туре     | NRM | SAF      | FAL | C.S. Just. | DI                                           | FE | E FS    | G LJ              |            | LK F   | E     | ΡI      | RT | ST | CME |
| CS-LCV112D                                                                                                                                                                                                                                                                                                                                                                | 2<br>(G-8)   | В       | 8.0<br>Gate                                                                                  | Motor    | С   | O/C      | -   |            |                                              | Х  | -       | Test              | Fre        | a: Ref | Jelir | X<br>na |    | Х  |     |
| RWST to CCP suction isolation<br>for ECCS injection and for SSE<br>leakage limits for this valve per                                                                                                                                                                                                                                                                      | 5.3.         | CS-RJ-1 | RJ-1 Close Test Freq: Refueling<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: Open/Closed |          |     |          |     |            |                                              |    |         |                   |            |        |       |         |    |    |     |
| CS-LCV112E                                                                                                                                                                                                                                                                                                                                                                | 2<br>(G-8)   | В       | 8.0<br>Gate                                                                                  | Motor    | С   | O/C      | -   |            |                                              | Х  |         | Test              | Fre        | a: Ref | ıeliı | X<br>ng |    | Х  |     |
| 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. |              |         |                                                                                              |          |     |          |     |            |                                              |    | RV<br>F | ' Test I<br>S Tes | Fre<br>t D |        |       | -       | ł  |    |     |

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### SYSTEM: CS

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## IST VALVE TEST TABLE

#### P&ID No.: **D20722**

| Valve Number<br>Remarks                                                                                                                                                            | Class<br>and<br>Coord                                                                                         | Valve<br>(CAT)                                | Size (in.)<br>and<br>Type                                 | Actuator<br>Type                                  |                           | Position<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | DI | FE |                                                   | nitment<br>nitment        | ł                 | Pl | RŤ | ST | CME |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------|---------------------------------------------------|---------------------------|-----------------|----------|--------------------------|----|----|---------------------------------------------------|---------------------------|-------------------|----|----|----|-----|
| CS-V142                                                                                                                                                                            | 2<br>(C-7)                                                                                                    | В                                             | 3.0<br>Gate                                               | Motor                                             | 0                         | С               | -        |                          |    | Х  |                                                   |                           |                   | х  |    | Х  |     |
| CVCS normal charging header to R<br>signal and remains closed througho<br>sealed to preclude containment atm<br>low as practical. References: P&ID                                 | Open Test Freq:<br>CS-RJ-2 Close Test Freq: Refueling<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: Closed |                                               |                                                           |                                                   |                           |                 |          |                          |    |    |                                                   |                           |                   |    |    |    |     |
| CS-V143                                                                                                                                                                            | 2                                                                                                             | В                                             | 3.0                                                       | Motor                                             | 0                         | С               | -        |                          |    | Х  |                                                   | _                         |                   | Х  |    | Х  |     |
| CVCS normal charging header to R<br>signal and remains closed througho<br>an ORC containment isolation valv<br>atmosphere outleakage through val<br>1-CS-D20722, UFSAR Section 6.3 | ut the accider<br>e exempt from<br>ve seats and                                                               | t to divert Ch<br>Type C LLR<br>backing leaka | narging Pump flow<br>T. Water sealed<br>age maintained as | to the RCS cold to preclude conta                 | legs. This<br>inment      | s is also       | )        | CS-RJ-2                  |    |    | pen Test<br>ose Test<br>RV Test<br>FS Te<br>ST Te | Freq:<br>Freq:<br>st Dir: | Refueli<br>Closed |    |    |    |     |
| CS-V144                                                                                                                                                                            | 2                                                                                                             | С                                             | 3.0<br>Check                                              | Self                                              | 0                         | 0               | -        |                          |    |    |                                                   |                           |                   |    |    |    | х   |
| Normal charging to Regen HX IRC<br>for safe shutdown. This valve is cre<br>thermal expansion under accident o<br>5.4.7, 9.3.4, 7.4, Engineering Eval                               |                                                                                                               |                                               | CI                                                        | pen Test<br>ose Test<br>RV Test<br>FS Te<br>ST Te | Freq:<br>Freq:<br>st Dir: |                 |          |                          |    |    |                                                   |                           |                   |    |    |    |     |
| CS-V148                                                                                                                                                                            | 2                                                                                                             | С                                             | 2.0                                                       | Self                                              | С                         | 0               | -        |                          |    | _  |                                                   | _                         |                   |    | х  |    |     |
| Regen HX Letdown line relief valve<br>isolation valve CS-V149 in the even<br>open or leaking by. In scope per IST                                                                  | t of containme                                                                                                | nt isolation v                                | vith upstream con                                         |                                                   |                           |                 |          |                          |    |    | pen Test<br>ose Test<br>RV Test<br>FS Te<br>ST Te | Freq:<br>Freq:<br>st Dir: | 10 Yea            | rs |    |    |     |
| CS-V149                                                                                                                                                                            | 2                                                                                                             | Ä                                             | 3.0                                                       | Motor                                             | О                         | С               | -        |                          |    | х  |                                                   |                           |                   | х  |    | х  | •   |
| Normal letdown HX IRC isolation. C<br>safe shutdown or used during DBA<br>or CS-V150. References: P&ID D20                                                                         | conditions. A                                                                                                 | uto-closure o                                 | f CS-V145 on initi                                        | ation of closure o                                | n either C                | S-V149          |          | CS-RJ-2                  |    |    | pen Test<br>ose Test<br>RV Test<br>FS Te<br>ST Te | Freq:<br>Freq:<br>st Dir: | Refueli<br>Closed | ng |    |    |     |

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#### SYSTEM: CS

## IST VALVE TEST TABLE

P&ID No.: D20722

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| Valve Number<br>Remarks                                                                                                                                                                                                                                                                                               | Class<br>and<br>Coord                                                                                         | Valve<br>(CAT)                                                                                             | Size (in.)<br>and<br>Type                                                                                              | Actuator<br>Type                                                                                                   |                                                              | Positions<br>SAF                        | ,<br>FAL | Relief Req<br>C.S. Just. | DI | FE | Co                   | Progra<br>ommit<br>ommit<br>LJ                | tment                | an<br>PE | PI | RT | ST | CME |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------|----------|--------------------------|----|----|----------------------|-----------------------------------------------|----------------------|----------|----|----|----|-----|
| <b>CS-V150</b><br>Normal letdown HX ORC isolation<br>safe shutdown or used during DB,<br>or CS-V150. References: P&ID D                                                                                                                                                                                               | A conditions.                                                                                                 | Auto-closure o                                                                                             | f CS-V145 on ir                                                                                                        | nitiation of closure on                                                                                            | either C                                                     | S-V149                                  | С        | CS-RJ-2                  |    |    | iose T<br>RV T<br>FS | Test Fi<br>Test                               | req: R               | losed    | 0  |    | х  |     |
| CS-V177<br>Normal charging to loop 4 isolatic<br>(usually each refueling) over the p<br>transients involving complete stop<br>shutdown conditions to avoid unnu-<br>are relied upon to open and rema<br>expansion of trapped fluid under a<br>perform this function, therefore, th<br>D20722, UFSAR Sections 5.4.7, 7 | lant life, such t<br>page of letdow<br>ecessary addit<br>in open to pre-<br>accident condit<br>ey serve a pas | that neither pa<br>in and/or char<br>ional thermal t<br>clude overpre-<br>ions. Only one<br>ssive open fun | th will be exposing<br>ging flow. Trans<br>ransients. The<br>ssurization of pe<br>of these valves<br>ction only (per f | ed to more than 60%<br>fer should only be pose<br>valves have no St<br>enetration X-33 due<br>s needs to be open a | 6 of desig<br>erformed<br>SD functi<br>to therm<br>t one tim | gn<br>at cold<br>on, but<br>al<br>ie to | 0        |                          |    |    | lose T<br>RV T<br>FS | Test Fi<br>Test Fi<br>Test Fi<br>Test<br>Test | req:<br>req:<br>Dir: |          | х  |    |    |     |
| <b>CS-V178</b><br>Loop 4 charging line check valve.<br>overpressurization of X-33 due to<br>also close to prevent reverse flow<br>References; P&ID D20722, UFSA                                                                                                                                                       | thermal expan<br>following a LC                                                                               | sion of trappe<br>CA in loop 1,                                                                            | d fluid under ac<br>to preclude two                                                                                    | cident conditions. Th                                                                                              | is valve                                                     | must                                    | -        |                          |    |    | iose T<br>RV T<br>FS | Test Fi<br>Test Fi<br>Test Fi<br>Test<br>Test | req:<br>req:<br>Dir: |          |    |    |    | x   |
| CS-V179<br>Loop 4 charging line check valve.<br>overpressurization of X-33 due to<br>also close to prevent reverse flow<br>References; P&ID D20722, UFSA                                                                                                                                                              | thermal expan<br>following a LC                                                                               | sion of trappe<br>CA in loop 1                                                                             | d fluid under ac<br>to preclude two                                                                                    | cident conditions. Th<br>loops feeding one p                                                                       | is valve                                                     | must                                    | -        |                          |    |    | lose T<br>ד RV<br>FS | Fest Fi<br>Fest Fi<br>Fest Fi<br>Fest<br>Test | req:<br>req:<br>Dir: |          |    |    |    | х   |

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## IST VALVE TEST TABLE

P&ID No.: D20722

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| Valve Number                                                                                                                                                                                                                                                                                                                                         | Class<br>and<br>Coord                                                                                  | Valve<br>(CAT)                                                                                    | Size (in.)<br>and<br>Type                                                                                              | Actuator<br>Type                                                                                                |                                                          | Position<br>SAF                            | s<br>FAL            | Relief Req<br>C.S. Just. | DI | FE | С                               | ommi<br>ommi                                   | am Pla<br>tment<br>tment<br>LK | PI | RT | ST | CME |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------|---------------------|--------------------------|----|----|---------------------------------|------------------------------------------------|--------------------------------|----|----|----|-----|
| <b>CS-V180</b><br>Normal charging to loop 1 isolation <i>i</i><br>(usually each refueling) over the plan<br>transients involving complete stoppa<br>shutdown conditions to avoid unnect<br>are relied upon to open and remain<br>expansion of trapped fluid under acc<br>perform this function, therefore, they<br>D20722, UFSAR Sections 5.4.7, 7.4 | nt life, such th<br>ge of letdown<br>essary additio<br>open to precl<br>ident conditio<br>serve a pass | at neither par<br>and/or charg<br>nal thermal ti<br>ude overpres<br>ns. Only one<br>ive open fund | th will be expose<br>ging flow. Transf<br>ransients. These<br>surization of pe<br>of these valves<br>ction only (per E | ed to more than 60%<br>fer should only be po<br>e valves have no SS<br>netration X-33 due<br>needs to be open a | of desi<br>erformed<br>D functi<br>to therm<br>t one tim | gn<br>i at cold<br>on, but<br>nal<br>ne to | O <sub>.</sub><br>1 |                          |    |    | iose 1<br>RV 1<br>FS            | Test F<br>Test F<br>Test F<br>5 Test<br>T Test | req:<br>req:<br>Dir:           | х  |    |    |     |
| <b>CS-V181</b><br>Loop 1 charging line check valve. Lo<br>overpressurization of X-33 due to the<br>also close to prevent reverse flow fo<br>References; P&ID D20722, UFSAR                                                                                                                                                                           | ermal expans<br>llowing a LOC                                                                          | ion of trapped<br>A in loop 4,                                                                    | d fluid under acc<br>to preclude two                                                                                   | ident conditions. Th<br>loops feeding one p                                                                     | is valve                                                 | must                                       | -                   |                          |    |    | lose T<br>RV 1<br>FS            | Test F<br>Test F<br>Test F<br>5 Test<br>T Test | req:<br>req:<br>Dir:           |    |    |    | х   |
| <b>CS-V182</b><br>Loop 1 charging line check valve. Lo<br>overpressurization of X-33 due to the<br>also close to prevent reverse flow fo<br>References; P&ID D20722, UFSAR                                                                                                                                                                           | ermal expans<br>llowing a LOC                                                                          | ion of trapped<br>A in loop 4,                                                                    | l fluid under acc<br>to preclude two                                                                                   | ident conditions. Th<br>loops feeding one p                                                                     | is valve                                                 | must                                       | -                   |                          |    |    | lose <sup>-</sup><br>RV 1<br>FS | Test F<br>Test F<br>Test F<br>S Test<br>T Test | req:<br>req:<br>Dir:           |    |    | ·  | Х   |
| CS-V185<br>Pressurizer Auxiliary Spray valve. N<br>operating procedures is not recomm<br>but must be closed to isolate the Cla<br>direction and is administratively cont<br>References: P&ID D20722.                                                                                                                                                 | ended for use<br>ass 1 RCPB.                                                                           | during RCP<br>Since this val                                                                      | operation. This<br>lve is normally o                                                                                   | valve has no open s<br>losed, sees limited t                                                                    | safety fu<br>use in th                                   | nction,<br>e open                          | C<br>D-0001).       |                          |    |    | Close<br>RV<br>FS               | Test I<br>Test<br>Test F<br>S Test<br>T Test   | Freq:<br>req:<br>Dir:          | х  |    |    |     |

1-F4.49 SITR Rev. 23

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#### SYSTEM: CS

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## IST VALVE TEST TABLE

| P&ID No.: <b>D20725</b>                                                                                                                                                                                                                        |                                                                       |                                                                            |                                                                                                             |                                                                            |                                                     |                         |      |            |    |           | ST Proc                     | ıram P                      | lan                |           |    |    |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|------|------------|----|-----------|-----------------------------|-----------------------------|--------------------|-----------|----|----|-----|
| Valve Number                                                                                                                                                                                                                                   | Class                                                                 |                                                                            | Size (in.)                                                                                                  | Actuator                                                                   | P                                                   | ositions                | T    | Relief Rea |    | •         | Comn                        | nitmen<br>nitmen            | t                  |           |    |    |     |
| Remarks                                                                                                                                                                                                                                        | and<br>Coord                                                          | Valve<br>(CAT)                                                             | and<br>Type                                                                                                 | Туре                                                                       | NRM                                                 |                         | FAL. | C.S. Just. | DI | FE        | FS L                        |                             | E PE               | Ρl        | RT | ST | CME |
| CS-LCV112B                                                                                                                                                                                                                                     | 2                                                                     | В                                                                          | 4.0<br>Gate                                                                                                 | Motor                                                                      | 0                                                   | С                       | -    |            |    | X<br>On   | en Test                     | Frea:                       |                    | х         |    | Х  |     |
| VCT outlet isolation valve to Charging<br>Charging pumps and is automatically<br>BAT tanks or the RWST. Also, manu<br>planned plant cooldowns, but this is<br>UFSAR Sections 6.3 & 7.4, procedure                                              | r closed during<br>ally closed do<br>not a DBA or :                   | ECCS actuati<br>uring rapid bora<br>safe shutdown                          | on (DBA condition<br>ation from the RW                                                                      | <ol> <li>as suction is<br/>IST or BAT. Op</li> </ol>                       | switched to<br>bened for r                          | o the<br>Iormaily       |      | CS-RJ-4    |    | Clo       | se Test<br>RV Test<br>FS Te | Freq:<br>Freq:<br>st Dir:   | Refuelii<br>Closed | ng        |    |    |     |
| CS-LCV112C                                                                                                                                                                                                                                     | 2<br>(E-6)                                                            | В                                                                          | 4.0<br>Gate                                                                                                 | Motor                                                                      | 0                                                   | С                       | -    |            |    | X<br>Op   | en Test                     | Freq:                       |                    | х         |    | Х  |     |
| VCT outlet isolation valve to Charging<br>Charging pumps and is automatically<br>BAT tanks or the RWST. Also, manuplanned plant cooldowns, but this is<br>UFSAR Sections 6.3 & 7.4, procedur                                                   | g Pump suction<br>closed during<br>ally closed d<br>not a DBA or      | g ECCS actuati<br>uring rapid bor<br>safe shutdown                         | s normally open p<br>ion (DBA condition<br>ation from the RW                                                | n) as suction is<br>/ST or BAT. Op                                         | switched                                            | to the<br>normally      |      | CS-RJ-4    |    |           | RV Test<br>FS Te            | Freq:<br>st Dir:            |                    |           |    |    |     |
| CS-V192                                                                                                                                                                                                                                        | 2                                                                     | С                                                                          | 4.0<br>Check                                                                                                | Self                                                                       | 0                                                   | O/C                     | -    |            |    | X ·<br>Op | en Test                     | t Freq:                     | Refueli            | ng        |    |    |     |
| VCT outlet check valve to Charging F<br>drawing suction from the VCT, and m<br>recirculation flow to the pump suction<br>LOCA recirculated sump fluid via the<br>pump discharge pressure could exce<br>specific value, provided V-193 is close | nust remain op<br>n when require<br>seal water HX<br>eed the relief v | ben when the V<br>ed. Reverse clo<br>X relief valve u<br>ralve setpoint. I | normally open whe<br>/CT is isolated to<br>osure is required t<br>Inder certain small<br>Leakage in the clo | return charging<br>o preclude disc<br>l break scenario<br>sed direction is | ) pump<br>charge of p<br>os where t<br>s not limite | ost<br>he RHR<br>d to a |      | CS-RJ-3    |    |           | RV Test                     | t Freq:<br>st Dir:          |                    | ng        |    |    |     |
| CS-V196                                                                                                                                                                                                                                        | 2<br>(C-11)                                                           | В                                                                          | 2.0<br>Globe                                                                                                | Motor                                                                      | 0                                                   | O/C                     | -    |            |    | X<br>O    | oen Tes                     | t Freq:                     | Quarte             | X<br>rly  |    | Х  |     |
| CCP A min-flow isolation MOV. Thes<br>automatically for pump protection sh<br>Sections 6.3, 9.3.4.                                                                                                                                             | se valves are i                                                       | normally open,<br>w drop below 8                                           | receive an "S" clo                                                                                          | osure signal, bu<br>es: P&ID D2073                                         | ut will oper<br>25, UFSAI                           | ।<br>२                  |      |            |    |           | RV Tes<br>FS Te             | t Freq:<br>est Dir:         |                    | -         | đ  |    |     |
| CS-V197                                                                                                                                                                                                                                        | 2                                                                     | В                                                                          | 2.0<br>Claba                                                                                                | Motor                                                                      | Ο                                                   | O/C                     | -    |            |    | x         | oen Tes                     | t Frea:                     | : Quarte           | X<br>erlv |    | Х  |     |
| CCP B min-flow isolation MOV. Thes<br>automatically for pump protection sh<br>Sections 6.3, 9.3.4.                                                                                                                                             | (D-10)<br>se valves are<br>ould pump flo                              | normally open,<br>w drop below 8                                           | Globe<br>, receive an "S" clo<br>30 gpm. Referenc                                                           | osure signal, bu<br>es: P&ID D207                                          | ut will oper<br>25, UFSA                            | n<br>R                  |      |            |    | CI        | ose Tes<br>RV Tes<br>FS Te  | t Freq<br>t Freq<br>est Dir | : Quarte<br>:      | erly      | d  |    |     |

1-F4.50 SITR Rev. 23

#### SYSTEM: CS

# IST VALVE TEST TABLE

P&ID No.: **D20725** 

| Valve Number                                                                                                                                                                                                         | Class<br>and                                                                    | Valve                                                              | Size (in.)<br>and                                                                | Actuator                                                    | F                                     | Positions            | 5      | Relief Req | IST Program Plan<br>Commitment<br>Commitment                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------|----------------------|--------|------------|-----------------------------------------------------------------------------------------------------|
| Remarks                                                                                                                                                                                                              | Coord                                                                           | (CAT)                                                              | Туре                                                                             | Туре                                                        |                                       |                      | FAL    | C.S. Just. | DI FE FS LJ LK PE PI RT ST CME                                                                      |
| <b>CS-V199</b><br>Centrifugal charging pump B m<br>protection, and is required to clu<br>failure of the recirc MOV to clos                                                                                           | ose to prevent CC                                                               | P recirc flow                                                      | 2.0<br>Check<br>is required to ope<br>diversion through                          | Self<br>en to allow min-flo<br>a the idle charging          | DE<br>w for pumj<br>pump in c         | O/C<br>p<br>:ase of  | -      |            | X<br>Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:           |
| <b>CS-V200</b><br>CCP B discharge check valve.<br>flow diversion through an idle C                                                                                                                                   | 2<br>(C-12)<br>This valve must o<br>CCP. References;                            | C<br>pen to allow f<br>P&ID D2072                                  | 4.0<br>Check<br>flow for ECCS an<br>5.                                           | Self<br>d SSD, and must                                     | DE<br>ciose to pr                     | O/C<br>revent        | -      |            | X<br>Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:           |
| <b>CS-V209</b><br>CCP A discharge check valve.<br>flow diversion through an idle C                                                                                                                                   | 2<br>(B-11)<br>This valve must o<br>CCP. References;                            | C<br>open to allow <sup>-</sup><br>P&ID D2072                      | 4.0<br>Check<br>flow for ECCS an<br>5.                                           | Self<br>d SSD, and must                                     | DE<br>close to pr                     | O/C<br>revent        | -      |            | X<br>Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:           |
| <b>CS-V210</b><br>CCP A manual discharge valve<br>alternate boration flow path via<br>Table 7.4-1, Procedures OS12<br>to the SITR. Redundant flow<br>inventory control. Because the<br>will not meet the SGCS design | a the RCP seal wa<br>200.01, OS1200.02<br>paths from the BA<br>a SGCS design do | ter injection h<br>2, OS1202.04<br>Ts are provid<br>oes not includ | leader. Reference<br>I. This valve was<br>led for boration w<br>e letdown capabi | added to the IST<br>ith RWST_used fo<br>lity, boration from | D20726, C<br>program ir<br>or subsequ | Rev 10<br>ent RC     | -<br>S |            | X<br>Open Test Freq:<br>Close Test Freq: Quarterly<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: |
| <b>CS-V211</b><br>Centrifugal charging pump A n<br>protection, and is required to c<br>failure of the recirc MOV to clo                                                                                              | close to prevent C                                                              | CP recirc flow                                                     | diversion throug                                                                 | Self<br>en to allow min-fle<br>h the idle charging          | DE<br>ow for pun<br>g pump in         | O/C<br>np<br>case of | -      |            | X<br>Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:           |

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#### SYSTEM: CS

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## IST VALVE TEST TABLE

#### P&ID No.: **D20725**

|                                                                                                                                                                                                                                                            |                                                                 |                                                                 |                                                                                   |                                                                              |                                         |                        |            |    | IS.                           | T Program                                                                              | Plan                   |     |    |    |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------|------------------------|------------|----|-------------------------------|----------------------------------------------------------------------------------------|------------------------|-----|----|----|-----|
| Valve Number                                                                                                                                                                                                                                               | Class<br>and                                                    | Valve                                                           | Size (in.)<br>and                                                                 | Actuator                                                                     | Po                                      | ositions               | Relief Req |    |                               | Commitme<br>Commitme                                                                   |                        |     |    |    |     |
| Remarks                                                                                                                                                                                                                                                    | Coord                                                           | (CAT)                                                           | Туре                                                                              | Туре                                                                         |                                         | SAF FAL                | C.S. Just. | DI | FE F                          |                                                                                        | K PE                   | Ρl  | RT | ST | CME |
| <b>CS-V213</b><br>Charging PDP (P-128) discharge ch<br>CS-P-128 is not provided with emerge<br>therefore the check valve has no ope                                                                                                                        | gency power a                                                   | and its opera                                                   | tion is not required                                                              | d for SSD or accid                                                           | dent mitigat                            | ion,                   |            |    | Close<br>RV<br>F              | Test Freq<br>Test Freq<br>Test Freq<br>S Test Dir<br>Test Dir                          | :<br>:<br>:            |     |    |    | Х   |
| <b>CS-V219</b><br>CCP B flow control bypass valve. The<br>alternate boration flow path via the F<br>Table 7.4-1, Procedures OS1200.01<br>to the SITR. Redundant flow paths<br>inventory control. Because the SGC<br>will not meet the SGCS design required | RCP seal wate<br>, OS1200.02,<br>from the BATe<br>CS design doe | er injection he<br>OS1202.04.<br>s are provide<br>s not include | ader. References<br>This valve was a<br>d for boration with<br>letdown capabilit  | B P&ID D20725, E<br>dded to the IST p<br>RWST used for<br>y, boration from t | 020726, UF<br>rogram in F<br>subsequen  | SAR<br>lev 10<br>t RCS | CS-RJ-5    |    | X<br>Oper<br>Close<br>R\<br>F | n Test Freq<br>P Test Freq<br>7 Test Freq<br>FS Test Dir<br>FT Test Dir                | : Refueli<br>: Refueli |     |    |    |     |
| <b>CS-V220</b><br>CCP B manual discharge valve. This<br>alternate boration flow path via the F<br>Table 7.4-1, Procedures OS1200.01<br>to the SITR. Redundant flow paths f<br>inventory control. Because the SGC<br>will not meet the SGCS design requi    | RCP seal wate<br>, OS1200.02,<br>rom the BATs<br>CS design doe  | er injection he<br>OS1202.04.<br>are provided<br>es not include | ader. References<br>This valve was a<br>l for boration with<br>e letdown capabili | B P&ID D20725, E<br>dded to the IST p<br>RWST used for<br>ty, boration from  | 020726, UF<br>rogram in F<br>subsequent | lev 10<br>RCS          |            |    | Close<br>R\<br>I              | Test Freq<br>Test Freq<br>Test Freq<br>S Test Din<br>Test Din                          | : Quarte<br>:<br>:     | rly |    |    |     |
| <b>CS-V221</b><br>CCP A flow control bypass valve. The alternate boration flow path via the F Table 7.4-1, Procedures OS1200.01 to the SITR. Redundant flow paths f inventory control. Because the SGC will not meet the SGCS design required.             | RCP seal wate<br>, OS1200.02,<br>rom the BATs<br>S design doe   | er injection he<br>OS1202.04.<br>are provideo<br>s not include  | eader. References<br>This valve was a<br>l for boration with<br>letdown capabilit | B P&ID D20725, E<br>dded to the IST p<br>RWST used for<br>y, boration from t | 020726, UF<br>rogram in F<br>subsequent | SAR<br>lev 10<br>: RCS | CS-RJ-5    |    | Close<br>R\<br>F              | Test Frec<br>Test Frec<br>Test Frec<br>S Test Dir<br>Test Dir                          | : Refuel<br>:<br>:     |     |    |    |     |
| <b>CS-V227</b><br>RHR common cross-connect to SI/C<br>Pump suction piping close to the RH                                                                                                                                                                  |                                                                 |                                                                 |                                                                                   |                                                                              |                                         | O -<br>arging          |            |    | Close<br>R\<br>I              | n Test Freq<br>e Test Freq<br>/ Test Freq<br>/ Test Freq<br>FS Test Din<br>FT Test Din | :<br>: 10 Yea<br>:     | irs | х  |    |     |

1-F4.52 SITR Rev. 23

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## IST VALVE TEST TABLE

P&ID No.: D20725

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| Valve Number                                                                                                | Class<br>and         | Valve        | Size (in.)<br>and | Actuator | Posi   | tions | Relief Reg | IS                     | T Program Plan<br>Commitment<br>Commitment                                            | 1             |       |     |
|-------------------------------------------------------------------------------------------------------------|----------------------|--------------|-------------------|----------|--------|-------|------------|------------------------|---------------------------------------------------------------------------------------|---------------|-------|-----|
| Remarks                                                                                                     | Coord                | (CAT)        | Туре              | Туре     | NRM SA |       | C.S. Just. | DI FE F                |                                                                                       | PE PI F       | RT ST | CME |
| CS-V460                                                                                                     | 2<br>(A-6)           | В            | 6.0<br>Gate       | Motor    | C O/   | ′C -  |            | X<br>Ope               | n Test Freq: Qu                                                                       | X<br>uarterly | х     |     |
| SI-CS pump suction cross-cc<br>recirculation phase of ECCS<br>failure. Reference: UFSAR S                   | operation, and may   |              | •                 | •        |        |       |            | R                      | e Test Freq: Qu<br>/ Test Freq:<br>FS Test Dir:<br>ST Test Dir: Op                    |               |       |     |
| <b>CS-V461</b><br>SI-CS pump suction cross-cc<br>recirculation phase of ECCS<br>failure. Reference: UFSAR S | operation, and may   |              |                   |          |        |       |            | Clos<br>R'             | n Test Freq: Qu<br>e Test Freq: Qu<br>/ Test Freq:<br>FS Test Dir:<br>ST Test Dir: Op | ıarterly      | Х     |     |
| CS-V475<br>SI-CS pump suction commo<br>open unless closed to isolate<br>ECCS operation. Reference:          | a passive failure in | the ECCS sys |                   |          |        | nain  |            | Clos<br>R <sup>v</sup> | n Test Freq: Qu<br>e Test Freq: Qu<br>/ Test Freq:<br>FS Test Dir:<br>ST Test Dir: Op | uarterly      | x     |     |

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#### SYSTEM: CS

## IST VALVE TEST TABLE

P&ID No.: D20726

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------|-------------|------------|----|----|-------------------------------------------------------------|----------------------|----|----|----|----|-----|
| Valve Number                                                                                                                                                                                                     | Class<br>and                                     | Valve                                               | Size (in.)<br>and                                               | Actuator                                                    | Pos                                             | itions      | Relief Reg |    |    | Comm                                                        | tment                |    |    |    |    |     |
| Remarks                                                                                                                                                                                                          | Coord                                            | (CAT)                                               | Туре                                                            | Туре                                                        |                                                 | AF FAL      |            | DI | FE | FS LJ                                                       |                      | PE | ΡI | RT | ST | CME |
| <b>CS-V2</b><br>RCP A seal water injection RCPB c<br>accident mitigation as a boron inject<br>certain thermally induced overpress<br>This valve was updated in Rev 10 o<br>injection line outside containment po | tion flow path<br>ure condition<br>f the SITR fo | . Also require<br>s. References<br>its closure fu   | d to burp open, pr<br>s: P&ID D20726, U<br>inction to isolate t | oviding relief fun<br>JFSAR Sections                        | ring SSD and<br>ction during<br>5.4.7, 7.4, 9.3 | .4.         |            |    |    | pen Test F<br>ose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir: |    |    |    |    | х   |
| <b>CS-V4</b><br>RCP A seal water injection IRC isola<br>and accident mitigation as a boron i<br>certain thermally induced overpress<br>the Charging Pumps provide a posi<br>References: P&ID D20726, UFSAR       | njection flow<br>ure condition<br>tive pressure  | path. Also rec<br>s. This CIV is<br>on this penet   | uired to burp ope<br>excluded from Ap<br>ration throughout      | n, providing relie<br>opendix J Type C<br>the entire accide | pen for both S<br>f function duri<br>LLRT becau | ng          |            |    |    | pen Test F<br>ose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir: |    |    |    |    | х   |
| CS-V18<br>RCP B seal water injection RCPB c<br>accident mitigation as a boron inject<br>certain thermally induced overpress<br>This valve was updated in Rev 10 o<br>injection line outside containment per      | tion flow path<br>ure condition<br>f the SITR fo | . Also require<br>s. References<br>r its closure fu | d to burp open, pr<br>s: P&ID D20726, l<br>unction to isolate t | oviding relief fun<br>JFSAR Sections                        | ring SSD and<br>ction during<br>5.4.7, 7.4, 9.3 | <b>.4</b> . |            |    |    | pen Test F<br>ose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir: |    |    |    |    | х   |
| <b>CS-V20</b><br>RCP B seal water injection IRC isola<br>and accident mitigation as a boron i<br>certain thermally induced overpress<br>the Charging Pumps provide a posi<br>References: P&ID D20726, UFSAR      | njection flow<br>ure condition<br>tive pressure  | path. Also reo<br>s. This CIV is<br>on this penet   | uired to burp ope<br>excluded from Ap<br>ration throughout      | n, providing relie<br>opendix J Type C<br>the entire accide | pen for both S<br>f function duri<br>LLRT becau | ng          |            |    |    | pen Test F<br>lose Test F<br>RV Test F<br>FS Tes<br>ST Tes  | req:<br>req:<br>Dir: |    |    |    |    | x   |
| <b>CS-V34</b><br>RCP C seal water injection RCPB c<br>accident mitigation as a boron injec<br>certain thermally induced overpress<br>This valve was updated in Rev 10 o<br>injection line outside containment pe | tion flow path<br>ure condition<br>f the SITR fo | . Also require<br>s. References<br>r its closure fu | d to burp open, pr<br>s: P&ID D20726, t<br>unction to isolate t | roviding relief fun<br>JFSAR Sections                       | ring SSD and<br>ction during<br>5.4.7, 7.4, 9.3 | 3.4.        |            |    |    | pen Test F<br>lose Test F<br>RV Test F<br>FS Tes<br>ST Tes  | req:<br>req<br>Dir:  |    |    |    |    | Х   |

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SYSTEM: CS

## IST VALVE TEST TABLE

P&ID No.: D20726

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|                                                                                                                                                                                                    |                                                                 |                                                    |                                                                                |                                                               |                            |                 |     |            |    |    | IST Progr                                      |                            |         |         |    |    |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------|-----------------|-----|------------|----|----|------------------------------------------------|----------------------------|---------|---------|----|----|-----|
| Valve Number                                                                                                                                                                                       | Class<br>and                                                    | Valve                                              | Size (in.)<br>and                                                              | Actuator                                                      |                            | Position        | e   | Relief Reg |    |    | Commi<br>Commi                                 |                            |         |         |    |    |     |
| Remarks                                                                                                                                                                                            | Coord                                                           | (CAT)                                              | Туре                                                                           | Туре                                                          | NRM                        |                 | FAL | C.S. Just. | DI | FE | FS LJ                                          |                            |         | Ρl      | RT | ST | CME |
| CS-V36                                                                                                                                                                                             | 2<br>(C-9)                                                      | С                                                  | 2.0<br>Check                                                                   | Self                                                          | 0                          | 0               | -   |            |    | С  | )<br>pen Test F                                | rea:                       |         |         |    |    | х   |
| RCP C seal water injection IRC isola<br>and accident mitigation as a boron in<br>certain thermally induced overpress<br>the Charging Pumps provide a posit<br>References: P&ID D20726, UFSAR       | ation check v<br>njection flow<br>ure condition<br>ive pressure | path. Also rec<br>s. This CIV is<br>on this penet  | quired to burp ope<br>excluded from A<br>ration throughout                     | en, providing relie<br>ppendix J Type C<br>the entire accider | f function of LLRT bec     | during          |     |            |    | С  | lose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>Dir:               |         |         |    |    |     |
| CS-V50                                                                                                                                                                                             | 1                                                               | С                                                  | 2.0<br>Chaola                                                                  | Self                                                          | О                          | O/C             | -   |            |    | ~  | Open Test F                                    | iroa:                      |         |         |    |    | х   |
| RCP D seal water injection RCPB cl<br>accident mitigation as a boron inject<br>certain thermally induced overpress<br>9.3.4.This valve was updated in Rev<br>the injection line outside containmer | ion flow path<br>ure condition<br>v 10 of the SI                | . Also require<br>s. References<br>TR for its clos | d to burp open, p<br>s: P&ID D20726,<br>sure function to is                    | roviding relief fun<br>UFSAR Sections<br>olate the RCS foll   | ction durin<br>5.4.7, 7.4, | ıg<br>'         |     |            |    |    | RV Test F<br>RV Test F<br>FS Test<br>ST Test   | req:<br>req:<br>Dir:       |         |         |    |    |     |
| CS-V52                                                                                                                                                                                             | 2<br>(D-9)                                                      | С                                                  | 2.0<br>Check                                                                   | Self                                                          | 0                          | 0               | -   |            |    | c  | Open Test F                                    | rea:                       |         |         |    |    | х   |
| RCP D seal water injection IRC isola<br>and accident mitigation as a boron in<br>certain thermally induced overpress<br>the Charging Pumps provide a posit<br>References: P&ID D20726, UFSAR       | ation check w<br>njection flow<br>ure condition<br>ive pressure | path. Also reo<br>s. This CIV is<br>on this penet  | ve is normally op<br>quired to burp op<br>excluded from A<br>ration throughout | en, providing relie<br>ppendix J Type C<br>the entire accide  | f function of LLRT bec     | during          |     |            |    |    | lose Test F<br>RV Test F<br>FS Tes<br>ST Tes   | req:<br>req:<br>Dir:       |         |         |    |    |     |
| CS-V154                                                                                                                                                                                            | 2<br>(D-8)                                                      | в                                                  | 2.0<br>Globe                                                                   | Motor                                                         | 0                          | 0               | -   |            |    | C  | Open Test F                                    | Freq: 2                    | 2 Year  | X<br>rs |    | х  |     |
| <ul> <li>RCP D seal water injection ORC iso<br/>accident mitigation. Its open positior<br/>indication per ISTC-3700. Stroke Tir<br/>Type C LLRT. References: P&amp;ID D2<br/>EC 276288.</li> </ul> | lation valve.<br>is therefore<br>ne Requirem                    | an important<br>ients added p                      | passive function<br>er EC 276288. T                                            | and will be tested<br>his CIV is exclude                      | l by position<br>d from Ap | on<br>opendix . | J   | CS-RJ-8    |    | С  | Close Test F<br>RV Test F<br>FS Tes<br>ST Tes  | req:<br>t Dir:             |         | -       | d  |    |     |
| CS-V158                                                                                                                                                                                            | 2<br>(C-8)                                                      | В                                                  | 2.0<br>Globe                                                                   | Motor                                                         | 0                          | Ο               | -   |            |    | c  | Open Test I                                    | From                       | 2 Voa   | X       |    | х  |     |
| RCP C seal water injection ORC isc<br>accident mitigation. Its open position<br>indication per ISTC-3700. Stroke Tin<br>Type C LLRT. References: P&ID D2                                           | lation valve.<br>i is therefore<br>ne Requiren                  | an important<br>ients added p                      | normally open ar<br>passive function<br>per EC 276288.Th                       | and will be tested                                            | l by positio<br>d from App | on<br>pendix J  | I   | CS-RJ-8    |    |    | Close Test F<br>RV Test F<br>FS Tes<br>ST Tes  | Freq: F<br>Freq:<br>t Dir: | Refueli | ing     | d  |    |     |

EC 276288.

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## IST VALVE TEST TABLE

P&ID No.: D20726

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| P&ID No.: <b>D20726</b>                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                                                                                       |                                                                  |                                         |                |     |            |    |     |                                         |                                                    |         |    |    |    |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------|----------------|-----|------------|----|-----|-----------------------------------------|----------------------------------------------------|---------|----|----|----|-----|
| Valve Number                                                                                                                                                                    | Class<br>and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Valve                                          | Size (in.)<br>and                                                                     | Actuator                                                         |                                         | Positions      |     | Relief Req |    |     | IST Prog<br>Comm<br>Comm                |                                                    | an      |    |    |    |     |
| Remarks                                                                                                                                                                         | Coord                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | (CAT)                                          | Туре                                                                                  | Туре                                                             | NRM                                     | SAF            | FAL | C.S. Just. | DI | FE  | FS LJ                                   | LK                                                 | PE      | ΡI | RT | ST | CME |
| CS-V162                                                                                                                                                                         | 2<br>(B-8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | В                                              | 2.0<br>Globe                                                                          | Motor                                                            | 0                                       | 0              | -   |            |    | Or  | en Test                                 | Frea: 2                                            | Years   | х  |    | х  |     |
| RCP B seal water injection OR<br>accident mitigation. Its open po<br>indication per ISTC-3700. Strol<br>Type C LLRT. References: P&<br>EC 276288.                               | C isolation valve.<br>sition is therefore<br><e requiren<="" td="" time=""><td>e an important<br/>nents added p</td><td>normally open an<br/>passive function<br/>er EC 276288. T</td><td>and will be tested<br/>his CIV is exclude</td><td>by positio<br/>d from Ap</td><td>n<br/>pendix J</td><td></td><td>CS-RJ-8</td><td></td><td>Clo</td><td>Se Test<br/>RV Test<br/>FS Tes<br/>ST Tes</td><td><sup>≓</sup>req: R<br/><sup>=</sup>req:<br/>t Dir:</td><td>efuelin</td><td>g</td><td> </td><td></td><td></td></e> | e an important<br>nents added p                | normally open an<br>passive function<br>er EC 276288. T                               | and will be tested<br>his CIV is exclude                         | by positio<br>d from Ap                 | n<br>pendix J  |     | CS-RJ-8    |    | Clo | Se Test<br>RV Test<br>FS Tes<br>ST Tes  | <sup>≓</sup> req: R<br><sup>=</sup> req:<br>t Dir: | efuelin | g  |    |    |     |
| CS-V166                                                                                                                                                                         | 2<br>(A-8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | В                                              | 2.0<br>Globe                                                                          | Motor                                                            | 0                                       | 0              | -   |            |    | Or  | en Test                                 | Fred: 2                                            | Veare   | х  |    | х  |     |
| RCP A seal water injection OR<br>accident mitigation. Its open po<br>indication per ISTC-3700. Strol<br>Type C LLRT. References: P&<br>EC 276288.                               | C isolation valve.<br>sition is therefore<br>ke Time Requiren                                                                                                                                                                                                                                                                                                                                                                                                                                                         | e an important<br>nents added p                | normally open an<br>passive function<br>per EC 276288. T                              | and will be tested<br>his CIV is exclude                         | by positio<br>d from Ap                 | on<br>pendix J |     | CS-RJ-8    |    | Clo | ST Test<br>SV Test<br>FS Tes<br>ST Tes  | Freq: R<br>Freq:<br>t Dir:                         | efuelin | g  | I  |    |     |
| CS-V167                                                                                                                                                                         | 2<br>(G-11)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | А                                              | 2.0<br>Globe                                                                          | Motor                                                            | 0                                       | С              | -   |            |    | X   | x<br>en Test                            |                                                    |         | х  |    | х  |     |
| RCP seal water return to seal v<br>signal. This valve is subject to<br>direction as seal water return i<br>flow is established by maintain<br>penetration and relying on relie  | vater HX ORĆ iso<br>Type C LLRT per<br>s not required for<br>ing positive press                                                                                                                                                                                                                                                                                                                                                                                                                                       | UFSAR Table<br>SSD or accid<br>ure from the 0  | This valve is norm<br>e 6.2-83. This va<br>ent mitigation. Fo<br>Charging pumps o     | lve has no safety f<br>or safe shutdown o<br>on each seal inject | function in<br>conditions,<br>tion path | the ope        |     | CS-RJ-6    |    | Clo | ose Test<br>RV Test<br>FS Tes<br>ST Tes | Freq: F<br>Freq:<br>t Dir:                         |         | ıg |    |    |     |
| CS-V168                                                                                                                                                                         | 2<br>(G-12)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | А                                              | 2.0<br>Globe                                                                          | Motor                                                            | 0                                       | С              | -   |            |    | X   | X<br>en Test                            |                                                    |         | х  |    | х  |     |
| RCP seal water return to seal v<br>signal. This valve is subject to<br>direction as seal water return is<br>flow is established by maintain<br>penetration and relying on relie | water HX IRC isol<br>Type C LLRT per<br>s not required for<br>ing positive press                                                                                                                                                                                                                                                                                                                                                                                                                                      | UFSAR Table<br>SSD or accide<br>ure from the C | his valve is norma<br>e 6.2-83. This val-<br>ent mitigation. For<br>Charging pumps of | ve has no safety f<br>r safe shutdown co<br>on each seal inject  | unction in<br>onditions,<br>tion path   | the oper       |     | CS-RJ-6    |    | Clo | ose Test<br>RV Test<br>FS Tes<br>ST Tes | Freq: F<br>Freq:<br>t Dir:                         |         | ıg |    |    |     |
| CS-V173                                                                                                                                                                         | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ċ                                              | 2.0                                                                                   | Self                                                             | С                                       | ο              | -   |            |    | 0   | <b>T</b> (                              |                                                    |         |    | х  |    |     |
| Seal water return header relief<br>caused by thermal expansion of<br>CIV MOVs are isolated, pressu                                                                              | of trapped fluid un                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | der accident o                                 | conditionsIn sco                                                                      | ope per ISTA-1100                                                | ). When s                               | eal retur      | n   |            |    | Cic | en Test<br>se Test<br>RV Test<br>FS Tes | Freq:<br>Freq: 1                                   | 0 Year  | s  |    |    |     |
| pressure (150 psig) was achiev                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                                                                                       |                                                                  |                                         |                |     |            |    |     | ST Tes                                  | t Dir:                                             |         |    |    |    |     |

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SYSTEM: CS

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## IST VALVE TEST TABLE

| P&ID No.: <b>D20726</b>                                                                                                                                                                                                                                           |                                                                                                |                                                                                                               |                                                      |                                       |                       |          |                  |    |                                                                                     |        |    |    |    |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------|-----------------------|----------|------------------|----|-------------------------------------------------------------------------------------|--------|----|----|----|-----|
| Valve Number<br>Remarks                                                                                                                                                                                                                                           | Class<br>and Valv<br>Coord (CA <sup>-</sup>                                                    |                                                                                                               | Actuator<br>Type                                     | I<br>NRM                              | Positions<br>SAF      | s<br>FAL | Relief Req<br>DI | FE | IST Program Pla<br>Commitment<br>Commitment<br>FS LJ LK                             |        | PI | RT | ST | CME |
| CS-V250<br>RCP seal water return header/HX re<br>the CCP recirc flow. The min-flow re-<br>IST scope per ISTA-1100. Reference                                                                                                                                      | circ function is requir                                                                        | ed for CCP protection, an                                                                                     | Self<br>of return piping v<br>nd therefore the       | C<br>which incl<br>RV is wit          | O<br>ludes<br>hin the | -        | C.S. Just.       |    | pen Test Freq:<br>ose Test Freq:<br>RV Test Freq: 1<br>FS Test Dir:<br>ST Test Dir: | 0 Year | s  | х  |    |     |
| <b>CS-V471</b><br>RCP A seal water injection RCPB ch<br>accident mitigation as a boron injecti<br>certain thermally induced overpress<br>This valve was updated in Rev 10 of<br>injection line outside containment pe                                             | on flow path. Also re<br>ure conditions. Refer<br>the SITR for its clos                        | quired to burp open, prov<br>ences: P&ID D20726, UF<br>ure function to isolate the                            | iding relief func<br>SAR Sections 5                  | tion durin<br>5.4.7, 7.4,             | g<br>9.3.4.           | -        |                  |    | pen Test Freq:<br>ose Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:   |        |    |    |    | X   |
| CS-V472<br>RCP B seal water injection RCPB ch<br>accident mitigation as a boron injecti<br>certain thermally induced overpressu<br>This valve was updated in Rev 10 of<br>injection line outside containment pe                                                   | on flow path. Also re<br>ire conditions. Refer<br>the SITR for its clos                        | quired to burp open, prov<br>ences: P&ID D20726, UF<br>ure function to isolate the                            | iding relief func<br>SAR Sections 5                  | tion durin<br>5.4.7, 7.4,             | g<br>9.3.4.           | -        |                  |    | pen Test Freq:<br>ose Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:   |        |    |    |    | Х . |
| <b>CS-V473</b><br>RCP C seal water injection RCPB ch<br>accident mitigation as a boron injecti<br>certain thermally induced overpressu<br>This valve was updated in Rev 10 of<br>injection line outside containment pe                                            | on flow path. Also re<br>ure conditions. Refer<br>the SITR for its clos                        | quired to burp open, prov<br>ences: P&ID D20726, UF<br>ure function to isolate the                            | iding relief func<br>SAR Sections 5                  | tion durin<br>5.4.7, 7.4,             | g<br>9.3.4.           | -        |                  |    | pen Test Freq:<br>lose Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:  |        |    |    |    | Х   |
| <b>CS-V474</b><br>RCP D seal water injection RCPB ch<br>accident mitigation as a boron injecti<br>certain thermally induced overpressu<br>This valve was updated in Rev 10 of<br>injection line outside containment pe<br>relief function during certain thermall | on flow path. Also re<br>ure conditions. Refer<br>the SITR for its clos<br>r UFSAR Section 3.0 | quired to burp open, prov<br>ences: P&ID D20726, UF<br>ure function to isolate the<br>6 and Appendix 3A. Also | iding relief func<br>SAR Sections 5<br>RCS following | tion durin<br>5.4.7, 7.4,<br>a HELB i | g<br>9.3.4.<br>n the  | -        |                  |    | pen Test Freq:<br>lose Test Freq:<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:  |        |    |    |    | х   |

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#### SYSTEM: CS

## IST VALVE TEST TABLE

P&ID No.: D20726

|                                                                                                 | -                                                                   |                           |                                           |                  |             |          |     |            |    |    | IST F  | Progra         | m Pla          | n     |    |    |    |     |  |
|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------|-------------------------------------------|------------------|-------------|----------|-----|------------|----|----|--------|----------------|----------------|-------|----|----|----|-----|--|
| Valve Number                                                                                    | Class<br>and                                                        | Valve                     | Size (in.)<br>and                         | Actuator         |             | Position | IS  | Relief Req |    |    |        | ommit<br>ommit |                |       |    |    |    |     |  |
| Remarks                                                                                         | Coord                                                               | (CAT)                     | Туре                                      | Туре             | NRM         | SAF      | FAL | C.S. Just. | DI | FE | FS     | LJ             | LK             | PE    | ΡI | RT | ST | CME |  |
| CS-V794                                                                                         | 2<br>(G-12)                                                         | A/C                       | 0.75<br>Relief/Safety                     | Self             | С           | O/C      | -   |            |    | C  | Open T | X<br>'est Fr   | req:           |       |    | Х  |    |     |  |
| RCP seal water return to sea<br>isolation valve provides over<br>accident conditions. This valv | I water HX containn<br>pressure protection<br>/e is also subject to | for X37B ca<br>Appendix J | used by thermal exp<br>Fype C LLRT. Refer | pansion of trapp | ed fluid ur | nder     |     |            |    | C  | FS     |                | req: 1<br>Dir: | 0 Yea | rs |    |    |     |  |

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Table 6.2-83, Engineering Evaluation SS-EV-960023, Rev.o.

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SITR Rev. 23

1-F4.58

#### SYSTEM: CS

## IST VALVE TEST TABLE

P&ID No.: **D20729** 

|                                                                                                                                                                                              |                                                                      |                                                 |                                                                                         |                                                             |                                         |                           |     |            |    | 1       | ST Progra                                     | am Pla                   | an     |       |    |    |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------|---------------------------|-----|------------|----|---------|-----------------------------------------------|--------------------------|--------|-------|----|----|-----|
| Valve Number                                                                                                                                                                                 | Class<br>and                                                         | Valve                                           | Size (in.)<br>and                                                                       | Actuator                                                    | F                                       | Positions                 |     | Relief Req |    |         | Commi<br>Commi                                | tment                    |        |       |    |    |     |
| Remarks                                                                                                                                                                                      | Coord                                                                | (CAT)                                           | Туре                                                                                    | Туре                                                        | NRM                                     | SAF I                     | FAL | C.S. Just. | DI | FE      | FS LJ                                         | LK                       | PE     | Ρl    | RŤ | ST | CME |
| CS-V410                                                                                                                                                                                      | 3<br>(E-11)                                                          | В                                               | 4.0<br>Gate                                                                             | Manual                                                      | ° - О                                   | O/C                       | -   |            |    | X<br>Op | en Test F                                     | req: (                   | Quarte | rly   |    | -  |     |
| Boric acid tank 4A outlet isolation va<br>OS1200.01 depending on the requin<br>and Sections 7.4 and 9.3.4. Redund<br>subsequent RCS inventory control.<br>from the RWST will not meet the SG | lve. This valued tank align<br>ant flow path<br>Because the          | ment. Refere<br>s from the BA<br>SB SGCS de     | open and remain<br>nces: P&ID D207<br>Ts are provided f<br>esign does not inc           | 29, OS1200.01, I<br>for boration with I<br>lude letdown cap | UFSAR Tal<br>RWST_use<br>bability, bor  | ble 7.4-1<br>ed for       |     |            |    |         | se Test F<br>RV Test F<br>FS Test<br>ST Test  | req:<br>Dir:             | ⊋uarte | rly   |    |    |     |
| CS-V416                                                                                                                                                                                      | 3                                                                    | В                                               | 4.0<br>Gate                                                                             | Mariual                                                     | 0                                       | O/C                       |     |            |    | X       | en Test F                                     | rea. (                   | Quarte | rlv   |    |    |     |
| Boric acid tank 4B outlet isolation va<br>OS1200.01 depending on the requir<br>and Sections 7.4 and 9.3.4 Redund<br>subsequent RCS inventory control.<br>from the RWST will not meet the SG  | ed tank align<br>ant flow path<br>Because the                        | ment. Reference<br>is from the BA<br>SB SGCS do | open and remain<br>ences: P&ID D207<br>ATs are provided f<br>esign does not inc         | 29, OS1200.01,<br>for boration with<br>clude letdown cap    | UFSAR Ta<br>RWST_use<br>bability, bor   | able 7.4-1<br>ed for      |     |            |    | Clo     | ose Test F<br>RV Test F<br>FS Test<br>ST Test | req: (<br>req:<br>Dir:   |        |       |    |    |     |
| CS-V423                                                                                                                                                                                      | 3<br>(D-7)                                                           | В                                               | 2.0<br>Saunders Weir                                                                    | Manual                                                      | 0                                       | O/C                       | -   |            |    | X<br>Op | oen Test F                                    | req:                     | Quarte | rly   |    |    |     |
| Boric acid pump CS-P-3A discharge<br>SSD in OS1200.01 depending on th<br>Table 7.4-1 and Sections 7.4 and 9.<br>used for subsequent RCS inventory<br>boration from the RWST will not me      | e isolation val<br>e required ta<br>3.4. Redunda<br>control. Bec     | nk alignment<br>ant flow paths<br>ause the SB   | e is normally open<br>References: P&<br>from the BATs a<br>SGCS design doe              | ID D20729, OS1<br>re provided for be<br>es not include let  | 200.01, UF<br>oration with<br>down capa | FSAR<br>n RWST<br>bility, |     |            |    | Cic     | ose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir:     |        |       |    |    |     |
| CS-V424                                                                                                                                                                                      | 3<br>(C-11)                                                          | В                                               | 2.0<br>Saunders Weir                                                                    | Manual                                                      | 0                                       | 0                         | -   |            |    | X<br>Or | oen Test F                                    | Frea:                    | Quarte | eriv  |    |    |     |
| CS-P-3A discharge header to Boric<br>when operated during BAT weekly r<br>amount of time this occurs to be sig<br>Needed for safe shutdown capabilit<br>D20729, OS1200.01, UFSAR Table       | Acid filter isc<br>ecirc or for B<br>nificant to co<br>ty of emerger | AT Pump quansider this va                       | This valve is norm<br>arterly surveillance<br>lve active and req<br>or gravity boration | e test. EWR 97-0<br>juiring re-positior                     | 95 conside<br>ing at thes               | ered the<br>e times.      |     |            |    | Clo     | ose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir:     |        |       |    |    |     |
| CS-V426                                                                                                                                                                                      | 2                                                                    | В                                               | 2.0<br>Globe                                                                            | Motor                                                       | С                                       | O/C                       | -   | CS-CSJ-1   |    | X       | oen Test F                                    | Freq.                    | CSD    | Х     |    | х  |     |
| Emergency boration to CCP suction discharge from the BA transfer pun 9.3.4.                                                                                                                  | (D-5)<br>i isolation MC<br>ips to the CC                             | DV. This valve<br>CP suction. Re                | e is normally close                                                                     | ed and opened to<br>020729, UFSAR                           | direct the<br>Sections 5                | .4.7, 7.4,                |     | 00-000-1   |    | Ci      | Se Test F<br>RV Test F<br>FS Tes<br>ST Tes    | Freq:<br>Freq:<br>t Dir: | CSD    | Close | :5 |    |     |

1-F4.59 SITR Rev. 23

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SYSTEM: CS

IST VALVE TEST TABLE

P&ID No.: D20729

										IST Progra							
Valve Number	Class		Size (in.)							Commi							
	and	Valve	and	Actuator	Pos	itions	Relief Req			Commi	ment						
Remarks	Coord	(CAT)	Туре	Туре	NRM S/	AF FAL		DI	FE	FS LJ	LK	PE	ΡI	RT	ST	CME	Ξ
		. ,					C.S. Just.										
CC 1/407	~	•	~ ~	0.17	~ ~	~											
CS-V427	2	С	2.0	Self	C	0 -			X								
	(E-5)		Check				CS-CSJ-3			0pen Test F		SD					
Emergency boration to CCP suct									С	lose Test F	req:						
from the BA transfer pumps to th	e CCP suction	during rapid b	oration procedure	. This valve does	s not have a s	afety				RV Test F	req:						
related closure function, because										FS Test	Dir:						
barriers given any single failure.										ST Test	Dir:						
the closed direction in accordance																	
		on requireme		0.00 020120, 01													
CS-V430	~			84	<u> </u>	~			v								
C3-V430	3	В	2.0	Manual	0 0	0 -			X			. .					
	(C-7)		Saunders Weir							pen Test F							
CS-P-3B discharge header to Bo									С	lose Test F		Juarter	iy				
when operated during BAT week	ly recirc or for E	BAT Pump qua	arterly surveillance	test. EWR 97-09	95 considered	l the				RV Test F	req:						
amount of time this occurs to be s	significant to co	nsider this va	lve active and requ	uiring re-positioni	ing at these tir	nes.				FS Test	Dir:						
Needed for safe shutdown capat	pility of emerge	ncy boration c	or gravity boration	flow paths. Refer	ences: P&ID			•		ST Test	Dir:						
D20729, OS1200.01, UFSAR Tal				•													
CS-V431	3	в	2.0	Manual	0 0)/C -			х								
00-4401	(D-11)	D		wanuar	0 0	- 0											
	V= · · /		Saunders Weir							open Test F							
CS-P-3B Boric acid pump discha									C	lose Test F		Juarter	1y				
SSD in OS1200.01 depending on										RV Test F							
Table 7.4-1 and Sections 7.4 and						NST				FS Test							
used for subsequent RCS invento	ory control. Be	cause the SG	CS design does no	ot include letdowi	n capability,					ST Test	Dir:						
boration from the RWST alone wi	ill not meet the	SGCS design	requirements due	to large volume	of water requ	ired.											
CS-V437	3	В	4.0	Manual	со)/C -			Х								
	(D-10)	P	Saunders Weir	manadi	0 0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				open Test F	rea: (Juarta	dv				
Boric acid tank 4A outlet cross-co		and to Charair		luo in normallu ol	load and on	anad				lose Test F							
									U			Juanei	iy				
to align TK-4A to gravity boration										RV Test F	•						
UFSAR Table 7.4-1 and Sections						n with				FS Test							
RWST used for subsequent RCS										ST Test	Dir:						
capability, boration from the RWS	ST alone will no	t meet the SG	CS design require	ements due to lar	ge volume of	water											
CS-V439	3	В	4.0	Manual	C	0 -			х								
	(D-9)	_	Saunders Weir		-	-			Ċ	Dpen Test F	rea. P	Refueli	na				
Boric Acid Tank Gravity boration	· · ·	mnis common		e. This valve is n	ormally closer	h and	CS-RJ-7			lose Test F			.9				
÷	v v	•			•		00-10-1		0	RV Test F							
opened to align the boric acid tar																	
7.4, 9.3.4. Redundant flow paths										FS Test							
inventory control. Because the S					the RWS1 alo	one				ST Test	Dir:						
will not meet the SGCS design re	quirements du	e to large volu	me of water requir	red.													

IST Program Plan

SYSTEM: CS

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IST VALVE TEST TABLE

P&ID No.: **D20729**

F &ID NO D20123										IST Prog	iram Pl	lan				
Valve Number	Class and	Valve	Size (in.) and	Actuator	Р	ositions	Relief Reg			Comn	, nitment nitment	t				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF FAL	C.S. Just.	DI	FE	FS L.	J LK	PE	ΡI	RT	ST	CME
CS-V440 Boric Acid Tank Gravity boration to opens to direct flow from the boric a 7.4, 9.3.4. Redundant flow paths fr inventory control. Because the SGC will not meet the SGCS design requ Gravity boration requires adequate closed manual valves (independent monitoring (e.g., control room moni concentration would indicate dilution	icid tanks to the om the BATs CS design doe iriements due BAT Tank hea ty verified) iso toring about e	ne CCP suction are provided as not include to large volue ad to feed Ch late this path verv 2 hours)	on. References: F for boration with I e letdown capabili me of water requi arging pumps an during normal op and weekly chen	*&ID D20729, UFS RWST used for su ty, boration from th red. No reverse sa d is a manual actio beration. Periodic nistry monitoring o	SAR Sectic ubsequent he RWST a afety functi on. Two nc BAT Tank of BAT	ons 5.4., RCS alone on. ormally				pen Test ose Test RV Test FS Tes ST Tes	Freq: Freq: st Dir:					x
CS-V442 Boric Acid Tank Gravity boration to opened to align the boric acid tank 7.4, 9.3.4. Redundant flow paths fr inventory control. Because the SG will not meet the SGCS design requ	directly to the om the BATs CS design do	CCP suctior are provided es not include	i. References: P8 for boration with e letdown capabili	ID D20729, UFSA RWST_used for st ty, boration from tl	AR Section	s 5.4., RCS	CS-RJ-7			pen Test lose Test RV Test FS Te ST Te	Freq: Freq: st Dir:	Refuel	ing			
CS-V449 Boric acid pump CS-P-3A discharg closes to prevent flow diversion wh Sections 5.4.7, 7.4 9.3.4.	3 (C-11) e check valve en the transfe	C . This valve c r pump is not	2.0 Check pens to direct boo operating. Refer	Self ric acid to the CCF ences: P&ID D207	DE 9 suction a 729, UFSA	O/C - nd R				open Test lose Test RV Test FS Te ST Te	Freq: Freq: st Dir:					
CS-V453 Boric acid pump CS-P-3B discharg closes to prevent flow diversion wh Sections 5.4.7, 7.4 9.3.4.	3 (B-7) e check valve en the transfe	C . This valve c r pump is not	2.0 Check opens to direct bo operating. Refer	Self ric acid to the CCF ences: P&ID D207	DE ^D suction a 729, UFSA	O/C - nd R				Open Test lose Test RV Test FS Te ST Te	t Freq: t Freq:					

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SYSTEM: CS

IST VALVE TEST TABLE

P&ID No.: D20729

Valve Number Remarks CS-V1207 Boric acid tank 4B gravity feed outle gravity boration. Reference: P&ID D Redundant flow paths from the BAT control. Because the SGCS design	020729 Proces s are provided does not inclu	Pumps. This dure OS1200 I for boration ide letdown o	0.01, UFSAR Table with RWST_used capability, boration	e 7.4-1 and Section for subsequent R	O O/C to align TK-4A to ons 7.4 and 9.3.4. RCS inventory	FAL -	Relief Req C.S. Just.	DI FE	IST Progra Commit Commit E FS LJ X Open Test Fr Close Test Fr RV Test Fr FS Test I ST Test I	nent LK PE eq: Quarte eq: Quarte eq: Dir:		RT	ST	CME
meet the SGCS design requirement P&ID No.: D20843 CS-V175 Excess letdown RCS RCPB isolatio operation or during plant startup, sh no open safety function, but must be	1 (A-11) n valve. This v ould normal le e closed to iso	С			Open Test Fr Close Test Fr RV Test Fr FS Test	eq: eq: Dir:	х							
limited use in the open direction and function only (see DCR 00-0001). F CS-V176 Excess letdown RCS RCPB isolatio operation or during plant startup, sh no open safety function, but must be limited use in the open direction and function only (see DCR 00-0001). F	Aeferences: Pa (A-11) n valve. This v ould normal le e closed to iso l is administra	B B ralve is norm tdown be un late the RCP tively control	UFSAR Sections 1.0 Globe ally closed, but ma available or provio B. Since this valve led when open, it i	3.6, 5.2 Air/Diaphragm ay be opened duri des insufficient flor e is normally close is considered to h	C C ing normal plant w. This valve has ed, sees	С			ST Test Open Test Fr Close Test Fr RV Test Fr FS Test ST Test	eq: eq: eq: Dir:	x			

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SYSTEM: DG

IST VALVE TEST TABLE

	0459			· · · · · ·				IST Program Plan
Valve Number	Class and	Valve	Size (in.) and	Actuator	Positio	าร	Relief Reg	Commitment Commitment
Remarks	Coord	(CAT)	. Туре	Туре	NRM SAF	FAL		DI FE FS LJ LK PE PI RT ST CME
							U.S. JUSI.	
DG-V62A	3	С	0.75	Self	c o	-		х
Starting air receiver TK	(F-9) 45A relief valve- in sco	pe per ISTA-1	Relief/Safety 100. References: P	%ID D20460. DB	D-DG-01.			Open Test Freq: Close Test Freg:
Ū				·				RV Test Freq: 10 Years FS Test Dir:
								ST Test Dir:
DG-V66A	3	С	0.75	Self	с о	-		X
Starting air receiver TK	(G-9) 458 relief valve- in sco	pe per ISTA-1	Relief/Safety 100. References: P	28ID D20460, DB	D-DG-01.			Open Test Freq: Close Test Freq:
			•					RV Test Freq: 10 Years FS Test Dir:
					•• 7			ST Test Dir:
DG-V69A	3 (G-9)	С	0,75 Check	Self	DĘ O/C	-		X Open Test Freg: Quarterly
	er TK-45 inlet check val		nction to charge re					Close Test Freq: Quarterly
maintain receiver press D20460, DBD-DG-01	sure. Both the open and OX1426.14.	closed function	ns are verified in O	X1426.14. Refere	ences: P&ID			RV Test Freq: FS Test Dir:
								ST Test Dir:
DG-V70A	3 (F-9)	С	0.75 Check	Self	DE O/C	-		X Open Test Freg: Quarterly
	er TK-45 inlet check val		nction to charge re					Close Test Freq: Quarterly
maintain receiver press D20460, DBD-DG-01,	sure. Both the open and OX1426.14.	closed functio	ons are verified in C	0X1426.14. Refer	ences: P&ID			RV Test Freq: FS Test Dir:
	-							ST Test Dir:

1-F4.63 SITR Rev. 23

SYSTEM: DG

IST VALVE TEST TABLE

P&ID No.: **D20461**

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	S	Relief Req			С	Progra ommi ommi		an				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	Ρl	RT	ST	CME
DG-V211A	3 (A-9)	С	0.75 Relief/Safety	Self	С	0	-	0.0. 0030		C)non ⁻	Test F	roa:			х		
EDG CC heat exchanger relief va		pe as defined		erences: P&ID [020461, D	BD-DG-	01.				lose RV	Test F	req: req: 1	0 Yea	irs			

ST Test Dir:

1-F4.64 SITR Rev. 23

SYSTEM: DG

P&ID No.: **D20465**

IST VALVE TEST TABLE

											IST Prog	am Pla	'n				
Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	s	Relief Rea			Comm	itment					
Remarks	Coord	(CAT)	Туре	Туре	NRM		FAL	C.S. Just.	DI	FE			PE	ΡI	RT	ST	CME
DG-V62B	3 (F-9)	С	0.75 Relief/Safety	Self	С	0	-	0.0.0000		0	pen Test F	=rea:			Х		
Starting air receiver TK-45C relief va		per ISTA-11	00. References: P	&ID D20465, DB	D-DG-01						lose Test F RV Test F FS Tes ST Tes	⁼ req: ⁼ req: 1 t Dir:	0 Yeai	rs			
DG-V66B	3 (G-9)	С	0.75 Relief/Safety	Self	С	0	-			0	open Test F	-rea.			х		
Starting air receiver TK-45D relief va		per ISTA-11		&ID D20465, DB	D-DG-01						lose Test F RV Test F FS Tes ST Tes	Freq: Freq: 1 t Dir:	0 Yeai	rs			
DG-V69B	3 (G-9)	С	0.75 Check	Self	DE	O/C	-			x) pen Test I	Fred: C	Juarter	łv			
EDG starting air receiver TK-45 inlet maintain receiver pressure. Both the D20465, DBD-DG-01, OX1426.14.	check valve		nction to charge re								lose Test I RV Test I FS Tes ST Tes	=req: C =req: t Dir:					
DG-V70B	3 (F-9)	С	0.75 Check	Self	DE	O/C	-			x)pen Test I	Fren: C	Juarter	-lv			
EDG starting air receiver TK-45 inlet maintain receiver pressure. Both the D20465, DBD-DG-01, OX1426.14.	check valve.	. SR open fu losed functio	nction to charge re-	ceivers, and SR DX1426.14. Refe	close fund rences: P	ction to &ID					lose Test I RV Test I FS Tes ST Tes	Freq: C Freq: t Dir:					
P&ID No.: D20466																	
DG-V211B	3	с	0.75	Self	С	0	-								х		
EDG CC heat exchanger relief valve	(A-9) - in IST scop	e as defined	Relief/Safety in ISTA-1100. Ref	erences: P&ID D	20466, D	BD-DG-	01.				open Test I lose Test I RV Test I FS Tes ST Tes	Freq: Freq: 1 t Dir:	0 Yea	rs			

SYSTEM: DM

IST VALVE TEST TABLE

P&ID No.: **D20349**

Valve Number	Class		Size (in.)								Commi						
valve Number	and	Valve	and	Actuator		Positions		Relief Req			Commi						
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS LJ	LK	PE	Ρĺ	RT	ST	CME
DM-V611	3 (A-8)	С	6.0 Check	Self	DE	С	-			c	Open Test F	Freq:					Х
Demineralized water supply to the CST (NSR function) , and must clo the CST below the elevation which P&ID D20349.	CST- SC/3-N	safety / non-s	afety isolation. Ch	eck valves in line	s which p	enetrate				C	lose Test F RV Test F FS Test ST Test	⁼ req: t Dir:					
DM-V612	3 (A-8)	С	6.0 Check	Self	DE	С	-			c	Doen Test F	=rea:					х
Demineralized water supply to the CST (NSR function), and must clo the CST below the elevation which P&ID D20349.	CST- SC/3-N	safety / non-s	isolation check va afety isolation. Ch	eck valves in line	es which p	enetrate		:			RV Test F RV Test F FS Test ST Test	Freq: C Freq: t Dir:	SD:				
P&ID No.: D20352																	
DM-V4 Demineralized water supply to cor This valve is locked closed and ha	2 (D-11) Itainment-OR0 s no active sa	A C-CIV for pen fety function.	1.0 Gate etration X-36, subj References: P&ID	Manual ect to Appendix J D20352, UFSAF	LC J Type C L R Table 6.:	LC .LRT. 2-83.	-				X Open Test F Close Test F RV Test F FS Tes ST Tes	Freq: Freq: Freq: t Dir:					
DM-V5	2	А	1.0 Gate	Manual	LC	LC	-			c	X Open Test F						
Demineralized water supply to cor valve is locked closed and has no	(D-10) ntainment-IRC active safety f	CIV for pene unction. Refe	tration X-36, subje	ct to Appendix J 352, UFSAR Tab	Type C Ll ble 6.2-83.	.RT. Thi	5				Close Test F RV Test F FS Tes ST Tes	Freq: Freq: t Dir:					
DM-V18	2	A/C	1.5 Relief/Safety	Self	С	O/C	-			ć	X Open Test I				х		
Containment penetration X-36 (DN relieve pressure caused by therma Engineering Evaluation SS-EV-96	al expansion o	f trapped fluid	t to Appendix J Ty	pe C LLRT. This ondition. Referen	valve ope ces; P&ID	ns to D20352) -1				Close Test I RV Test I FS Tes ST Tes	Freq: I Freq: 1 it Dir:			ix J		

IST Program Plan

SYSTEM: FP

IST VALVE TEST TABLE

P&ID No.: D20271

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	5	Relief Req			С	ommi	am Pl tment tment	t t				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	CME
FP-V588	2 (G-5)	A/C	4.0 Check	Self	С	С	-			(Open ⁻	Х Гest F	Freq:					
Fire Protection water IRC closed in Modes 1-4, and	-CIV for penetration X- has no active safety f	-38 / 76- subje unction. Refer	ect to Appendix J ences: P&ID D20	Type C LLRT. Th 271, UFSAR Tab	is valve is le 6.2-83.	normall	ý			Ĺ	RV T FS	Fest F Fest F 6 Test F Test	req: Dir:	Per Ap	pena	lix J		
FP-V592	2 (G-4)	А	4.0 Gate	Manual	LC	LC	-				Open ⁻							
Containment Fire Protecti LLRT. This valve is norma D20271, UFSAR Table 6.2	ion water (hose statior ally locked closed in M	ns) ORC-CIV (lodes 1-4, and	for penetration X-	38 / 76- subject to fety function. Ref	Appendix erences: F	⊂J Type P&ID	С			C	RV T	Test F Test F S Test F Test	Freq: t Dir:	Per Ap	pend	lix J		

SYSTEM: FW

IST VALVE TEST TABLE

P&ID No.: **D20686**

Valve Number	Class and	Valve	Size (in.) and	Actuator	Posi		Relief Req	Commitment			
Remarks	Coord	(CAT)	Туре	Туре	NRM SA	F FAL	C.S. Just.	DI FE FS LJ LK PE	E PI R	RT ST	CME
FW-V30 SG A main feedwater header con normally open, closes on a FW is TS 4.7.1.2.2.b, UFSAR TAble 6.2	solation signal ('	B on valve (X-{ S' signal, RX	18.0 Gate 5)-exempt from / trip, or SG hi-hi	Hydraulic/NDA Appendix J Type C L level). References:	O C LRT. This va P&ID D20686	lve is	FW-CSJ-1	X Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Close	X	Х	
FW-V39 SG B main feedwater header con normally open, closes on a FW is TS 4.7.1.2.2.b, UFSAR TAble 6.2	solation signal (B on valve (X-6 S' signal, RX	18.0 Gate)-exempt from A trip, or SG hi-hi	Hydraulic/NDA oppendix J Type C Li level). References:	O C LRT. This val P&ID D20686	ve is	FW-CSJ-1	X Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Close		х	
FW-V48 SG C main feedwater header cor normally open, closes on a FW is TS 4.7.1.2.2.b, UFSAR TAble 6.2	solation signal (B on valve (X-7 S' signal, RX	18.0 Gate)-exempt from A trip, or SG hi-hi	Hydraulic/NDA Appendix J Type C L level). References:	O C LRT. This val P&ID D20686	lve is	FW-CSJ-1	X Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Close		X	
FW-V57 SG D main feedwater header cor normally open, closes on a FW is TS 4.7.1.2.2.b, UFSAR TAble 6.2	solation signal (B on valve (X-8 'S' signal, RX	18.0 Gate s)-exempt from A trip, or SG hi-hi	Hydraulic/NDA Appendix J Type C L Ievel). References:	O C LRT. This va P&ID D2068	lve is	FW-CSJ-1	X Open Test Freq: Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir: Clos		Х	
FW-V76 EFW header A containment isol normally closed, is required to clo isolation for FW isolation signal c boundary valve. References: P&I	ose to prevent re onditions, and o	everse flow fr	rom the main fee rer EFW flow to t	edwater header or to the SG. This is also	provide line a HELB	ve is		Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: FS Test Dir: ST Test Dir:			Х

1-F4.68 SITR Rev. 23

IST Program Plan

SYSTEM: FW

IST VALVE TEST TABLE

P&ID No.: **D20686**

									IST Progra				
Valve Number	Class and	Valve	Size (in.) and	Actuator		Positions	6	Relief Req	Commitr Commitr	ment			•
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ	LK PE P	I RT	ST	CME
FW-V82 EFW header B containment isola normally closed, is required to clo isolation for FW isolation signal c boundary valve. References: P&I	ose to prevent r onditions, and o	everse flow fro opens to deliv	om the main feed er EFW flow to the	water header or to e SG. This is also	a HELB	ine			Open Test Fr Close Test Fr RV Test Fr FS Test I ST Test I	req: CSD req: Dir:			X
FW-V88 EFW header C containment isol normally closed, is required to clo isolation for FW isolation signal c boundary valve. References: P&I	ose to prevent r onditions, and o	everse flow fr opens to deliv	om the main feed er EFW flow to the	water header or to e SG. This is also	a HELB	ine			Open Test Fr Close Test Fr RV Test Fr FS Test ST Test	req: CSD req: Dir:			×
FW-V94 EFW header D containment isola normally closed, is required to clo isolation for FW isolation signal c boundary valve. References: P&I	ose to prevent r onditions, and	everse flow fr opens to deliv	om the main feed er EFW flow to the	water header or t e SG. This is also	a HELB	line	-2		Open Test Fr Close Test Fr RV Test Fr FS Test ST Test	req: CSD req: Dir:			х
FW-V330 SG A main feedwater header ch initiation of EFW to prevent rever	2 (F-7) eck valve. This	C valve is norm	18.0 Check ally open during p	Self	O closes upo	C	-	FW-CSJ-3	X Open Test Fi Close Test Fi RV Test Fi FS Test ST Test	req: CSD req: Dir:			
FW-V331 SG B main feedwater header ch initiation of EFW to prevent reven	2 (D-7) leck valve. This rse flow. Refere	C valve is norm ences: P&ID D	18.0 Check ally open during p 20686, TS 4.7.1.2	Self bower operation, 2.2.b, DBD-EFW-	O closes upo 01 Revisio	C on on 1.	-	FW-CSJ-3	X Open Test F Close Test F RV Test F FS Test ST Test	req: CSD req: Dir:			

1-F4.69 SITR Rev. 23

IST VALVE TEST TABLE

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P&ID No.: **D20686**

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SYSTEM:

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	-	Relief Req
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.
FW-V332	2 (C-7)	С	18.0 Check	Self	0	С	-	FW-CSJ-3
SG C main feedwater header of initiation of EFW to prevent reve	heck valve. This		ally open during p					1 10-003-0
FW-V333	2 (H-7)	с	18.0 Check	Self	о	С	-	FW-CSJ-3
SG D main feedwater header o	heck valve. This	valve is norm	nally open during p	ower operation, o	closes upo	n		

initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.

-

ef Reg			Co	orogra mmit		in					
Just.	DI	FE	FS	LJ	LK	PE	Ρl	RT	ST	CME	
CSJ-3			ose T RV T FS		Dir:						
CSJ-3			ose T RV T FS		Dir:						

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FIGURE F4

SYSTEM: FW

IST VALVE TEST TABLE

P&ID No.: D20688

												-					
Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	s	Relief Reg			IST Prog Comm Comm	itment	n				
Remarks	Coord	(CAT)	Туре	Туре		SAF		·	DI	FE	FS LJ		ΡE	ΡI	RT	ST	CME
	-	_						C.S. Just.									
FW-FV4214A	3 (G-5)	В	4.0 Gate	Motor	0	O/C	-	FW-CSJ-7		X	oen Test I	Fred: C	sn	Х		Х	
EFW discharge to SG A isolation v accident conditions, and is automat References; P&ID D20688, DBD-EI	valve. This va	on high EFW	y open, may be th					1 11-005-7		Cİ	ose Test RV Test FS Tes	=req: C =req:	SD	losec	ł		
FW-FV4214B	3	В	4.0	Motor	0	O/C	-			х				х		х	
EFW discharge to SG A isolation v accident conditions, and is automat References; P&ID D20688, DBD-EI	ically closed	on high EFW						FW-CSJ-7		Clo	oen Test I ose Test I RV Test I FS Tes ST Tes	Freq: C Freq:	SD	losed	ł		
FW-FV4224A	3	В	4.0	Motor	0	O/C	-			х				х		х	
EFW discharge to SG B isolation v accident conditions, and is automat References; P&ID D20688, DBD-EI	ically closed	on high EFW						FW-CSJ-7		Clo	ben Test ose Test RV Test FS Tes ST Tes	=req: C =req:	SD	losed	Ŀ		
FW-FV4224B	3	В	4.0	Motor	О	O/C	-			х				Х		Х	
EFW discharge to SG B isolation v accident conditions, and is automat References; P&ID D20688, DBD-Ef	ically closed	on high EFW						FW-CSJ-7		Clo	ben Test bse Test RV Test FS Tes ST Tes	Freq: C Freq:	SD	losec	ł		
FW-FV4234A	3	В	4.0	Motor	О	O/C	-			х				х		х	
EFW discharge to SG C isolation accident conditions, and is automat References; P&ID D20688, DBD-EI	ically closed	alve is normall on high EFW	Gate y open, may be ti	hrottled to control		during		FW-CSJ-7		Clo	oen Test ose Test RV Test FS Tes ST Tes	Freq: C Freq:	SD		Ł		

1-F4.71 SITR Rev. 23

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SYSTEM: FW

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IST VALVE TEST TABLE

P&ID No.: D20688

Valve Number	Class		Size (in.)								IST Prog Comm		an				
valve Nulliber	and	Valve	and	Actuator		Position	s	Relief Req				itment					
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS LJ	LK	PE	ΡI	RT	ST	CME
FW-FV4234B EFW discharge to SG C isolation v accident conditions, and is automati References; P&ID D20688, DBD-EF	cally closed o	n high EFW	4.0 Gate y open, may be th header flow (fault	Motor rottled to control ed steam genera	O feed rate tor cond	O/C during ition).	-	FW-CSJ-7			open Test lose Test RV Test FS Tes ST Tes	Freq: C Freq: it Dir:	CSD	X Close	d	x	
FW-FV4244A EFW discharge to SG D isolation v accident conditions, and is automati References; P&ID D20688, DBD-EF	cally closed o	on high EFW	4.0 Gate y open, may be th header flow (fault	Motor rottled to control ed steam genera	O feed rate ator cond	O/C e during ition).	-	FW-CSJ-7			open Test lose Test RV Test FS Tes ST Tes	Freq: C Freq: st Dir:	CSD	X Close	d	х	
FW-FV4244B EFW discharge to SG D isolation v accident conditions, and is automat References; P&ID D20688, DBD-Ef	ically closed o	on high EFW	4.0 Gate y open, may be th header flow (fault	Motor nottled to control ned steam genera	O feed rate ator cond	O/C e during ition).	-	FW-CSJ-7			Dpen Test lose Test RV Test FS Tes ST Tes	Freq: C Freq: st Dir:	CSD	X Close	d	х	
FW-V64 EFW pump A discharge check valve back flow through an idle pump. Re	3 (D-5) e. This valve eferences P&	C opens when t ID D20688.	6.0 Check he EFW pump is d	Self operating, and m	C ust close	O/C to preve	- nt	FW-CSJ-4			Dpen Test Close Test RV Test FS Tes ST Tes	Freq: (Freq: st Dir:					
FW-V70 EFW pump B discharge check valve back flow through an idle pump. Re			6.0 Check he EFW pump is a	Self operating, and m	C ust close	O/C to preve	- nt	FW-CSJ-4			Dpen Test Close Test RV Test FS Tes ST Tes	Freq:(Freq: st Dir:					

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SYSTEM: FW

## IST VALVE TEST TABLE

P&ID No.: **D20688** 

|                                                                                                                                                  |                |               |                      |                   |            |           |     |            | IST Program                                                                     | Pian                  |    |    |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|----------------------|-------------------|------------|-----------|-----|------------|---------------------------------------------------------------------------------|-----------------------|----|----|-----|
| Valve Number                                                                                                                                     | Class<br>and   | Valve         | Size (in.)<br>and    | Actuator          |            | Positions | 5   | Relief Req | Commitme                                                                        | ent                   |    |    |     |
| Remarks                                                                                                                                          | Coord          | (CAT)         | Туре                 | Туре              | NRM        | SAF       | FAL | C.S. Just. | DI FE FS LJ L                                                                   | K PE PI               | RT | ST | CME |
| FW-V216                                                                                                                                          | 3<br>(E-4)     | С             | 6.0<br>Stop check    | Self              | С          | С         | -   | FW-CSJ-5   | X<br>Open Test Freq                                                             | CSD                   |    |    |     |
| Startup feedwater pump discharge to<br>boundary isolation. References: P&li                                                                      | EFW heade      |               | valve. This valve is | s normally closed | d for SC-3 | 3/NNS     |     |            | Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir                   | : CSD                 |    |    |     |
| FW-V346                                                                                                                                          | 3              | В             | 4.0                  | Motor             | C          | O/C       | -   |            | X<br>On one Teach Free                                                          | X                     |    | Х  |     |
| EFW pump A recirculation isolation v<br>is throttled. This valve may be open<br>flow is delivered to the SG and minin<br>DBD-EFW-01, Revision 1. | ed and close   | d in response | e to system flow rec | quirements to en  | sure adec  | quate     | i   |            | Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir | : Quarterly           | ł  |    |     |
| FW-V347                                                                                                                                          | 3              | В             | 4.0                  | Motor             | С          | O/C       | -   |            | X                                                                               | Х                     |    | Х  |     |
| EFW pump B recirculation isolation v<br>is throttled. This valve may be open<br>flow is delivered to the SG and minin<br>DBD-EFW-01, Revision 1. | ed and close   | d in response | e to system flow rec | quirements to en  | nsure adeo | quate     | i   |            | Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir | : Quarterly           | 1  |    |     |
| FW-V349                                                                                                                                          | 3              | С             | 4.0<br>Objectiv      | Self              | С          | O/C       | -   | FW-CSJ-6   | X<br>On one Tool From                                                           |                       |    |    |     |
| EFW pumps A&B recirculation com<br>Valve closes to provide backup prote<br>seismic event. References P&ID D20                                    | ection to FW-  |               |                      |                   |            |           |     | FW-CSJ-0   | Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir | : CSD<br>:<br>:       |    |    |     |
| FW-V350                                                                                                                                          | 3<br>(D-7)     | С             | 3.0<br>Check         | Self              | С          | O/C       | -   |            | X<br>Open Test Fred                                                             | u. Quartarlu          |    |    |     |
| EFW pump A recirculation check va<br>prevent back flow through an idle pu                                                                        | alve. This val |               | en the EFW pump i    | is operating, and | d must clo | se to     |     |            | Open Test Freq<br>Close Test Freq<br>RV Test Freq<br>FS Test Dir<br>ST Test Dir | : Quarterly<br>:<br>: |    |    |     |

SYSTEM: FW

## IST VALVE TEST TABLE

#### P&ID No.: **D20688**

| Valve Number                                                                                                              | Class           |                | Size (in.)          |                     | _            |                     |            |    |                   | ommit                                  |                         |         |    |    |    |     |
|---------------------------------------------------------------------------------------------------------------------------|-----------------|----------------|---------------------|---------------------|--------------|---------------------|------------|----|-------------------|----------------------------------------|-------------------------|---------|----|----|----|-----|
| Remarks                                                                                                                   | and<br>Coord    | Valve<br>(CAT) | and<br>Type         | Actuator<br>Type    |              | ositions<br>SAF FAL | Relief Req | DI | FE FS             | ommiti<br>LJ                           |                         | PE      | ΡI | RŤ | ST | CME |
| Remains                                                                                                                   | 00014           | (0)(1)         | .)   0              | · <b>3</b> I        |              |                     | C.S. Just. |    |                   |                                        |                         |         |    |    |    |     |
| FW-V351                                                                                                                   | 3               | С              | 1.0                 | Self                | С            | 0/C -               | FW-CSJ-6   |    | X<br>Open         | Tost Fr                                | reg: CS                 | n:      |    |    |    |     |
| Turbine driven EFW pump oil cook<br>water from the turbine bearing oil o<br>protect CST inventory in the event<br>D20688. | cooler to the E | FW common r    | ecirculation line t | o the CST. Requi    | red to close | e to                | 1 11-033-0 |    | Close<br>RV<br>FS |                                        | req: CS<br>req:<br>Dir: |         |    |    |    |     |
| FW-V353                                                                                                                   | 3<br>(D-9)      | С              | 3.0<br>Check        | Self                | С            | O/C -               |            |    | X<br>Open         | Test F                                 | req: Qu                 | uarterl | ly |    |    |     |
| EFW pump B recirculation check<br>prevent back flow through an idle p                                                     | valve. This va  |                | en the EFW pump     | o is operating, and | d must close | e to                |            |    | RV<br>F           | Test Fi<br>Test Fi<br>S Test<br>T Test | Dir:                    | larterl | lý |    |    |     |
| FW-V357                                                                                                                   | 3<br>(E-4)      | С              | 6.0<br>Check        | Self                | C            | с -                 | FW-CSJ-5   |    | •                 |                                        | req: CS                 |         |    |    |    |     |
| Startup feedwater pump discharge<br>boundary isolation. References: P                                                     |                 |                |                     | ormally closed for  | SC-3/NNS     |                     |            |    | RV<br>F           | Test Fi<br>S Test<br>T Test            | Dir:                    | JU<br>U |    |    |    |     |

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IST Program Plan

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#### SYSTEM: IA

## IST VALVE TEST TABLE

P&ID No.: **D20643** 

.

| Valve Number                                               | Class<br>and | Valve | Size (in.)<br>and | Actuator      |     | Position | S   | Relief Reg |    |        | С                      | Progra<br>ommitr<br>ommitr     | nent | in |    |    |    |     |
|------------------------------------------------------------|--------------|-------|-------------------|---------------|-----|----------|-----|------------|----|--------|------------------------|--------------------------------|------|----|----|----|----|-----|
| Remarks                                                    | Coord        | (CAT) | Туре              | Туре          | NRM | SAF      | FAL | C.S. Just. | DI | FE     | FS                     | LJ                             | LK   | ΡE | ΡI | RT | ST | CME |
| IA-V531                                                    | 2<br>(F-9)   | A/C   | 2.0<br>Check      | Self          | C   | C        | -   | 0.0. Just. |    |        |                        | X<br>Test Fre<br>Test Fre      | •    |    |    |    |    | х   |
| unless being used to provide                               | · · ·        |       |                   | •             |     | 1-41     |     |            |    | Ų      | RV <sup>-</sup>        | Fest Fre<br>Test [             | eq:  |    |    |    |    |     |
| P&ID No.: D2064                                            | 5            |       |                   |               |     |          |     |            |    |        | ST                     | Test I                         | Dir: |    |    |    |    |     |
| IA-V530                                                    | 2<br>(E-6)   | A     | 2.0<br>Globe      | Air/Diaphragm | С   | С        | С   |            |    | x<br>c | X<br>Open <sup>-</sup> | X<br>Test Fre                  | eq:  |    | х  |    | х  |     |
| IA Cross-connect ORC conta<br>Modes 1-4, unless being user |              |       |                   |               |     |          | n   |            |    | С      | RV.                    | Fest Fro<br>Fest Fro<br>Test I | eq:  |    |    |    |    |     |

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1-F4.75 SITR Rev. 23

ST Test Dir: Closed

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#### SYSTEM: LD

## IST VALVE TEST TABLE

#### P&ID No.: D20864

| Valve Number                                                                                                                 | Class<br>and  | Valve        | Size (in.)<br>and | Actuator         |          | Position | s   | Relief Req |    |    | C  | ommi | am Pla<br>tment<br>tment | an |    |    |    |     |
|------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|-------------------|------------------|----------|----------|-----|------------|----|----|----|------|--------------------------|----|----|----|----|-----|
| Remarks                                                                                                                      | Coord         | (CAT)        | Туре              | Туре             | NRM      | SAF      | FAL | C.S. Just. | DI | FE | FS | LJ   | LK                       | PE | Ρl | RT | ST | CME |
| <b>LD-V1</b><br>CP-405 -IRC -CIV for penetration 3<br>Provides communication from the<br>instrumentation) during Type A Inte | containment a | tmosphere to | pressure sensing  | devices (tempora | ary test |          | -   |            |    |    | FS |      | req:<br>req:<br>Dir:     |    |    |    |    |     |
| <b>LD-V2</b><br>CP-405 -ORC -CIV for penetration<br>Provides communication from the<br>instrumentation) during Type A Inte   | containment a | tmosphere to | pressure sensing  | devices (tempora | ary test |          | -   |            |    |    | FS |      | req:<br>req:<br>Dir:     |    |    |    |    |     |

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#### SYSTEM: MS

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IST VALVE TEST TABLE

P&ID No.: **D20580**

| | | | | | | | | | IST Program | Plan | | | |
|--|---------------|---------------|---------------------|---------------------|-----------------------------|------------------------------|---------|------------------|--|------------------------------------|-------|---|-----|
| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | | Positions | | Relief Req | Commitme
Commitme | ent
ent | | | |
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | DI
C.S. Just. | FE FS LJ l | .K PE | PI RI | | CME |
| MS-PV3001
SG A atmospheric relief valve. This we when the condenser and associated valve for penetration X-1- exempt from & 7.4, Table 6.2-83. | secondary sy | stems are u | navailable. This v | alve is also a cont | ainment i | solation | C
.7 | | | q: Quarterly
q: Quarterly
q: | osed | Х | |
| MS-PV3004
SG D atmospheric relief valve. This
when the condenser and associated
valve for penetration X-4- exempt fro
& 7.4, Table 6.2-83. | secondary sy | stems are u | navailable. This v | alve is also a cont | ainment i | isolation | C
.7 | | X X
Open Test Free
Close Test Free
RV Test Free
FS Test Di
ST Test Di | q: Quarterly
q: | 1 | x | |
| MS-V6
SG A safety valve. This valve provid
reactor decay heat removal, and is a
C LLRT. References: P&ID D20580, | a containment | isolation val | ve for penetration | X-1- exempt from | C
tem, prov
a Appendi | O
ides for
ix J Type | - | | Open Test Fre
Close Test Fre
RV Test Fre
FS Test D
ST Test D | q:
q: 5 Years
ir: | Х | | |
| MS-V7
SG A safety valve. This valve provi
reactor decay heat removal, and is a
C LLRT. References: P&ID D20580, | a containment | isolation val | ve for penetration | X-1- exempt from | C
stem, pro
Append | O
ovides for
ix J Type | - | | Open Test Fre
Close Test Fre
RV Test Fre
FS Test D
ST Test D | q:
q: 5 Years
ir: | > | < | |
| MS-V8
SG A safety valve. This valve prov
reactor decay heat removal, and is a
C LLRT. References: P&ID D20580 | a containment | isolation va | lve for penetratior | NX-1- exempt fron | C
rstem, pro
n Append | O
ovides for
ix J Type | - | | Open Test Fre
Close Test Fre
RV Test Fre
FS Test D
ST Test D | q:
q: 5 Years
ir: | > | K | |

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SYSTEM: MS

IST VALVE TEST TABLE

P&ID No.: **D20580**

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | | ^D ositions
SAF | s
FAL | Relief Req
C.S. Just. | DI | FE | IST Progr
Comm
Comm
FS LJ | itment
itment | | PI | RT | ST | CME |
|---|-------------------------------|----------------|---|------------------|------------|------------------------------|----------|--------------------------|----|----|--|-------------------------------|-------|----|----|----|-----|
| MS-V9 | 2
(C-6) | С | 6.0
Relief/Safety | Self | С | 0 | - | | | | pen Test I | | | | X | | |
| SG A safety valve. This valve prov
reactor decay heat removal, and is a
C LLRT. References: P&ID D20580 | a containmen | t isolation va | lve for penetration | K-1- exempt from | | | | | | C | lose Test f
RV Test f
FS Tes
ST Tes | [≃] req: 5
t Dir: | Years | i | | | |
| MS-V10 | 2 | С | 6.0 | Self | С | 0 | - | | | ~ | | - | | | х | | |
| SG A safety valve. This valve prov | (C-6)
ides over pre | ssure protect | Relief/Safety
ion for the steam q | enerator / MS sv | /stem, pro | vides for | - | | | | pen Test I
lose Test I | | | | | | |
| reactor decay heat removal, and is a C LLRT. References: P&ID D20580 | a containmen | t isolation va | lve for penetration 2 | X-1- exempt fror | n Appendi | х Ј Туре | • | | | | RV Test I
FS Tes
ST Tes | t Dir: | Years | 5 | | | |
| MS-V50 | 2 | С | 6.0 | Self | С | 0 | - | | | ~ | man Taat I | | | | Х | | |
| SG D safety valve. This valve provid
reactor decay heat removal, and is a
C LLRT. References: P&ID D20580 | a containmen | t isolation va | lve for penetration 3 | K-4- exempt fror | | |) | | | | pen Test I
lose Test I
RV Test I
FS Tes
ST Tes | Freq:
Freq: 5
t Dir: | Years | 5 | | | |
| MS-V51 | 2
(G-8) | С | 6.0
Relief/Safety | Self | С | 0 | - | | | 0 | pen Test l | frog: | | | Х | | |
| SG D safety valve. This valve provi
reactor decay heat removal, and is a
C LLRT. References: P&ID D20580 | des over pres
a containmen | t isolation va | ion for the steam ge
lve for penetration 2 | K-4- exempt from | | | | | | | lose Test I
RV Test I
FS Tes
ST Tes | ⁼req:
Freq: 5
t Dir: | Years | 5 | | | |
| MS-V52 | 2 | С | 6.0 | Self | С | 0 | - | | | ~ | | | | | Х | | |
| SG D_safety valve. This valve provi | (G-7)
des over pres | sure protect | Relief/Safety
ion for the steam ge | enerator / MS sy | stem, prov | /ides for | | | | |)pen Test I
lose Test I | | | | | | |
| reactor decay heat removal, and is a C LLRT. References: P&ID D20580 | | | | | n Appendi | х Ј Туре | • | | | | RV Test I
FS Tes
ST Tes | t Dir: | Years | 5 | | | |

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SYSTEM: MS

IST VALVE TEST TABLE

P&ID No.: **D20580**

| Valve Number | Class | | Size (in.) | | | | | | | | | • | am Pl
tment | | | | | |
|--|------------------------|------------------|---------------------|------------------|-----|----------|-----|------------|----|----|------------|--------|----------------|---------|----|----|----|-----|
| | and | Valve | and | Actuator | | Position | IS | Relief Req | | | C | ommi | tment | | | | | |
| Remarks | Coord | (CAT) | Туре | Type | NRM | SAF | FAL | | DI | FΕ | FS | LJ | LΚ | ΡE | ΡI | RT | ST | CME |
| | | . , | | • • | | | | C.S. Just. | | | | | | | | | | |
| MS-V53 | 2 | С | 6.0 | Self | С | 0 | - | | | | | | | | | х | | |
| | (G-6) | | Relief/Safety | | | | | | | C | Dpen T | rest F | req: | | | | | |
| SG D safety valve. This va
reactor decay heat removal
C LLRT. References: P&ID | l, and is a containmen | it isolation val | ve for penetration | X-4- exempt fror | | | | | | C | FS | | req: {
Dir: | 5 Years | 3 | | | |
| MS-V54 | 2 | С | 6.0 | Self | С | 0 | - | | | | | | | | | Х | | |
| | (G-6) | | Relief/Safety | | | | | | | C |)
pen T | Fest F | reg: | | | | | |
| SG D safety valve. This va
reactor decay heat remova
C LLRT. References: P&ID | l, and is a containmen | it isolation val | lve for penetration | X-4- exempt from | | | | | | C | FS | | req:
Dir: | 5 Years | 5 | | | |

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1-F4.79 SITR Rev. 23

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SYSTEM: MS

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IST VALVE TEST TABLE

P&ID No.: D20581

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | | Position
SAF | s
FAL | Relief Req
C.S. Just. | DI | FE | IST Prog
Comm
Comm
FS LJ | itment
itment | | PI | RT | ST | CME |
|---|-----------------------|----------------|---------------------------|---------------------|---------|-----------------|----------|--------------------------|----|----|--|------------------------------|------------------|-----|----|----------|-----|
| MS-PV3002
SG B atmospheric relief valve. This
when the condenser and associated
valve for penetration X-2- exempt fi
& 7.4, Table 6.2-83. | d secondary s | ystems are u | inavailable. This v | alve is also a cont | ainment | isolation | | | | CI | X
pen Test I
ose Test I
RV Test I
FS Tes
ST Tes | Freq: (
Freq:
t Dir: (| Quarte
Closed | rlý | d | X | |
| MS-PV3003
SG C atmospheric relief valve. This
when the condenser and associated
valve for penetration X-3- exempt fi
& 7.4, Table 6.2-83. | d secondary s | ystems are u | inavailable. This v | alve is also a cont | ainment | isolation | | | | CI | X
pen Test I
ose Test I
RV Test I
FS Tes
ST Tes | Freq: (
Freq:
t Dir: (| Quarte
Closed | riý | d | х | |
| MS-V22
SG B safety valve. This valve prov
reactor decay heat removal, and is
C LLRT. References: P&ID D20581 | a containmen | t isolation va | lve for penetration | X-2- exempt from | | | | | | CI | pen Test I
ose Test I
RV Test I
FS Tes
ST Tes | Freq:
Freq: 5
t Dir: | 5 Years | 3 | х | | |
| MS-V23
SG B safety valve. This valve prov
reactor decay heat removal, and is
C LLRT. References: P&ID D20581 | a containmen | t isolation va | lve for penetration | X-2- exempt from | | | | - | | | pen Test I
ose Test I
RV Test I
FS Tes
ST Tes | Freq:
Freq: 5
t Dir: | 5 Years | 3 | х | | |
| MS-V24
SG B safety valve. This valve prov
reactor decay heat removal, and is
C LLRT. References: P&ID D20581 | a containmen | isolation va | lve for penetration | X-2- exempt from | | | | | | CI | pen Test I
ose Test I
RV Test I
FS Tes
ST Tes | Freq:
Freq: 5
t Dir: | 5 Years | 6 | Χ. | | |

1-F4.80 SITR Rev. 23

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SYSTEM: MS

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IST VALVE TEST TABLE

P&ID No.: D20581

| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | F | Positions | 5 | Relief Reg | | | IST Prog
Comm
Comm | | I | | | | |
|--|---------------------|----------------|----------------------|------------------|-----|-----------|-----|------------|----|-----|---|--|-------|----|----|----|-----|
| Remarks | Coord | (CAT) | Туре | Туре | NRM | | FAL | C.S. Just. | DI | FE | FS LJ | | PE | ΡI | RT | ST | CME |
| MS-V25
SG B safety valve. This valve
reactor decay heat removal, a
C LLRT. References: P&ID D2 | nd is a containment | t isolation va | lve for penetration | X-2- exempt from | | | | | | Cİ | oen Test
ose Test
RV Test
FS Tes
ST Tes | [≃] req:
⁼ req: 5 `
t Dir: | Years | | х | | |
| MS-V26
SG B safety valve. This valve
reactor decay heat removal, a
C LLRT. References: P&ID D2 | nd is a containment | t isolation va | lve for penetration | X-2- exempt from | | | - | | | Cic | oen Test
ose Test
RV Test
FS Tes
ST Tes | =req:
Freq: 5 `
t Dir: | Years | | х | | |
| MS-V36
SG C safety valve. This valve
reactor decay heat removal, a
C LLRT. References: P&ID D2 | nd is a containment | t isolation va | lve for penetration | X-3- exempt from | | | | | | Clo | oen Test
ose Test
RV Test
FS Tes
ST Tes | Freq:
Freq: 5`
t Dir: | Years | | х | | |
| MS-V37
SG C safety valve. This valve
reactor decay heat removal, a
C LLRT. References: P&ID D2 | nd is a containment | t isolation va | lve for penetration. | X-3- exempt fron | | | | | | Clo | oen Test
ose Test
RV Test
FS Tes
ST Tes | Freq:
Freq: 5`
t Dir: | Years | | х | | |
| MS-V38
SG C safety valve. This valve
reactor decay heat removal, a
C LLRT. References: P&ID D2 | nd is a containment | t isolation va | lve for penetration | X-3- exempt from | | | | | | Cİ | oen Test
ose Test
RV Test
FS Tes
ST Tes | Freq:
Freq: 5`
t Dir: | Years | | х | | |

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SYSTEM: MS

IST VALVE TEST TABLE

P&ID No.: **D20581**

| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | 1 | Position | s | Relief Req | | | С | Progra
ommit
ommit | ment
ment | an | | | | |
|--|----------------|-----------------|---------------------|------------------|------------------------------|----------------------------|--------|------------|----|----|------------------|--|------------------------|--------|----|----|----|-----|
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | DI | FE | FS | ĹĴ | LK | PE | ΡI | RT | ST | CME |
| MS-V39
SG C safety valve. This valve pro
reactor decay heat removal, and is
C LLRT. References: P&ID D2058 | s a containmer | nt isolation va | ve for penetration | X-3- exempt fron | C
stem, prov
n Appendi | O
vides for
x J Type | -
Ə | | | | lose
RV
FS | Fest Fi
Fest Fi
Fest Fi
Fest Fi
Test | req:
req: {
Dir: | 5 Year | s | х | | |
| MS-V40
SG C safety valve. This valve pro
reactor decay heat removal, and is
C LLRT. References: P&ID D2058 | s a containmer | nt isolation va | lve for penetration | X-3- exempt from | | | | | | | lose
RV
FS | Fest F
Fest F
Fest F
Test
Test | req:
req: {
Dir: | ō Year | s | х | | |

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SYSTEM: MS

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IST VALVE TEST TABLE

P&ID No.: D20582

| Valve Number
Remarks | Class
and
Coord | Vaive
(CAT) | Size (in.)
and
Type | Actuator
Type | NRM | Position
SAF | is
FAL | Relief Req
I
C.S. Just. | DI FE | IST Program Pla
Commitment
Commitment
FS LJ LK | | PI | RT | ST | CME |
|--|-----------------------|----------------|---------------------------|--------------------|-------------|-----------------|-----------|-------------------------------|-------|---|-----------------|----|----|----|-----|
| MS-V94 3 C 4.0 Self C O/C -
(E-9) Check
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. | | | | | | | | | | Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | | | х | | |
| MS-V96
Main steam supply to FW-TD-2 from
admitted to the EFW turbine and mu
D20582, DBD-EFW-01, revision 1. | | | | | | | -
ID | | | Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | | | х | | |
| MS-V127 2 B 4.0 Manual O O - (H-12) Gate 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. | | | | | | | | | | Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | | х | | - | |
| MS-V128
Normally Locked Open valve supplyin header, Passive function only. Remo | • | | | | O
3 main | O
steam | - | | | Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | | х | | | |
| MS-V393
Turbine driven steam supply isolation
actuation signal to open. Required to
valve for penetration X-1- exempt fro
Table 6.2-83. | close when | EFW is not in | operation. This i | s also a containme | ent isola | tion | O | | | X
Open Test Freq: (
Close Test Freq: (
RV Test Freq:
FS Test Dir: (
ST Test Dir: (| Quarter
Open | lý | ł | х | |

SYSTEM: MS

IST VALVE TEST TABLE

| Valve Number
Remarks
MS-V394 | Class
and
Coord
2
(B-10) | Valve
(CAT)
B | Size (in.)
and
Type
4.0
Globe | Actuator
Type
Air/Diaphragm | С | Positions
SAF
O/C | | Relief Req
C.S. Just. |
(
(
TE FS
X X
Open | Test F | ment
ment
LK
req: 0 | PE
Quarter | | RT | sт
х | CME |
|---|--------------------------------------|----------------------------------|---|---|-----------------------|-------------------------|---|--------------------------|------------------------------------|--|------------------------------|---------------|---------|----|---------|-----|
| Turbine driven steam supply isolatio
actuation signal to open. Required to
valve for penetration X-2- exempt fro
and is tested in both directions for B
Table 6.2-83. | o close when I
om Appendix J | EFW is not in c
I Type C LLRT | peration. This
. This valve ha | is also a containme
is both an A & B Tra | ent isola
ain powe | tion
er supply | | | RV
F | Test Fi
Test Fi
S Test
T Test | req:
Dir: C | Open | | ł | | |
| MS-V395
Turbine driven EFW Pump commor
EFW actuation signal to open. This v
B Train and open for A Train. Refere | aive has both | an A & B Trai | n power suppl | y and is tested in op | | | 0 | | Close
RV
F: | Test F
Test F
Test F
S Test I
T Test | req:
req:
Dir: C | pen | X
ly | | х | |
| MS-V400
Main steam to FW-TD-2 drain line ch
supply line which could cause a turb
References: P&ID D20582, DBD-EF | ine overspeed | l, and closes w | | | | | - | | Close
RV
F | Test F
Test F
Test F
S Test
T Test | req:
req:
Dir: | | | | | х |
| MS-V401
Main steam to FW-TD-2 drain line cl
supply line which could cause a turb
References: P&ID D20582, DBD-EF | ine overspeed | , and closes w | | | | | - | | Close
RV
F | Test F
Test F
Test F
S Test
T Test | req:
req:
Dir: | | | | | X |
| MS-V404
Main steam to FW-TD-2 drain line ch
supply line which could cause a turb
References: P&ID D20582, DBD-EF | ine overspeed | l, and closes w | | | | | - | | Close
RV
F | Test F
Test F
Test F
S Test
T Test | req:
req:
Dir: | | | | | х |

SYSTEM: MS

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IST VALVE TEST TABLE

P&ID No.: D20582

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | NRM | Position:
SAF | s
FAL | Relief Req
C.S. Just. | DI | | Co | ommitn
ommitn | nent | ΡĒ | ΡI | RT | ST | CME |
|--|-----------------------|----------------|---------------------------|------------------|-----|------------------|----------|--------------------------|----|-----|--------------------|---|--------------------|----|----|----|----|-----|
| MS-V405
Main steam to FW-TD-2 drain line
supply line which could cause a tu | rbine overspee | ed, and closes | • • | | | O/C
team | - | | | Clo | se T
RV T | est Fre
est Fre
est Fre | eq:
eq: | | | | | х |
| References: P&ID D20582, DBD-E
MS-V417 | 3 | C | 0.75 | Self | о | O/C | - | | | | ST | Test E
Test E |)ir: | | | | | х |
| Main steam to FW-TD-2 drain line
supply line which could cause a tu
References: P&ID D20582, DBD-E | rbine overspee | d, and closes | | | | team | | | | Clo | se T
RV T
FS | est Fre
est Fre
est Fre
Test D
Test D | eq:
eq:
Dir: | | | | | |
| MS-V418
Main steam to FW-TD-2 drain line
supply line which could cause a tu
References: P&ID D20582, DBD-E | rbine overspee | ed, and closes | • • | | | O/C
team | - | | | Clo | se T
RV T
FS | est Fre
est Fre
est Fre
Test D
Test D | eq:
eq:
Dir: | | | | | х |

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SYSTEM: MS

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P&ID No.: **D20583** 

## IST VALVE TEST TABLE

| Valve Number<br>Remarks                                                                                                                             | Class<br>and<br>Coord                     | Valve<br>(CAT)                    | Size (in.)<br>and<br>Type         | Actuator<br>Type                              | NRM                  | Positior<br>SAF | ıs<br>FAL | Relief Req             | DI F | IST Prograr<br>Commitn<br>Commitn<br>FE FS LJ                                 | nent                               | Pl     | RT | ST | CME |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------------------|----------------------|-----------------|-----------|------------------------|------|-------------------------------------------------------------------------------|------------------------------------|--------|----|----|-----|
| <b>MS-V86</b><br>SG A main steam isolation valve<br>signal. This is also a containmen<br>References: P&ID D20583, UFSA                              | t isolation valve                         | for penetration                   | on X-1- exempt                    |                                               |                      |                 | -         | C.S. Just.<br>MS-CSJ-2 |      | X<br>Open Test Fre<br>Close Test Fre<br>RV Test Fre<br>FS Test E<br>ST Test E | eq: CSD<br>eq:<br>Dir:             | X      |    | х  |     |
| <b>MS-V88</b><br>SG B main steam isolation valve<br>signal. This is also a containmen<br>References: P&ID D20583, UFSA                              | it isolation valve                        | for penetration                   | on X-2- exempt                    |                                               | •                    | '               | -         | MS-CSJ-2               |      | X<br>Open Test Fre<br>Close Test Fre<br>RV Test Fre<br>FS Test E<br>ST Test E | X<br>eq:<br>eq: CSD<br>eq:<br>Dir: | х      |    | х  |     |
| <b>IMS-V90</b><br>SG C main steam isolation valve<br>signal. This is also a containmen<br>References: P&ID D20583, UFSA                             | it isolation valve                        | for penetration                   | on X-3- exempt                    |                                               | •                    |                 | -         | MS-CSJ-2               |      | X<br>Open Test Fre<br>Close Test Fre<br>RV Test Fre<br>FS Test D<br>ST Test D | eq: CSD<br>eq:<br>Dir:             | X      |    | х  |     |
| MS-V92<br>SG D main steam isolation valve<br>signal. This is also a containmen<br>References: P&ID D20583, UFSA                                     | t isolation valve                         | for penetration                   | on X-4- exempt                    |                                               |                      |                 | -         | MS-CSJ-2               |      | X<br>Open Test Fre<br>Close Test Fre<br>RV Test Fre<br>FS Test E<br>ST Test E | eq: CSD<br>eq:<br>Dir:             | X<br>d |    | х  |     |
| MS-V204<br>SG A, main steam bypass valve.<br>across the main steam isolation v<br>and receives a main steam isolat<br>exempt from Appendix J Type C | ,<br>valves, although<br>ion closure sigr | this is not a s<br>al. This is al | afety function.<br>so a containme | It is closed during point isolation valve for | ower ope<br>penetrat | eration         | <b>-</b>  |                        |      | X<br>Open Test Fre<br>Close Test Fre<br>RV Test Fre<br>FS Test E<br>ST Test E | eq: Quarte<br>eq:<br>)ir:          |        |    | х  |     |

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SYSTEM: MS

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## IST VALVE TEST TABLE

#### P&ID No.: D20583

| Valve Number                                                                                                                                                              | Class<br>and                       | Valve                              | Size (in.)<br>and                      | Actuator                                 |                          | Position | s   | Relief Rea |    | С                 | ommi                       | am Plan<br>tment<br>tment |      |   |      |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|----------------------------------------|------------------------------------------|--------------------------|----------|-----|------------|----|-------------------|----------------------------|---------------------------|------|---|------|-----|
| Remarks                                                                                                                                                                   | Coord                              | (CAT)                              | Туре                                   | Туре                                     | NRM                      | SAF      | FAL | C.S. Just. | DI | FE FS             |                            | LK PI                     | E Pi | R | r st | CME |
| MS-V205                                                                                                                                                                   | 2<br>(D-11)                        | B                                  | 4.0<br>Globe                           | Motor                                    | С                        | С        | -   |            |    | X<br>Open         | Гest F                     | req:                      | Х    |   | х    |     |
| SG B, main steam bypass valve.<br>across the main steam isolation va<br>and receives a main steam isolation<br>exempt from Appendix J Type C                              | alves, although<br>on closure sign | this is not a s<br>al. This is als | afety function. It<br>so a containment | is closed during p<br>isolation valve fo | ower ope<br>r penetrati  | ration   |     |            |    | Close<br>RV<br>FS | Test F<br>Test F<br>5 Test | req: Quai<br>req:         |      |   |      |     |
| <b>MS-V206</b><br>SG C, main steam bypass valve. <sup>2</sup><br>across the main steam isolation va<br>and receives a main steam isolati<br>exempt from Appendix J Type C | alves, aithough<br>on closure sign | this is not a s<br>al. This is als | afety function. It<br>so a containment | is closed during p<br>isolation valve fo | oower ope<br>r penetrati | ration   | -   |            |    | RV T              | Test F<br>Test F<br>3 Test | req: Quai<br>req:         |      |   | х    |     |
| <b>MS-V207</b><br>SG D, main steam bypass valve.<br>across the main steam isolation va<br>and receives a main steam isolation<br>exempt from Appendix J Type C            | alves, although<br>on closure sign | this is not a s<br>al. This is als | afety function. It<br>so a containment | is closed during p<br>isolation valve fo | oower ope<br>r penetrati | ration   | -   |            | -  | RV<br>FS          | Test F<br>Fest F<br>S Test | req: Quai<br>req:         |      |   | х    |     |

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SYSTEM: MSD

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IST VALVE TEST TABLE

P&ID No.: **D20587**

| F &ID NO D20307 | | | | | | | | | | IS | T Prog | ram P | lan | | | | |
|--|---------------------------------|----------------|--|----------------------|------------|--------------|-----|------------|----|-----------|--------------------------------------|------------------|-------------|---------------|----|----|-----|
| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | F | ositions | i | Relief Req | | | Comm
Comm | | | | | | |
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | DI | FE F | s LJ | LK | PE | Ρl | RT | ST | CME |
| MSD-V44 | 2
(D-11) | В | 1.0
Globe | Motor | 0 | С | - | | | X
Oper | n Test | Freq: | | Х | | Х | |
| SG#1 Upstream of MS-V86, main s
condensate from the main steam sy
containment isolation valve for pene
UFSAR Section 10.3, Table 6.2-5. | team drain li
/stem and re | ceives a main | steam isolation of | losure signal. Th | is is also | a
)20583, | | | | R | e Test
/ Test
-S Tes
ST Tes | Freq:
t Dir: | Quarte
(| rly
Closed | ł | | |
| MSD-V45 | 2
(G-11) | В | 1.0
Globe | Motor | 0 | C - | - | | | X
Ope | ı Test | Freq: | | х | | Х | |
| SG#2 Upstream of MS-V88, main s
condensate from the main steam s
containment isolation valve for pen
UFSAR Section 10.3, Table 6.2-5. | team drain li | ceives a main | steam isolation | ciosure signal. Th | is is also | a
)20583, | | | | R | e Test
/ Test
FS Tes | Freq: | Quarte | erly | | | |
| UPSAR Section 10.3, Table 0.2-3. | | | | | | | | | | | ST Te | st Dir: | Closed | ł | | | |
| MSD-V46 | 2
(F-11) | В | 1.0
Globe | Motor | 0 | С | `- | | | X
Ope | n Test | Freq: | | Х | | Х | |
| SG#3 Upstream of MS-V90, main s
the main steam system and receiv
valve for penetration X-3- exempt f | steam dráin li
es a main ste | am isolation c | alve. This valve is
losure signal. Th | iis is also a conta | inment isc | lation | 1 | | | R' | e Test
/ Test
FS Te:
ST Te: | Freq:
st Dir: | Quarte | erly
Close | d | | |
| Table 6.2-5. | _ | _ | | b <i>4</i> -4 | 0 | 0 | | | | х | 01 10 | | | X | - | х | |
| MSD-V47 | 2
(C-11) | В | 1.0
Globe | Motor | 0 | С | - | | | | n Test | | | ~ | | ~ | |

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SYSTEM: NG

## IST VALVE TEST TABLE

P&ID No.: **D20136** 

| Valve Number                                                                                                   | Class                            |                | Size (in.)           |               |        |           |     |            |    |        |                      | ommiti                     |                          |                           |    |            |    |      |
|----------------------------------------------------------------------------------------------------------------|----------------------------------|----------------|----------------------|---------------|--------|-----------|-----|------------|----|--------|----------------------|----------------------------|--------------------------|---------------------------|----|------------|----|------|
| Demerica                                                                                                       | and                              | Valve          | and                  | Actuator      |        | Positions |     | Relief Req | DI | FE     |                      | ommiti                     |                          | or.                       | Ы  | <b>D</b> T | от | CME  |
| Remarks                                                                                                        | Coord                            | (CAT)          | Туре                 | Туре          | INFRIM | SAF       | FAL | C.S. Just. | Di | ΓE     | F3                   | LJ                         | LK                       | PG.                       | PI | RT         | ST | OWE. |
| NG-FV4609                                                                                                      | 2<br>(C-10)                      | А              | 1.0<br>Globe         | Solenoid      | С      | С         | С   |            |    | x<br>o |                      | X<br>est Fr                | ea:                      |                           | х  |            | Х  |      |
| Low pressure nitrogen supply to co<br>Type C LLRT. This valve is open to<br>closure signal. References: P&ID D | supply nitrog                    | jen to various | components ins       | •             | ••     |           |     |            |    | С      | RV T<br>FS           | est Fr<br>Test I           | eq:<br>Dir: C            | Years<br>losed<br>losed   | ;  |            |    |      |
| NG-FV4610                                                                                                      | 2<br>(C-9)                       | А              | 1.0<br>Globe         | Solenoid      | С      | С         | С   |            |    | x      | X<br>nen T           | X<br>fest Fr               | ea.                      |                           | Х  |            | х  |      |
| Low pressure nitrogen supply to co<br>C LLRT. This valve is open to supp<br>closure signal. References: P&ID D | ntainment cor<br>bly nitrogen to | various comp   | -CIV for penetration |               |        |           | 9   |            |    |        | ose T<br>RV T<br>FS  | est Fr<br>est Fr<br>Test I | req: 2<br>req:<br>Dir: C | Years<br>losed<br>losed   | 5  |            |    |      |
| NG-V13                                                                                                         | 2<br>(F-10)                      | А              | 1.0<br>Globe         | Air/Diaphragm | С      | С         | С   |            |    | X      | X                    | X<br>Test Fr               | .ou.                     |                           | х  |            | х  |      |
| High pressure nitrogen supply to th<br>Type C LLRT. This valve is open to<br>P&ID D20136, UFSAR Table 6.2-8    | e ECCS accu<br>charge the E      |                | C-CIV for penetr     |               |        |           |     |            |    |        | iose T<br>RV T<br>FS | est Fr<br>est Fr<br>Test   | eq: C<br>eq:<br>Dir: C   | luarter<br>losed          |    |            |    |      |
| NG-V14                                                                                                         | 2                                | А              | 1.0<br>Olaha         | Air/Diaphragm | •** C  | С         | С   |            |    | x      | X                    |                            |                          |                           | х  |            | Х  |      |
| High pressure nitrogen supply to th<br>C LLRT. This valve is open to char<br>P&ID D20136, UFSAR Table 6.2-83   | ge the ECCS a                    |                |                      |               |        |           | 9   |            |    |        | ose T<br>RV T<br>FS  | est Fr<br>Test             | req: C<br>req:<br>Dir: C | ≀uarter<br>losed<br>losed | -  |            |    |      |
| NG-V17                                                                                                         | 2<br>(F-7)                       | В              | 1.0<br>Globe         | Air/Diaphragm | С      | С         | С   |            |    | 0      | non 7                | est Fr                     |                          |                           | х  |            |    |      |
| ECCS accumulator A nitrogen supp                                                                               | bly isolation va                 |                | e is normally clo    |               |        |           |     |            |    |        | ose T                | est Fr                     | eq:                      |                           |    |            |    |      |
| be periodically opened to pressurize<br>injection path of the accumulators to                                  |                                  |                | ÷ ,                  |               |        |           | ,   |            |    |        |                      | est Fr<br>Test I           |                          |                           |    |            |    |      |
| their limited service in the open dire                                                                         |                                  |                |                      |               |        |           |     |            |    |        | ST                   | Test                       | Dir:                     |                           |    |            |    |      |

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1-F4.89 SITR Rev. 23

IST Program Plan



SYSTEM: NG

## IST VALVE TEST TABLE

| Valve Number<br>Remarks                                                                                                                                               | Class<br>and<br>Coord         | Valve<br>(CAT)                 | Size (in.)<br>and<br>Type              | Actuator<br>Type                            | NRM       | Position:<br>SAF | s<br>FAL | Relief Req | DI |     | Co                   | rogram<br>mmitme<br>mmitme<br>LJ L                       | nt<br>nt | PI | RT | ST | CME |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------|----------------------------------------|---------------------------------------------|-----------|------------------|----------|------------|----|-----|----------------------|----------------------------------------------------------|----------|----|----|----|-----|
| NG-V19<br>ECCS accumulator B nitrogen supp<br>be periodically opened to pressurize                                                                                    | •                             |                                | •                                      |                                             |           | •                | c        | C.S. Just. |    | Clo | se Te                | est Freq<br>est Freq<br>est Freq                         |          | х  |    |    |     |
| injection path of the accumulators to<br>their limited service in the open dire                                                                                       | the core via                  | the cold legs<br>nces: P&ID E  | . Considered a p                       | assive valve per EV<br>Section 6.3.         |           |                  | )        |            |    |     | FS                   | Test Dir<br>Test Dir                                     |          |    |    |    |     |
| NG-V21<br>ECCS accumulator C nitrogen supp<br>be periodically opened to pressurize<br>injection path of the accumulators to<br>their limited service in the open dire | the accumul<br>the core via   | ator. Preserv<br>the cold legs | es the integrity o<br>. Considered a p | of the SI Accumulato<br>assive valve per EV | r for the | ECCS             | -        |            |    | Clo | se Te<br>RV Te<br>FS | est Freq<br>est Freq<br>est Freq<br>Test Dir<br>Test Dir |          | х  |    |    |     |
| NG-V23<br>ECCS accumulator D nitrogen supp<br>be periodically opened to pressurize<br>injection path of the accumulators to<br>their limited service in the open dire | e the accumul<br>the core via | ator. Preserv<br>the cold legs | es the integrity o<br>. Considered a p | of the SI Accumulato<br>assive valve per EV | r for the | ECCS             |          |            |    | Clo | se Te<br>RV Te<br>FS | est Freq<br>est Freq<br>est Freq<br>Test Dir<br>Test Dir |          | х  |    |    |     |

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0 SYSTEM: **RC**

P&ID No.: D20518

IST VALVE TEST TABLE

DI

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | NRM | Position
SAF | s
FAL | Relief Req |
|--|---|--|--|--|--------------------------|-----------------|----------|------------|
| | | . , | rype | Туре | | | | C.S. Just. |
| RC-FV2830 | 2
(H-11) | А | 0.5
Globe | Solenoid | DE | С | С | |
| Pressurizer steam space sample v
valve is opened to obtain a sample
6.2-83. | alve-IRC-CIV | | ion X-35, subject t | | | | | |
| RC-FV2831 | 2 | А | 0.5 | Solenoid | с | С | С | |
| Pressurizer liquid space sample va
valve is opened to obtain a sample
6.2-83. | | | | | | | | |
| RC-FV2832 | 2
(E-11) | А | 0.5
Globe | Solenoid | с | O/C | С | |
| RC Loop 1 sample valve- IRC-CIV
obtain a sample and receives a "T
concentration analysis to verify SD
verify adequate SDM by monitoring
UFSAR Sections 5.4.7, 7.4, Table | for penetratio
" closure sign
M during cold
g the volume c | al. This valve
shutdown. I
of boric acid i | ect to Appendix J
e is utilized to obta
f obtaining a samp
njected into the R | in an RCS sample
ble is not possible, | for borout the operation | n
itors | to | |
| RC-FV2833 | 2 | А | 0.5 | Solenoid | С | O/C | С | |
| RC Loop 3 sample valve- IRC-CIV
obtain a sample and receives a "T
concentration analysis to verify SD
verify adequate SDM by monitoring
UFSAR Sections 5.4.7, 7.4, Table | ' closure signa
M during cold
g the volume c | al. This valve
shutdown. I
of boric acid i | is utilized to obtain
f obtaining a same
njected into the R | n an RCS sample
ble is not possible, | for boron
the opera | ators | to | |
| RC-FV2836 | 2
(C-11) | А | 0.5
Globe | Solenoid | С | С | с | |
| PRT sample valve- IRC-CIV for pe | netration X-40 | | Appendix J Type C | | | d to | | |

obtain a sample and receives a "T" closure signal. References: P&ID D20518, UFSAR Table 6.2-83.

| IST Program F
Commitmer
Commitmer
FE FS LJ LF | nt
nt | ΡI | RT | ST | CME |
|---|-------------------|------------|----|----|-----|
| X X X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | 2 Years
Cl | X
losed | | х | |
| X X X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | 2 Years
Cl | X
losed | | х | |
| X X X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | 2 Years
Closed | | 1 | х | |
| X X X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | 2 Years
Closed | | I | х | |
| X X X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir: | | Х | | х | |

ST Test Dir: Closed

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SYSTEM: RC

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IST VALVE TEST TABLE

P&ID No.: D20518

| Valve Number | Class | | Cine (in) | | | | | | | | Commi | | an | | | | |
|--|--|------------------------------|--|--|-------------------------|-------------|-----|------------|----|---------|---|--------------------------|-------------------|------|----|----|-----|
| valve Number | and | Valve | Size (in.)
and | Actuator | ſ | osition | - | Relief Req | | | Comm | | | | | | |
| Remarks | Coord | (CAT) | Type | Type | NRM | | FAL | Reactive | DI | FE | FS LJ | | PE | Ы | RT | ST | CME |
| | 00010 | (0) | .,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 1960 | | | | C.S. Just. | 2, | . – | 10 40 | 4, (| . 4 | ••• | | 0. | 0= |
| RC-FV2837 | 2
(C-9) | А | 0.5
Globe | Solenoid | DE | С | С | | | X | X X
Den Test F | rea: | | х | | Х | |
| PRT sample valve- ORC-CIV for pe
obtain a sample and receives a "T" | enetration X-4 | | Appendix J Type (| | | ed to | | | | Ci | ose Test F
RV Test F
FS Test
ST Test | req: 2
req:
Dir: 0 | Closed | i | | | |
| RC-FV2840 | 2
(H-9) | А | 0.5
Globe | Solenoid | DE | С | С | | | X
OI | X X
pen Test F | req: | | Х | | х | |
| Pressurizer steam sample valve- O opened to obtain a sample and rece | | | | | | | | | | Cl | ose Test F
RV Test F
FS Test
ST Test | req: 2
req:
Dir: 0 | Closed | 5 | | | |
| RC-FV2874 | 2
(E-9) | А | 0.5
Globe | Solenoid | DE | С | С | | | | X X
Den Test F | req: | | Х | | Х | |
| RCS Loop 1 sample valve- ORC-Cl
to obtain a sample and receives a ' | | | | | | is opene | ed | | | | ose Test F
RV Test F
FS Tesi
ST Tesi | req:
Dir: (| Closed | 5 | | | |
| RC-FV2876 | 2
(D-9) | А | 0.5
Globe | Solenoid | DE | С | С | | | | X X
Den Test F | rea: | | Х | | х | |
| RCS Loop 3 sample valve- ORC-Cl
to obtain a sample and receives a | IV for penetra | | bject to Appendix | | | is opene | ed | | | Ci | ose Test F
RV Test F
FS Test
ST Test | req: 2
req:
Dir: 0 | Closed | 5 | | | |
| RC-FV2894 | 2
(E-9) | А | 0.5
Globe | Solenoid | LC | O/C | С | | | X | X X
Den Test F | rea: 2 | ? Years | Х | | х | |
| RC Loop 1 sample valve- ORC-CIV
to obtain a sample and receives a "
concentration analysis to verify SDI | for penetration
T" closure sig
M during cold | nal. This val
shutdown. 1 | ect to Appendix J
ve is utilized to obt
f obtaining a samp | ain an RCS samp
le is not possible, | le for bor
the opera | on
Itors | I | | | Ci | ose Test F
RV Test F
FS Test | req: 2
req:
Dir: 0 | 2 Years
Closed | i | | | |
| verify adequate SDM by monitoring UFSAR Sections 5.4.7, 7.4, Table 6 | | | | S. References: F | 205 טואי | 18, | | | | | ST Test | Dir: (| Jpen/C | lose | 1 | | |

IST Program Plan

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SYSTEM: RC

IST VALVE TEST TABLE

P&ID No.: **D20518**

| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | | Positions | 3 | Relief Req | | 1 | Progra
Commi
Commi | | | | | |
|--|---|---|--|--|-------------------------------|-------------------------------|-----|------------|----|------------------|--------------------------------------|---|-----------|------------|----|-----|
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | DI | FE FS | LJ | LK P | E PI | RT | ST | CME |
| RC-FV2896
RC Loop 3 sample valve- ORC-CIV
to obtain a sample and receives a "
concentration analysis to verify SDM
verify adequate SDM by monitoring
UFSAR Sections 5.4.7, 7.4, Table 6 | T" closure sig
A during cold
the volume c | nal. This valv
shutdown. If
f boric acid in | e is utilized to obtaining a sampl
jected into the RC | ain an RCS samp
le is not possible, | the operation | ron
ators | С | | | Close
RV
F | Test F
Test F
Test F
S Test | req: 2 Ye
req: 2 Ye
req:
Dir: Clos
Dir: Ope | ars
ed | | х | |
| RC-V312
Pressurizer sample line containmer
normally closed and opens to provid
accident conditions. References: P | de overpress | ure protection | caused by therma | Self
or penetration X-3
al expansion of tr | C
35B. This
apped flui | O/C
valve is
id under | - | | | Close
RV
F | | req: Per
req: 10 Y
Dir: | | X
dix J | | |
| RC-V314
RCS Loop 1 sample line containme
normally closed and opens to provi
accident conditions. References: Pa | de overpress | ure protection | caused by therma | Self
for penetration X-
al expansion of tr | C
35C. This
apped flui | O/C
s valve is
id under | - | | | Close
R\
I | | req: Per
req: 10 Y
Dir: | | X
dix J | | |
| RC-V337
RCS Loop 3 sample line containme
normally closed and opens to provi
accident conditions. References: Po | de overpress | ure protection | caused by therma | Self
for penetration X-
al expansion of tr | C
-35D. This
apped flui | O/C
s valve is
id under | | | | Close
R\
I | | req: Per
req: 10 א
Dir: | | X
dix J | | |

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SYSTEM: RC

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IST VALVE TEST TABLE

| | | | | | | | | | R | ST Progra | am Plan | | | | |
|---|--|--|---|---|---|------------------------|------------|----|----------|---|---------------------------|--------|----|----|-----|
| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | | ositions | Relief Req | | | Commit | | | | | |
| Remarks | Coord | (CAT) | Туре | Type | | SAF FA | L | DI | FE I | FS LJ | | E PI | RT | ST | ĊМЕ |
| | | | 40.0 | N A - 4 | 0 | 0/0 | C.S. Just. | | v | | v | v | | v | |
| RC-V22 | 1
(A-9) | A | 12.0
Gate | Motor | С | 0/C - | RC-CSJ-1 | | X
Ope | en Test F | X
rea: CSI | x
c | | Х | |
| RHR A -RCS loop 1 HL suction isol
to not allow opening until RCS is be
RHR system into operation to cool 1
pressure isolation valve not subject
RHR system. References: P&ID D2 | ation valve (P
elow 365 psig
the RCS below
to TS 4.4.6.2. | to prevent RF
v 350F. This v
2d testing. T | IR overpressuriza
valve is identified
'his valve may als | tion) and is open
in TRM Section 2
o be closed to iso | ed to place
.18 as an i
late a leak | e the
RCS
in the | | | Clos | se Test F
V Test F
FS Test | req: CSI
req: |) | ed | | |
| RC-V23 | 1 | А | 12.0 | Motor | С | 0/C - | | | X | _ X | Х | x | | х | |
| RHR A-RCS loop 1 HL suction isola
(interlocked to not allow opening un
place the RHR system into operatic
subject to Appendix J Type C LLRT
subject to TS 4.4.6.2.2d testing. Th
P&ID D20841, UFSAR Section 5.4. | til RCS is belo
on to cool the I
, and is identi
is valve may a | ow 365 psig to
RCS below 35
fied in TRM S
Iso be closed | o prevent RHR ov
50F. This valve is
Section 2.18 as an
I to isolate a leak i | erpressurization)
an IRC CIV for pe
RCS pressure is
n the RHR syster | and is ope
enetration
olation val | X-9,
ve not | RC-CSJ-1 | | Clos | en Test F
se Test F
V Test F
FS Test
ST Test | req: CSI
req: | D | ed | | |
| RC-V24 | 2 | A/C | 3.0 | Self | С | 0/C - | | | | х | | | х | | |
| RHR A Suction line relief valve. Thi | (A-12)
s RV protects | the low press | Relief/Safety | RHR system from | n overnres | sure | | | | en Test F
se Test F | • | | | | |
| and also provides LTOP for the RC
psig is sized to relieve combined flu
penetration X-9- subject to Appendi
DCR 00-0001. | S in conjuncti
ow of all charg | on with the p
ing pumps. T | ressurizer PORVs
his RV is also a c | . Relief capacity ontainment isolat | of 900 GPI
ion valve f | M at 450
or | | | | RV Test F
FS Test
ST Test | req: 10 \
Dir: | (ears | | | |
| RC-V360 | 2 | С | 0.75 | Self | С | 0. | | | _ | | | | х | | |
| RHR Loop1 suction line thermal re | (A-11)
lief valve. Reli | eves to PRT | Relief/Safety
In scope per IS | TA-1100. Referer | ice: P&ID | D20841. | | | Clos | en Test F
se Test F
RV Test F
FS Test
ST Test | req:
req: 10 `
Dir: | fears | | | |
| RC-V475 | 2 | A/C | 0.5 | Self | с | 0/C - | | | x | | х | | | | |
| RC-V22 bypass line check valve. T
pressure locking, and closes to pre
isolation valve in TRM Section 2.18 | vent bypass fl | ow around RO | C-V22. This valve | is designated as | an RCS pi | | RC-CSJ-4 | | Clo | en Test F
se Test F
XV Test F
FS Test
ST Test | req: CSI
req:
Dir: | | | | |

SYSTEM: RC

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IST VALVE TEST TABLE

P&ID No.: D20843

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | I
NRM | ^D osition
SAF | s
FAL | Relief Req
C.S. Just. | Dł | FE | Co
Co | Progra
ommiti
ommiti
LJ | | n
PE | PI | RT | ST | CME |
|--|--|---|--|--|------------|-----------------------------|----------|--------------------------|----|--------|-------------|----------------------------------|------------------------------------|---------|----|----|----|-----|
| RC-LCV459 | 1
(A-6) | В | 3.0
Globe | Air/Diaphragm | 0 | С | С | | | x
o | X
Ipen T | 'est Fr | eq: | | х | | х | |
| RCS Loop 3 normal letdown Reger
closed) to isolate letdown on low p
to achieve safe shutdown. Interlock
1/2 boundary to meet the requirem
References: P&ID D20843, UFSAF | n. HX isolation
ressurizer leve
ked with CS-V
ents of 10CFF | el. They have
145. These va
8 50.55.a (c).2 | no open safety
alves form the r
ii. Power sup | function since letdow
eactor coolant pressu | n is not i | required | | RC-RJ-1 | | C | RV T
FS | est Fr
Test | req: R
req:
Dir: C
Dir: C | losed | • | | | |
| RC-LCV460 | 1
(A-8) | В | 3.0
Globe | Air/Diaphragm | 0 | С | С | | | x
o | ••• | est Fr | req: | | х | | х | |
| RCS Loop 3 normal letdown Regel
closed) to isolate letdown on low p
to achieve safe shutdown. Interloc
1/2 boundary to meet the requirem
References: P&ID D20843, UFSAF | n. HX isolatior
ressurizer leve
ked with CS-V
ents of 10CFF | el. They have
/145. These v
{ 50.55.a (c).2 | no open safety
alves form the
2.ii. Power supp | function since letdow
reactor coolant press | n is not | requirec | | RC-RJ-1 | | С | RV T
FS | est Fr
Test | req: R
req:
Dir: C
Dir: C | losed | - | | | |



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SYSTEM: RC

1000

IST VALVE TEST TABLE

| Valve Number
Remarks
RC-V87
RHR B -RCS loop 4 HL suction isola
to not allow opening until RCS is be
RHR system into operation to cool t
pressure isolation valve not subject
RHR system. References: P&ID D2 | low 365 psig
he RCS belov
to TS 4.4.6.2 | to prevent RF
w 350F. This v
.2d testing. T | IR overpressuriza
valve is identified i
his valve may also | tion) and is opene
in TRM Section 2
o be closed to iso | C O/C
ration (interlock
ed to place the
.18 as an RCS
plate a leak in the | FAL
- | Relief Req
C.S. Just.
RC-CSJ-1 | DI FI | IST Program P
Commitment
Commitment
E FS LJ LK
(X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | PE PI
X
CSD
CSD | | st
x | CME |
|---|---|---|--|---|---|----------|--------------------------------------|-------|--|--------------------------|---|---------|-----|
| RC-V88
RHR B-RCS loop 4 HL suction isola
to not allow opening until RCS is be
RHR system into operation to cool t
Appendix J Type C LLRT, and is ide
TS 4.4.6.2.2d testing. This valve mi
D20844, UFSAR Section 5.4.7, EC/ | low 365 psig
he RCS belov
entified in TRI
ay also be clo | to prevent RH
w 350F. This
W Section 2.1
(sed to isolate | IR overpressuriza
valve is an IRC CI
8 as an RCS pres
a leak in the RHF | tion) and is opene
V for penetration
sure isolation val | ed to place the
X-10, subject to
ve not subject to | | RC-CSJ-1 | ; | X X X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | CSD | | х | |
| RC-V89
RHR B Suction line relief valve. This
and also provides LTOP for the RC
psig is sized to relieve combined flo
penetration X-10- subject to Append
DCR 00-0001. | S in conjunct | ion with the p
jing pumps. T | ressurizer PORVs
his RV is also a c | Relief capacity ontainment isolat | of 900 GPM at 4
ion valve for | | | | X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | 10 Years | х | | |
| RC-V361
RHR Loop 4 suction line thermal re | 2
(H-7)
lief valve. Re | C
lieves to PRT | 0.75
Relief/Safety
In scope per IST | Self
TA-1100. Referer | C O | - | | | Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | 10 Years | х | | |
| RC-V479
RC-V87 bypass line check valve. Th
pressure locking, and closes to prev
isolation valve in TRM Section 2.18. | ent bypass fl | ow around R0 | C-V87. This valve | is designated as | an RCS pressu | -
e | RC-CSJ-4 | ; | X X
Open Test Freq:
Close Test Freq:
RV Test Freq:
FS Test Dir:
ST Test Dir: | | | | |

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SYSTEM: RC

IST VALVE TEST TABLE

P&ID No.: D20845

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | NRM | Position
SAF | s
FAL | Relief Req
C.S. Just. | DI | FE | С | Progra
ommi
ommi
LJ | tmen | t
t | PI | RT | ST | CME |
|--|-----------------------|----------------|---------------------------|------------------|-----------------|-----------------|----------|--------------------------|----|----|------------------|--|----------------------|--------------------------------------|------------|----|----|-----|
| RC-FV2881
Reactor head vent isolation valve.
isolate the RCPB. References: P8 | | | | | C
ad and clo | O/C
oses to | С | | | | lose
RV
FS | Test F
Test F
S Test | req:
req:
Dir: | 2 Year
2 Year
Closed
Open/0 | S | d | х | |
| RC-V323
Reactor head vent isolation valve.
isolate the RCPB. References: P8 | | | | | C
ad and clo | O/C
oses to | | RC-CSJ-3 | | | lose
RV
FS | Test F
Test F
Test F
S Test
T Test | req:
req:
Dir: | | X
Close | d | х | |

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SYSTEM: RC

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IST VALVE TEST TABLE

P&ID No.: D20846

| Valve Number | Class | | Size (in.) | | | | | | | | IST Prog
Comm | | | | | | |
|--|--|-------------------------------|--|----------------------|------------|----------|-----|------------|----|----|--|------------------------------|---------------|------|----|----|-----|
| | and | Valve | and | Actuator | | Position | s | Relief Req | | | Comm | itment | | | | | |
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | | DI | FE | FS LJ | LK | ΡE | ΡI | RT | ST | CME |
| ŔC-PCV456A | 4 | | | Colonaid | 0 | 0/0 | ~ | C.S. Just. | | v | v | | | v | | v | |
| RC-PCV456A | 1
(G-7) | В | 3.0
Globe | Solenoid | С | O/C | С | RC-CSJ-2 | | X | X
Inon Toot i | Crow (| 200 | Х | | Х | |
| Pressurizer PORV. This valve is
valve actuation (non-safety func
temperature, RCS noncondensil
D20846, UFSAR Sectins 5.2.2.1 | normally closed
tion). The safety
bles venting, an | related funct
d RCS depres | o limit RCS pressu
ions include LTOF
ssurization for Saf | with RCS at red | uced pres | ssure an | d | RC-CSJ-2 | | | pen Test
lose Test
RV Test
FS Tes
ST Tes | Freq: (
Freq:
t Dir: (| CSD
Closed | | d | | |
| RC-PCV456B | 1 | В | 3.0 | Solenoid | С | O/C | С | | | х | х | • | | х | | х | |
| | (F-7) | | Globe | | | | | RC-CSJ-2 | | 0 | pen Test | Freq: 0 | CSD | | | | |
| Pressurizer PORV. This valve is | normally closed | I and opens to | limit RCS pressu | ire transients to pi | reclude s | afety | | | | C | lose Test l | Freq: (| CSD | · | | | |
| valve actuation (non-safety func | | | | | | | d | | | | RV Test | | | | | | |
| temperature, RCS noncondensi | | | | e Shutdown. Refe | erences: I | P&ID | | | | | FS Tes | | | | | | |
| D20846, UFSAR Sectins 5.2.2.1 | 1, 5.4.7, 7.4 , TS | 5 3.4.9.3, TS 3 | 5.4.11. | | | | | | | | ST Tes | t Dir: C |)pen/C | lose | d | | |
| RC-V115 | 1 | С | 6.0 | Self | С | 0 | - | | | | | | | | Х | | |
| | (G-6) | | Relief/Safety | | | | | | | | pen Test | | | | | | |
| RCS-Pressurizer Code safety va
RCS from exceeding 110% desig | | | | | | | nts | | | C | lose Test | | Veer | _ | | | |
| References: P&ID D20846, UFS | | | | an Operating basi | s carriqu | lake. | | | | | RV Test I
FS Tes | | reals | 5 | | | |
| | | 2, 10 0.4.2.2. | | | | | | | | | ST Tes | | | | | | |
| RC-V116 | 4 | 0 | | 0-16 | 0 | 0 | | | | | | | | | v | | |
| KC-VIID | (H-6) | С | 6.0
Relief/Safety | Self | С | 0 | - | | | 0 | pen Test | Front | | | х | | |
| RCS-Pressurizer Code safety va | | ernressure nr | | CS-In scope per l | STA-110 | 0 Preve | nts | | | | lose Test l | | | | | | |
| RCS from exceeding 110% desig | | | | | | | | | | | RV Test | | 5 Year | s | | | |
| References: P&ID D20846, UFS | | | | | | | | | | | FS Tes | | | | | | |
| | | | | | | | | | | | ST Tes | t Dir: | | | | | |
| RC-V117 | 1 | С | 6.0 | Self | С | ο | _ | | | | | | | | Х | | |
| | (G-6) | - | Relief/Safety | | - | - | | | | 0 | pen Test | Frea: | | | | | |
| RCS-Pressurizer Code safety va | (+ -) | erpressure pr | | CS-In scope per l | STA-110 | 0. Preve | nts | | | | lose Test | | | | | | |
| RCS from exceeding 110% desig | | | | | | | | | | | RV Test | ؛ ; Freq | 5 Years | s | | | |
| References: P&ID D20846, UFS | AR Section 5.2. | 2, TS 3.4.2.2. | | _ | | | | | | | FS Tes | | | | | | |
| | | | | | | | | | | | ST Tes | t Dir: | | | | | |

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به محمد

SYSTEM: RC

IST VALVE TEST TABLE

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P&ID No.: D20846

| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | i | Position | 5 | Relief Req |
|--------------|--------------|-------|-------------------|----------|-----|----------|-----|------------|
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. |
| RC-V122 | 1
(G-7) | В | 3.0
Gate | Motor | 0 | O/C | - | |

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 | В | 3.0 | Motor | Ο | O/C | - |
|-------------------------------|-------|---|---------------------------------------|------------------------|---|-----|---|
| | (F-7) | | Gate | | | | |
| Deservice DODV (FOD LLS L SHO | | | · · · · · · · · · · · · · · · · · · · | A M | | | |

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.

Commitment DI FE FS LJ LK PE PI RT ST CME X X X Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: FS Test Dir: ST Test Dir: Open/Closed

IST Program Plan Commitment

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

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1-F4.99 SITR Rev. 23

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SYSTEM: RH

بالمشع مرار

IST VALVE TEST TABLE

P&ID No.: **D20662**

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | - | Positions
SAF | - | Relief Req
C.S. Just. | DI | FE | (| F Program
Commitm
Commitm
S LJ | ent
ent | | ΡI | RT | ST | CME |
|---|--|--|--|--|---|-----------------------|--------------|--------------------------|----|----|--------------------------|--|---------------------|-----------------|-----|----|----|-----|
| RH-FCV610
RHR pump A min-flow control va
750 gpm and closes when the flo
ECCS and RHR operation. Refe | w exceeds 140 | 0 gpm to prov | ide min-flow prot | ection for the RHR | | | - | | | | Open
Close
RV
F | Test Fre
Test Fre
Test Fre
S Test D
T Test D | q:Q
q:
ir: | uartei | rly | 1 | х | |
| RH-FCV618
RHR heat exchanger A bypass fi
During plant cool down, the valve
repositioning of the outlet valve h
closed on loss of NNS air, and di
design capabilities. References: | e is automaticall
HCV-606 to esta
irect full flow thre | y positioned t
blish and mai
ough the heat | o maintain total fl
ntain plant cool d
exchanger. This | ow in response to t
own. This valve is
transient is within t | the operat
designed | tor
to fail | | le. | | | Close
RV
F | Test Fre
Test Fre
Test Fre
S Test D
Test D | q:Q
q:
ir:C | uartei
losed | rly | ł | | |
| RH-HCV606
RHR heat exchanger A outlet ter
During plant cool down, it is posi
designed to fail open upon loss o
the system/ plant design capabili | tioned by the op
of NNS air and d | erator to esta
irect full flow | blish and maintai
through the heat | n RCS cool down.
exchanger. This tra | The valve
ansient is | ∋ is
within | O
y mode. | | | | Close
RV
F | Test Fre
Test Fre
Test Fre
S Test D
Test D | q: Q
q:
ir: O | uartei
pen | rlý | ł | | |
| RH-V4
RHR pump 8A discharge check v
Reverse closure is not required of
suction check valves should an F
down and the other train remains
maintained closed. This will prec
demonstrated the ability of the R
two pumps. References: P&ID D | during ECCS op
RHR pump be id
s aligned for EC
lude reverse flo
HR Pumps to op | eration due t
le. During Mo
CS per TS 3.
w through an
perate in para | o closure of the R
ide 4 RHR operat
5.3.1, and a cross
idle RHR pump. I
llel on recirc. with | WST and Contain
ion, one RHR train
connect valve V2
ES 92-1-5 perform
out adverse intera | ment sum
n is used
1 (V22) is
ed on 9-7- | ip
for cool
-92 | - | | | | Close
RV
F | Test Fre
Test Fre
Test Fre
S Test D
Test D | q:
q:
ir: | | | | · | х |
| RH-V13
RHR A Train Cold Leg Injection 6
back leakage. This valve is in sc | | | | | C
otential RC | o
cs | - | | | | Close
RV
F | i Test Fre
Test Fre
Test Fre
S Test D
Test D | q:
q: 1(
ir: |) Yea | rs | x | | |

SYSTEM: RH

IST VALVE TEST TABLE

P&ID No.: D20662

| Valve Number
Remarks
RH-V14
RHR/LPSI discharge Train A to Col
the injection phase of ECCS operat
transition from ECCS injection to co
Although not proceduralized, it may
This valve is exempt from Appendix
6.2-83, procedures ES-1.3, ES-1.4. | ion, and for n
Id leg recircu
require reope
J Type C LL | ormal RHR op
lation, and if o
ening to mitiga | peration. This values
pen, will be close
ate certain long te | ve may be closed
ed during hot leg re
erm ECCS limited | NRM
O
ns open d
during the
ecirculatio
passive fi | O/C
uring
n.
ailures. | FAL
- | Relief Req
C.S. Just.
RH-CSJ-1 | DI | FE
X
Op
Clo | ST Progr
Commi
Commi
FS LJ
en Test F
se Test F
RV Test F
FS Test
ST Test | tment
tment
LK
req: (
req: (
req: (
Dir: | PE
CSD
CSD | PI
X | RT | ST
X | CME |
|--|---|--|---|--|--|-----------------------------------|-------------|--------------------------------------|----|----------------------------|---|--|------------------|----------|----|---------|-----|
| RH-V15
RHR/LPSI Loop 1 Cold Leg injectio
to the RCS loop 1 cold leg. This val
the lower pressure RHR system pip
open to provide penetration therma
5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.
RH-V16
RHR A isolation to primary sample
system from RHR/ECCS. This valve
manual valve RH-V8). References: | ve is also an
ing. This CIV
lly induced ov
2, TRM Secti
(D-12)
system. This
e is not requir | RCS pressure
is exempt fro
rerpressure pr
ion 2.18.
B
valve receives
ed for RHR sa | i isolation valve a
m Appendix J Tyj
otection. Referen
0.75
Globe
an SI signal to c
ampling during sa | nd closes to limit I
pe C LLRT. Also o
nces: P&ID D2066
Air/Diaphragm
close to isolate the | RCS leaka
predited as
2, UFSAF
C
NNS sam | age to
burping
Section
C | -
s
C | | | Clo
F
X
Op
Clo | en Test F
se Test F
FS Test
ST Test
X
en Test F
se Test F
V Test F
FS Test
ST Test | req: I
Dir:
Dir:
req:
req:
Dir: (
Dir: (| Quarter | X
rly | | x | Х |
| RH-V28
RHR cold leg 1 & 2 PIV test line iso
and receives an SI closure signal. T
Type C LLRT. Reference: P&ID D20
RH-V31 | his valve is a | lso an IRC Cl
X Table 6.2-83 | V for penetration | X-11, exempt fro | om Appen | dix J | С | | | Clo | | req:
req:
Dir:
Dir:
Dir: | Quarter | X
rly | | х | v |
| RH-V31
RHR/LPSI Loop2 CL INJ inside con
loop 2 cold leg. This valve is also ar
pressure RHR system piping. This (
provide penetrationthermallyinduce
6.3, Table 6.2-83, TS 3/4.4.6.2, TRI | n RCS pressu
CIV is exempted
d overpressu | re isolation va
t from Append
re protection. | alve and closes to
ix J Type C LLR | limit RCS leakag | e to the lo
burping o | wer
open to | - | | | Ċĺo | en Test F
se Test F
RV Test F
FS Test
ST Test | req: I
req:
Dir: | ⊃IVs pe | er TS | | | X |

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SYSTEM: RH

IST VALVE TEST TABLE

P&ID No.: **D20662**

| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | | Positior | าร | Relief Reg | | | C | Progr
Commi
Commi | tment | | | | | |
|---|-----------------------|----------------------------------|-------------------------------------|---|-----------------------|--------------------|-----|------------|----|----|----|-------------------------|-------|-----|----|----|----|-----|
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | DI | FE | FS | LJ | LK | PE | PI | RT | ST | CME |
| RH-V35 | 2
(G-8) | В | 8.0
Gate | Motor | С | O/C | - | RH-CSJ-2 | | | | Test F | | | х | | Х | |
| RHR Train A discharge to the RHR pump discharge | CCP suction. This val | ve is normally
suction during | closed (for ECC:
the containment | S injection) and is
sump recirculation | opened t
n phase o | o align
of ECCS | ; | | | C | | Test F
Test F | | CSD | | | | |

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

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

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SYSTEM: RH

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IST VALVE TEST TABLE

P&ID No.: **D20663**

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | NRM | Positions
SAF | | Relief Req
C.S. Just. | DI | | T Progra
Commit
Commit
S LJ | ment | E PI | RT | ST | CME |
|---|--|--|--|---|------------------------|-------------------|---------|--------------------------|----|-------------|--------------------------------------|------------------|-------------|----|----|-----|
| RH-FCV611 | 2
(A-12) | В | 3.0
Globe | Motor | 0 | O/C | - | | | X
Oper | n Test Fi | eq: Quai | X
terly | | х | |
| RHR pump B min-flow control valve
750 gpm and closes when the flow
ECCS and RHR operation. Referen | exceeds 1400 |) gpm to provi | de min-flow prot | ection for the RHR | | | | | | R\ | / Test Fi
⁼S Test | | • | эd | | |
| RH-FCV619 | 2 | В | 8.0
Buttorfly | Air/Diaphragm | С | O/C | С | | | One | Tost F | eg: Qua | X | | | |
| RHR heat exchanger B bypass flow
During plant cool down, the valve is
repositioning of the outlet valve HC
closed on loss of NNS air, and direc
design capabilities. References: P8 | automatically
V-607 to estal
ct full flow thro | positioned to
plish and mair
ough the heat | maintain total fl
ntain plant cool d
exchanger. This | ow in response to t
lown. This valve is
transient is within t | he opera
designed | itor
I to fail | iby moc | le. | | Close
R\ | e Test Fi
/ Test Fi
FS Test | eq: Qua | terlý
ed | эd | | |
| RH-HCV607 | 2 | В | 8.0
Dutte flut | Air/Diaphragm | 0 | O/C | ο | | | 0.55 | Toot E | eq: Qua | X | | | |
| RHR heat exchanger B outlet temp
During plant cool down, it is position
designed to fail open upon loss of N
the system/ plant design capabilitie | ned by the op
NNS air and di | erator to estat
rect full flow t | olish and maintai
hrough the heat | n RCS cool down.
exchanger. This tra | The valv
Insient is | e is
within | y mode. | | | Clos
R\ | e Test Fi
/ Test Fi
FS Test | eq: Qua | rterly
n | ∋d | | |
| RH-V17 | 2
(E-12) | В | 0.75
Globe | Air/Diaphragm | С | С | С | | | X X
Oper | <
n Test Fi | ea: | х | | Х | |
| RHR B isolation to primary sample
system from RHR/ECCS. This valv
manual valve RH-V44). References | system. This v
e is not requir | ed for RHR sa | an SI signal to
ampling during s | | | | | | | Clos
R\ | e Test F.
/ Test Fi
FS Test | req: Qua | ed | | | |
| RH-V21 | 2
(F-8) | В | 8.0
Gate | Motor | Ο | O/C | - | RH-CSJ-3 | | X | n Toet F | req: CSD | х | | х | |
| RHR/LPSI discharge Train B cross
all phases of ECCS operation. It m
LOCA outside containment (i.e. thro
limited passive failures. References | connect isola
ay be closed
ough an RHR | during normal
pump seal), a | s valve is norma
RHR operation
ind may also be | in Mode 4, or to iso
closed to isolate lo | olate a M
ng term I | ode 4
ECCS | | NI-0353 | | Close
RV | e Test F
/ Test F
FS Test | req: CSD
req: |) | ∋d | | |

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1 3.

SYSTEM: RH

IST VALVE TEST TABLE

P&ID No.: **D20663**

| Valve Number
Remarks
RH-V22
RHR/LPSI discharge Train A cross of
all phases of ECCS operation. It ma
LOCA outside containment (i.e., thro
limited passive failures. References: | y be closed o
ough an RHR | luring normal
pump seal), a | RHR operation in and may also be | Mode 4, or to iso
closed to isolate lo | NRM S
O (
ns open dur
plate a Mode
ong term EC | 4 | AL
~ | Relief Req
C.S. Just.
RH-CSJ-3 | DI | FE
X
Op
Clo | ST Progra
Commitr
Commitr
FS LJ
en Test Fr
se Test Fr
ST Test I
ST Test I | nent
nent
LK PE
eq: CSD
eq: CSD
eq: CSD | х | RT | st
X | CME |
|--|--|---|--|--|---|-------------|---------|--------------------------------------|----|----------------------|--|--|-------------|----|---------|-----|
| RH-V25
RHR Train B Cold Leg Inj 600# relie
backleakage. This valve is in scope | | | | Self
sure from potentia | - | ο . | - | | | Clo | en Test Fro
se Test Fro
RV Test Fro
FS Test I
ST Test I | eq:
eq: 10 Y∉
Dir: | ars | х | | |
| RH-V26
RHR/LPSI Train B discharge to Colo
the injection phase of ECCS operati-
transition from ECCS injection to col
Although not proceduralized, it may
This valve is exempt from Appendix
6.2-83, procedures ES-1.3, ES-1.4. | on, and for no
d leg recircula
require reope | ormal RHR op
ation, and if o
ning to mitiga | eration. This valv
pen, will be close
te certain long te | e may be closed of
d during hot leg re
rm ECCS limited | ns open duri
during the
ecirculation.
passive fail | ures. | - | RH-CSJ-1 | | Clo | en Test Fr
se Test Fr
RV Test Fr
FS Test I
ST Test I | eq: CSD
eq:
Dir: | X
/Close | d | Х | |
| RH-V27
RHR cold leg 3 & 4 PIV test line isol
and receives an SI closure signal. TI
Type C LLRT. Reference: P&ID D20 | his valve is al | so an IRC CI | / for penetration | Air/Diaphragm
he seat leakage o
X-12, exempt fro | C
detection he
om Appendix | ader | С | | | Op
Clo | X
en Test Fra
se Test Fra
RV Test Fra
FS Test I
ST Test I | eq: Quarl
eq:
Dir: Close | d | | х | |
| RH-V29
RHR/LPSI Loop 3 CL INJ inside com
loop 3 cold leg. This valve is also an
pressure RHR system piping. This C
provide penetration thermally induce
6.3, Table 6.2-83, TS 3/4.4.6.2, TRM | RCS pressu
IV is exempt
d overpressu | re isolation va
from Append
re protection. | lve and closes to
ix J Type C LLRT | limit RCS leakag | I flow to the
e to the lowe
burping ope | er
en to | - | | | Clo | en Test Fr
se Test Fr
RV Test Fr
FS Test I
ST Test I | eq: PIVs
eq:
Dir: | per TS | i | | x |

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SYSTEM: RH

IST VALVE TEST TABLE

P&ID No.: **D20663**

| | | | | | | | | | | | IST Progr | | | | | | |
|--|---|---|---|---|---------------------------------|----------------------------|-----|------------|----|--------|---|------------------|---------|-------|----|----|-----|
| | Class
and | S
Valve | Size (in.)
and | Actuator | | ositions | | Relief Req | | | Commi
Commi | itment
itment | | | | | |
| Remarks Co | oord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | DI | FE | FS LJ | LK | PE | ΡI | RT | ST | CME |
| | 1
C-6) | A/C | 6.0
Check | Self | С | O/C | - | | | | pen Test F | | | | | | х |
| RHR/LPSI Loop 4 CL INJ inside contain
loop 4 cold leg. This valve is also an RC
pressure RHR system piping. This CIV is
provide penetration thermally induced ov
6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Se | S pressure
s exempt fr
verpressure | isolation valve
om Appendix J | and closes to limi
Type C LLRT. Al: | t RCS leakage
so credited as b | to the lo
ourping o | wer | | | | CI | ose Test F
RV Test F
FS Test
ST Test | req:
Dir: | PIVs pe | r TS | | | |
| RH-V32 | 2
F-7) | В | 8.0
Gate | Motor | С | O/C | - | RH-CSJ-4 | | x
o | pen Test F | rea: | CSD | х | | Х | |
| RHR B hot leg recirculation isolation val
Valve closure is also tested since certai
This is also a containment isolation valve
References: P&ID D20663, ES-1.4, UF | ve. This val
in LOCA co
e for penetr | nditions require
ration X-13 and | closed and opens
e swapping betwe
exempt from App | en hot and cold | l leg inje | ulation <i>.</i>
ction. | | | | C | iose Test F
RV Test F
FS Tes
ST Tes | req:
t Dir: | | losed | | | |
| RH-V36 | 2
F-12) | В | 8.0
Gate | Motor | С | O/C | - | RH-CSJ-2 | | X
O | pen Test F | -req: | CSD | х | | х | |
| RHR Train B discharge to SI suction. Th
B RHR pump discharge to the Safety in
ECCS operation. This valve may be clos
P&ID D20663, UFSAR Section 6.3 | nis valve is i
niection pum | no suction durin | g the containmen | t sump recircul | ation ph | ase of | | | | С | lose Test F
RV Test F
FS Tes
ST Tes | ⁼req:
t Dir: | | losed | | | |
| RH-V40 | 2
B-11) | С | 8.0
Check | Self | С | 0 | - | | | 0 | pen Test I | Frea: | | | | | х |
| RHR pump 8B discharge check valve. T
Reverse closure is not required during E | This valve o | pens when the | RHR pump is ope | erating for SSD | and EC | CS. | | | | | lose Test I
RV Test I | Freq: | | | | | |
| suction check valves should an RHR pu
down and the other train remains aligner
maintained closed. This will preclude rev
demonstrated the ability of the RHR Pur
two pumps. References: P&ID D20663 | Imp be idle.
d for ECCS
verse flow t
mps to oper | During Mode 4
per TS 3.5.3.1
hrough an idle
rate in parallel c | RHR operation,
, and a cross con
RHR pump. ES 9
on recirc. without a | one RHR train
nect valve V21
2-1-5 performed
adverse interac | is used
(V22) is
d on 9-7 | for cool
-92 | | | | | FS Tes
ST Tes | t Dir: | | | | | |
| RH-V49 | 2
(H-5) | В | 0.75 A
Globe | ir/Diaphragm | С | С | С | | | | X
Ipen Test l | Frea: | | Х | | Х | |
| RHR/SI hot leg 1 & 4 PIV test line isolati | tion. This va | | ot leg injection he | | | | | | | | lose Test l
RV Test l | Freq: | Quarte | ly | | | |
| detection header and receives an SI clo
from Appendix J Type C LLRT. Referen | | | | or penetration X | -13, e) | tempt | | | | | FS Tes
ST Tes | t Dir: | | | | | |

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1-F4.105 SITR Rev. 23

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#### SYSTEM: RH

# IST VALVE TEST TABLE

|                                                                                                                                                                                                                                                 |                                                                                                       |                                                                      |                                                                                     | • / •                                                                                 |                                                    | · • ·                      |      |            |    |    |            |        |                           |       |      |     |       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------|------|------------|----|----|------------|--------|---------------------------|-------|------|-----|-------|
| P&ID No.: D20663                                                                                                                                                                                                                                |                                                                                                       |                                                                      |                                                                                     |                                                                                       | <b>.</b> 4,                                        |                            |      |            |    |    |            |        |                           |       |      |     |       |
|                                                                                                                                                                                                                                                 |                                                                                                       |                                                                      | o: "                                                                                |                                                                                       | ••.                                                |                            |      |            |    |    |            |        | am Plan                   |       |      |     |       |
| Valve Number                                                                                                                                                                                                                                    | Class<br>and                                                                                          | Valve                                                                | Size (in.)<br>and                                                                   | Actuator                                                                              |                                                    | Position                   |      | Relief Reg |    |    |            |        | ment                      |       |      |     |       |
| Remarks                                                                                                                                                                                                                                         | Coord                                                                                                 | (CAT)                                                                | Type                                                                                | Type                                                                                  | NRM                                                |                            | FAL  | Relief Rey | DI | FE |            |        | LK PI                     | E I   | PI R | T S | т сме |
|                                                                                                                                                                                                                                                 | 00010                                                                                                 | (0,11)                                                               | 1360                                                                                | 1960                                                                                  |                                                    | 0, 1                       | 1712 | C.S. Just. |    |    | 10         | 20     |                           |       | ,    | 0   |       |
| RH-V50                                                                                                                                                                                                                                          | 1                                                                                                     | A/C                                                                  | 8.0                                                                                 | Self                                                                                  | С                                                  | O/C                        | -    |            |    |    |            |        | х                         |       |      |     | х     |
|                                                                                                                                                                                                                                                 | (G-6)                                                                                                 |                                                                      | Check                                                                               |                                                                                       |                                                    |                            |      |            |    |    | pen T      |        |                           |       |      |     |       |
| RCS loop 4 HL check valve-CIV<br>considered an RCS/LPSI pressu<br>5.4.7, since this valve is backed<br>pressure isolation barrier, howe<br>opens during the ECCS hot leg<br>penetration thermally induced or<br>6.2-83, TS 3/4.4.6.2, TRM Secti | ure isolation valv<br>up by a normall<br>ver, it is PIV test<br>recirculation pha<br>verpressure prof | e, subject to s<br>y closed MOV<br>ed as a conse<br>use of operatic  | eat leakage testi<br>, it is not technica<br>rvative measure.<br>n. Also credited a | ng per TS 3/4.4.6.<br>ally considered a h<br>This valve is not<br>as burping open to  | 2. Per U<br>nigh-to-lor<br>rmally cic<br>p provide | FSAR<br>w<br>sed and       | ble  |            |    | С  | RV T<br>FS |        | Dir:                      | , per | TS   |     |       |
| RH-V51                                                                                                                                                                                                                                          | 1                                                                                                     | A/C                                                                  | 8.0                                                                                 | Self                                                                                  | с                                                  | O/C                        | -    |            |    |    |            |        | х                         |       |      |     | х     |
| RCS loop 1 HL check valve-CIV<br>considered an RCS/LPSI press<br>5.4.7, since this valve is backed<br>pressure isolation barrier, howe<br>opens during the ECCS hot leg<br>penetration thermally induced o                                      | ure isolation valv<br>up by a normall<br>ver, it is PIV test<br>recirculation pha                     | e, subject to s<br>y closed MOV<br>ed as a conse<br>se of operatic   | eat leakage testi<br>, it is not technica<br>rvative measure.<br>n. Also credited a | ng per TS 3/4.4.6.<br>ally considered a h<br>This valve is norr<br>as burping open to | 2. Per l<br>nigh-to-lo<br>nally clos<br>p provide  | JFSAR<br>w<br>ed and       | ble  |            |    |    | RV T<br>FS | est Fi | req: PIVs<br>req:<br>Dir: | ; per | TS   |     |       |
| RH-V52                                                                                                                                                                                                                                          | 1                                                                                                     | A/C                                                                  | 6.0                                                                                 | Self                                                                                  | С                                                  | O/C                        | -    |            |    |    |            |        | х                         |       |      |     | х     |
| RCS loop 1 HL check valve. Thi<br>testing per TS 3/4.4.6.2. Per Uf<br>technically considered a high-to<br>This valve is normally closed a<br>as burping open to provide pene<br>Sections 5.4.7, 6.3, TS 3/4.4.6                                 | -SAR 5.4.7, sind<br>-low pressure is<br>and opens during<br>etration thermally                        | e this valve is<br>plation barrier,<br>the ECCS ho<br>r induced over | backed up by a i<br>however, it is Pl<br>t leg recirculation                        | normally closed M<br>V tested as a cons<br>phase of operation                         | IOV, it is i<br>servative<br>on. Also c            | not<br>measure<br>credited |      |            |    |    | RV T<br>FS |        | req: PIVs<br>req:<br>Dir: | ; per | TS   |     |       |
| RH-V53                                                                                                                                                                                                                                          | 1                                                                                                     | A/C                                                                  | 6.0                                                                                 | Self                                                                                  | С                                                  | O/C                        | -    |            |    |    |            |        | х                         |       |      |     | х     |
| RCS loop 4 HL check valve. Thi<br>testing per TS 3/4.4.6.2. Per Uf<br>technically considered a high-to<br>This valve is normally closed a<br>as burping open to provide pene                                                                    | FSAR 5.4.7, sind<br>-low pressure is<br>and opens during                                              | e this valve is<br>plation barrier,<br>the ECCS ho<br>/ induced over | backed up by a i<br>however, it is Pl'<br>t leg recirculation                       | normally closed M<br>V tested as a cons<br>I phase of operation                       | IOV, it is i<br>servative<br>on. Also c            | not<br>measure<br>credited |      |            |    |    | RV T<br>FS |        | req: PIVs<br>req:<br>Dir: | ; per | TS   |     |       |

Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.

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SYSTEM: RH

## IST VALVE TEST TABLE

| Valve Number                                                                                                                                             | Class<br>and                                  | Valve                             | Size (in.)<br>and                                      | Actuator            |            | Position | s   | Relief Req   |    | I   | Corr                     | ogram I<br>mitmer<br>mitmer                | nt    |       |    |    |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------|--------------------------------------------------------|---------------------|------------|----------|-----|--------------|----|-----|--------------------------|--------------------------------------------|-------|-------|----|----|-----|
| Remarks                                                                                                                                                  | Coord                                         | (CAT)                             | Туре                                                   | Туре                | NRM        | SAF      | FAL | · C.S. Just. | DI | FE  | -s I                     | JLł                                        | K PE  | ΡI    | RT | ST | CME |
| RH-V54                                                                                                                                                   | 2<br>(F-6)                                    | В                                 | 0.75<br>Globe                                          | Air/Diaphragm       | С          | С        | С   | 0.0.0000     |    |     |                          | t Freq:                                    |       | х     |    |    |     |
| RHR/SI hot leg 1 PIV test line isolat<br>detection header and is required to<br>EWR 97-095). Reference: P&ID D2                                          | be closed du                                  | -                                 |                                                        |                     | -          | per      |     |              |    |     | V Tes<br>FS Te           | t Freq:<br>t Freq:<br>est Dir:<br>est Dir: |       |       |    |    |     |
| RH-V55                                                                                                                                                   | 2<br>(H-5)                                    | В                                 | 0.75<br>Globe                                          | Air/Diaphragm       | С          | С        | С   |              |    | On  | n Tos                    | t Frea:                                    |       | х     |    |    |     |
| RHR/SI hot leg 4 PIV test line isolat<br>detection header and is required to<br>97-095). Reference: P&ID D20663                                          | ion. This valv                                |                                   | ot leg injection h                                     |                     |            | per EWf  | २   |              |    | Clo | se Tes<br>V Tes<br>FS Te | t Freq:<br>t Freq:<br>est Dir:<br>est Dir: |       |       |    |    |     |
| RH-V57                                                                                                                                                   | 2<br>(G-7)                                    | С                                 | 0.75<br>Deliof/Sefety                                  | Self                | С          | 0        | -   |              |    | 0   |                          | t Frea:                                    |       |       | Х  |    |     |
| ECCS hot leg injection piping relief potential RCS backleakage. Refere                                                                                   | valve- in sco                                 |                                   |                                                        | HR piping from ove  | rpressu    | re from  |     |              |    | Clo | se Tes<br>V Tes<br>FS T  | t Freq:                                    | 10 Ye | ars   |    |    |     |
| RH-V70                                                                                                                                                   | 2<br>(H-7)                                    | В                                 | 8.0<br>Gate                                            | Motor               | С          | O/C      | -   | RH-CSJ-4     |    | X   |                          | t Frea:                                    | 000   | х     |    | х  |     |
| RHR A hot leg recirculation isolation<br>Valve closure is also tested since c<br>This is also a containment isolation<br>References: P&ID D20663, ES-1.4 | n valve. This<br>ertain LOCA<br>valve for pen | conditions req<br>etration X-13 a | lly closed and o<br>uire swapping b<br>and exempt fron | etween hot and cold | d leg inje |          |     | КП-СЭЈ-4     |    | Cio | se Tes<br>V Tes<br>FS Te | t Freq:<br>t Freq:<br>est Dir:             |       | Close | d  |    |     |

SYSTEM: RMW

## IST VALVE TEST TABLE

|                                                                             |                                |                            |                                          |                                           |                                 |             |             | IST Program Plan                                        |     |
|-----------------------------------------------------------------------------|--------------------------------|----------------------------|------------------------------------------|-------------------------------------------|---------------------------------|-------------|-------------|---------------------------------------------------------|-----|
| Valve Number                                                                | Class<br>and                   | Valve                      | Size (in.)<br>and                        | Actuator                                  | Posi                            | lions       | Relief Req  | Commitment<br>Commitment                                |     |
| Remarks                                                                     | Coord                          | (CAT)                      | Туре                                     | Туре                                      | NRM SA                          |             | Relief Req  | DI FE FS LJ LK PE PI RT ST                              | CME |
| RMW-V29                                                                     | 2                              | A/C                        | 3.0<br>Objectiv                          | Self                                      | DE O                            | °C -        |             | X                                                       | х   |
| RMW supply check valve to contain                                           |                                |                            |                                          |                                           |                                 |             |             | Open Test Freq:<br>Close Test Freq:                     |     |
| valve opens to relieve pressure ca<br>for containment isolation. Referen    | used by therm<br>ces: P&ID D20 | al expansion<br>360, UFSAR | of trapped fluid un<br>Table 6.2-83, Eng | ider accident cond<br>ineering Evaluation | ditions and clo<br>on SS-EV-960 | ses<br>023, |             | RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:           |     |
| RMW-V30                                                                     | 2                              | А                          | 3.0                                      | Air/Diaphragm                             | 0 0                             | ; с         |             | x x x x x x                                             |     |
| RMW supply to containment-ORC                                               |                                |                            |                                          |                                           |                                 |             |             | Open Test Freq:<br>Close Test Freq: Quarterly           |     |
| normally open as a supply valve to<br>open function for this valve is not a |                                |                            |                                          |                                           |                                 | ie          |             | RV Test Freq:<br>FS Test Dir: Closed                    |     |
|                                                                             | ,                              |                            | ·                                        |                                           |                                 |             |             | ST Test Dir: Closed                                     |     |
| P&ID No.: <b>D20729</b>                                                     |                                |                            |                                          |                                           |                                 |             |             |                                                         |     |
|                                                                             |                                |                            |                                          |                                           |                                 |             |             |                                                         |     |
| RMW-V31                                                                     | 3<br>(D-5)                     | В                          | 2.0<br>Saunders Weir                     | Manual                                    | 0 0                             | ; -         |             | X<br>Open Test Freg:                                    |     |
| Reactor makeup water supply to the distribution water during emergency b    | he CÙCS blen                   |                            | e is normally open                       |                                           |                                 | al          |             | Close Test Freq: Quarterly<br>RV Test Freq:             |     |
| dilution water during energency of                                          | oration. Refere                | Ences. Faid L              | J20729, UF3AR 3                          | ecilon 7.4, 03 (2)                        | 0.01.                           |             |             | FS Test Dir:                                            |     |
| RMW-V34                                                                     |                                | 5                          | • •                                      |                                           | 0                               |             |             | ST Test Dir:                                            |     |
| RIVIVV-V34                                                                  | 3<br>(D-5)                     | В                          | 2.0<br>Saunders Weir                     | Manual                                    | 0 0                             | ; -         |             | X<br>Open Test Freq:                                    |     |
| Reactor makeup water supply to the<br>dilution water during emergency b     |                                |                            |                                          |                                           |                                 | al          |             | Close Test Freq: Quarterly<br>RV Test Freq:             |     |
|                                                                             |                                |                            |                                          |                                           |                                 |             |             | FS Test Dir:<br>ST Test Dir:                            |     |
| P&ID No.: <b>D20725</b>                                                     |                                |                            |                                          |                                           |                                 |             |             |                                                         |     |
| RMW-V119                                                                    | 2                              | С                          | 2.0                                      | Self                                      | c d                             | ) -         |             | х                                                       |     |
| Boric Acid pump discharge to cha                                            | (D-6)                          | ction check vs             | Check                                    | normally closed a                         | nd will open                    |             | RMW-RJ-1    | Open Test Freq: Refueling<br>Close Test Freq: Refueling |     |
| during rapid boration when CS-V4                                            | 26 is opened.                  | Reverse close              | ure is not required                      | during ECCS sur                           | np recirculatio                 |             | 10000-100-1 | RV Test Freq:                                           |     |
| since the line will be isolated by no P&ID D20725                           | ormally closed                 | valves CS-V4               | 126,V452, V229 ar                        | nd RMVV-V31 and                           | V34. Reterer                    | ices:       |             | FS Test Dir:<br>ST Test Dir:                            |     |
|                                                                             |                                |                            |                                          |                                           |                                 |             |             |                                                         |     |

#### SYSTEM: SA

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# IST VALVE TEST TABLE

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P&ID No.: D20652

| Valve Number                                                                        | Class<br>and                  | Valve              | Size (in.)<br>and                 | Actuator                  |                 | Position   | s   | Relief Req |    |    | C       | Progr<br>ommi<br>ommi                | tment                | t      |      |      |    |     |
|-------------------------------------------------------------------------------------|-------------------------------|--------------------|-----------------------------------|---------------------------|-----------------|------------|-----|------------|----|----|---------|--------------------------------------|----------------------|--------|------|------|----|-----|
| Remarks                                                                             | Coord                         | (CAT)              | Туре                              | Туре                      | NRM             | SAF        | FAL | C.S. Just. | DI | FE | FS      | LJ                                   | LΚ                   | PE     | Ρl   | RT   | ST | CME |
| SA-V229                                                                             | 2<br>(E-7)                    | А                  | 2.0<br>Gate                       | Manual                    | LC              | LC         | -   |            |    | (  | Open    | X<br>Test F                          | rea:                 |        |      |      |    |     |
| Locked closed Service Air ORC-C<br>D20652, UFSAR Table 6.2-83.                      | V for penetra                 | tion X-67-sub      | ject to Appendix J                | Type C LLRT. R            | eferences       | : P&ID     |     |            |    | (  | RV<br>F | Test F<br>Test F<br>5 Test<br>F Test | req:<br>Dir:         | Per Ap | pend | ix J |    |     |
| <b>SA-V1042</b><br>Locked closed Service Air IRC-CIV<br>D20652, UFSAR Table 6.2-83. | 2<br>(E-7)<br>/ for penetrati | A<br>on X-67-subje | 2.0<br>Globe<br>ect to Appendix J | Manual<br>Type C LLRT. Re | LC<br>ferences: | LC<br>P&ID | -   |            |    |    | RV<br>F |                                      | req:<br>req:<br>Dir: | Per Ap | pend | ix J |    |     |

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SYSTEM: SB

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IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL	Relief Req C.S. Just.	DI FE	Cor Cor	nmitm nmitm		E PI	RT	ST	СМЕ	
SB-V1 SG A blowdown isolation valve (IRC) flash tank level and high flash tank p grade equipment. References: P&ID	ressure to pr	eclude sever	e environmental (С			Open Te Close Te RV Te FS	est Fre est Fre Test D	q: Qua	ed		х		-
SB-V3 SG B blowdown isolation valve (IRC) flash tank level and high flash tank p grade equipment. References: P&ID	, ressure to pr	eclude sever	e environmental		• •	•	С		(RV Te FS	est Fre est Fre Fest D	q: Qua	ed		x		
SB-V5 SG C blowdown isolation valve (IRC flash tank level and high flash tank p grade equipment. References: P&ID	, ressure to pr	eclude sever	e environmental				С			Open Te Close Te RV Te FS	est Fre est Fre Test D	eq: Qua	ed		х		
SB-V7 SG D blowdown isolation valve (IRC flash tank level and high flash tank p grade equipment. References: P&ID	ressure to pr	eclude sever	e environmental				С			Open Te Close Te RV Te FS	est Fre est Fre Test D	q: Qua	ed		х		
SB-V9 SG A blowdown isolation valve -OR0 normally open and closes on a HELE and receives a "T" closure signal. Re	3 isolation sig	ınal, high flas	h tank level or pr	essure, EFW pum	p runnin		C	SB-CSJ-1		Open Te Close Te RV Te FS	est Fre est Fre Fest D	eq: CSD	ed		х		

SYSTEM: SB

IST VALVE TEST TABLE

P&ID No.: D20626

											IST Prog	ram Pla	an				
Valve Number	Class and	Valve	Size (in.) and	Actuator	F	Positions	5	Relief Reg			Comr	nitment nitment					
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS L	J LK	PE	Pł	RT	ST	CME
SB-V10	2 (H-11	В	3.0 Gate	Air/Piston	0	С	С	SB-CSJ-1		X C	X open Test	Freq:		Х		Х	
SG B blowdown isolation valve -O normally open and closes on a HE and receives a "T" closure signal.	LB isolation si	gnal, high flas	sh tank level or pi	ressure, EFW pum	ip running	s valve i signal	s			С		•	Closed				
SB-V11	2 (G-11)	В	3.0 Gate	Air/Piston	0	С	С	SB-CSJ-1		x	X Dpen Test	Frea:		Х		х	
SG C blowdown isolation valve -O normally open and closes on a HE and receives a "T" closure signal.	RC-CIV for pe	netration X-6 gnal, high flas	5- exempt from A sh tank level or p	ressure, EFW purr	ıp running	s valve signal	is				lose Test RV Test FS Te	Freq: 0	Closed				
SB-V12	2 (F-11)	В	3.0 Gate	Air/Piston	0	С	С	SB-CSJ-1		x	X Open Test	Freq:		Х		Х	
SG D blowdown isolation valve -O normally open and closes on a HE and receives a "T" closure signal.	RC-CIV for pe	gnal, high fla:	6- exempt from A sh tank level or p	ressure, EFW purr	ıp running	s valve signal	is			C		•	Closed				

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SYSTEM: SF

D20484

P&ID No.:

IST VALVE TEST TABLE

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IST Program Plan Valve Number Class Size (in.) Commitment and Valve and Actuator Positions Relief Rea Commitment Remarks (CAT) NRM SAF FAL Coord Type Type DI FE FS LJ LK PE PI RT ST CME C.S. Just. SF-V86 2 А 2.0 Manual LC LC (F-7) Gate 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. SF-V87 2 А 2.0 Manuai LC · LC (F-6) Gate 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.

SF-V101 2 A/C 0.75 Self С O/C (G-6) Relief/Safety 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.

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

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

Х

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

> 1-F4.112 SITR Rev. 23

SYSTEM: SF

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## IST VALVE TEST TABLE

P&ID No.: D20796

|              |       |       |            |          |             |            |       | IST Pro | gram Pla | .n |      |       |     |
|--------------|-------|-------|------------|----------|-------------|------------|-------|---------|----------|----|------|-------|-----|
| Valve Number | Class |       | Size (in.) |          |             |            |       | Comr    | nitment  |    |      |       |     |
|              | and   | Valve | and        | Actuator | Positions   | Relief Req |       | Com     | nitment  |    |      |       |     |
| Remarks      | Coord | (CAT) | Туре       | Туре     | NRM SAF FAL |            | DI FE | E FS L  | J LK     | PE | PI R | RT ST | CME |
|              |       | . ,   | 21         | ••       |             | C.S. Just. |       |         |          |    |      |       |     |
|              |       |       |            |          |             |            |       |         |          |    |      |       |     |

1-F4.113 SITR Rev. 23

#### SYSTEM: SI

## IST VALVE TEST TABLE

| Valve Number<br>Remarks                                                                                                                                                                                                                                                                                                           | Class<br>and<br>Coord                                                                | Vaive<br>(CAT)                                                                         | Size (in.)<br>and<br>Type                                                                                  | Actuator<br>Type                                                                                          | NRM                                                               | Positions<br>SAF                         |   | Relief Req<br>C.S. Just, | DI | FE | C<br>C                                    | Progra<br>ommit<br>ommit<br>LJ             | tment<br>tment         |        | PI    | RT | ST | CME      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------|---|--------------------------|----|----|-------------------------------------------|--------------------------------------------|------------------------|--------|-------|----|----|----------|
| SI-V71<br>SI pump 6B discharge check valve<br>suction piping overpressurization if<br>D20446, UFSAR Sections 6.3, Tab                                                                                                                                                                                                             | the pump is i                                                                        | die when the r                                                                         |                                                                                                            |                                                                                                           |                                                                   |                                          | - |                          |    |    | ose ]<br>RV ]<br>FS                       | Fest F<br>Fest F<br>Fest F<br>Test<br>Test | req:<br>req:<br>Dir:   |        |       |    |    | Х        |
| SI-V76<br>SI Pump 6B discharge relief valve<br>scope per ISTA-1100. References:                                                                                                                                                                                                                                                   |                                                                                      |                                                                                        | 0.75<br>Relief/Safety<br>iping in the event                                                                | Self<br>of RCS check val                                                                                  | C<br>lve leakag                                                   | O<br>ge. In                              | - |                          |    |    | ose<br>RV<br>FS                           | Fest F<br>Fest F<br>Fest F<br>Test<br>Test | req:<br>req:<br>Dir:   | 10 Yea | ırs   | х  |    |          |
| SI-V77<br>SI Train B hot leg 1&4 injection cor<br>Modes 1,2&3 and is opened to initi<br>valve is also the ORC CIV for Pene<br>UFSAR Sections 6.3, Table 6.2-83                                                                                                                                                                    | ate ECCS hot<br>tration X-26 -                                                       | leg recirculati                                                                        | ion approximately                                                                                          | 18 hours after the                                                                                        | e acciden                                                         | t. This                                  | - | SI-CSJ-1                 |    |    | ose <sup>-</sup><br>RV <sup>-</sup><br>FS | Test F<br>Test F<br>Test F<br>Test<br>Test | req:<br>req:<br>Dir:   |        | х     |    | х  |          |
| SI-V81<br>RCS loop 3 HL check valve-CIV. The<br>considered an RCS/SI pressure iso<br>since this valve is backed up by a re-<br>isolation barrier, however, it is PIV<br>valve in TRM Section 2.18. It also per<br>scenarios. This valve is normally cl<br>approximately 18 hours after the act<br>TS 3/4.4.6.2, TRM Section 2.18. | lation valve, s<br>ormally close<br>tested as a co<br>provides an ov<br>osed and ope | subject to seat<br>d MOV, it is n<br>onservative me<br>verpressure pr<br>ns during the | leakage testing p<br>ot technically cons<br>easure. This valve<br>otection function f<br>ECCS hot leg reci | er TS 3/4.4.6.2. F<br>sidered a high-to-<br>is designated a p<br>for certain therma<br>irculation phase o | Per UFSA<br>low press<br>pressure i<br>illy induce<br>of operatio | R 5.4.7,<br>sure<br>solation<br>ed<br>on | - |                          |    |    | ose<br>RV 1<br>FS                         | Fest F<br>Fest F<br>Fest F<br>Test<br>Test | req: I<br>req:<br>Dir: | ⊃lVs p | er TS |    |    | <b>х</b> |

#### SYSTEM: SI

## IST VALVE TEST TABLE

#### P&ID No.: **D20446**

| Valve Number<br>Remarks                                                                                                                                                                                                                                                                                                    | Class<br>and<br>Coord                                                                       | Vaive<br>(CAT)                                                                          | Size (in.)<br>and<br>Type                                                                                  | Actuator<br>Type                                                                                         | Positic<br>NRM SAF                                                                  |          | Relief Req<br>C.S. Just. | IST Program Plan<br>Commitment<br>Commitment<br>DI FE FS LJ LK PE PI RT                                       | ST CME   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------|--------------------------|---------------------------------------------------------------------------------------------------------------|----------|
| SI-V82<br>RCS loop 3 HL check valve. This is<br>per TS 3/4.4.6.2. Per UFSAR 5.4.7<br>considered a high-to-low pressure is<br>is designated a pressure isolation w<br>for certain thermally induced scena<br>recirculation phase of operation ap<br>Sections 5.4.7, 6.3, TS 3/4.4.6.2, T                                    | 7, since this va<br>solation barrie<br>valve in TRM \$<br>rios. This valv<br>proximately 11 | alve is backed<br>er, however, if<br>Section 2.18.<br>/e is normally<br>8 hours after t | l up by a normaliy<br>t is PIV tested as a<br>It also provides ar<br>closed and opens                      | closed MOV, it is<br>a conservative me<br>overpressure pr<br>during the ECCS                             | a not technically<br>easure. This val<br>otection function<br>S hot leg             | /e       | U.S. JUSI.               | X<br>Open Test Freq:<br>Close Test Freq: PIVs per TS<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:         | Х        |
| SI-V86<br>RCS loop 2 HL check valve-CIV. T<br>considered an RCS/SI pressure iso<br>since this valve is backed up by a r<br>isolation barrier, however, it is PIV<br>valve in TRM Section 2.18. It also p<br>scenarios. This valve is normally cl<br>approximately 18 hours after the ac<br>TS 3/4.4.6.2, TRM Section 2.18. | blation valve, s<br>normally close<br>tested as a co<br>provides an ov<br>osed and ope      | subject to sea<br>ed MOV, it is r<br>onservative m<br>verpressure p<br>ens during the   | t leakage testing p<br>not technically con<br>easure. This valve<br>rotection function<br>ECCS hot leg rec | per TS 3/4.4.6.2.<br>sidered a high-to-<br>e is designated a<br>for certain therma<br>irculation phase o | Per UFSAR 5.4<br>-low pressure<br>pressure isolatio<br>ally induced<br>of operation | ,<br>7,  |                          | X<br>Open Test Freq:<br>Close Test Freq: PIVs per TS<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:         | X        |
| SI-V87<br>RCS loop 2 HL check valve. This is<br>per TS 3/4.4.6.2. Per UFSAR 5.4.7<br>considered a high-to-low pressure<br>is designated a pressure isolation of<br>for certain thermally induced scena<br>recirculation phase of operation ap<br>Sections 5.4.7, 6.3, TS 3/4.4.6.2,                                        | ', since this va<br>isolation barri<br>valve in TRM<br>arios. This val<br>proximately 1     | alve is backed<br>ier, however, i<br>Section 2.18.<br>ve is normally<br>8 hours after   | up by a normally<br>t is PIV tested as<br>It also provides and<br>closed and opens                         | closed MOV, it is<br>a conservative m<br>n overpressure pr<br>s during the ECC                           | not technically<br>easure. This va<br>rotection functio<br>S hot leg                | ıg<br>ve |                          | X<br>Open Test Freq:<br>Close Test Freq: PIVs per TS<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir:         | <u> </u> |
| SI-V88<br>SI pump 6B min-flow recirc check<br>prevent suction piping overpressur<br>P&ID D20446.                                                                                                                                                                                                                           | 2<br>(C-9)<br>valve. This va<br>ization if the p                                            | C<br>alve opens wh<br>oump is idle w                                                    | 1.5<br>Check<br>ien the SI pump is<br>hen the redundan                                                     | Self<br>operating and m<br>t pump is operati                                                             | C O/O<br>nust close to<br>ng. References:                                           |          |                          | X<br>Open Test Freq: Quarterly<br>Close Test Freq: Quarterly<br>RV Test Freq:<br>FS Test Dir:<br>ST Test Dir: |          |

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SYSTEM: SI

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## IST VALVE TEST TABLE

#### P&ID No.: D20446

| Valve Number<br>Remarks                                                                                                                      | Class<br>and<br>Coord | Valve<br>(CAT)  | Size (in.)<br>and<br>Type | Actuator<br>Type  |             | Position:<br>SAF | s<br>FAL | Relief Req<br>C.S. Just. | DI | FE |                                                       | itment<br>itment            |        | Pl   | RT     | ST | CME |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------|---------------------------|-------------------|-------------|------------------|----------|--------------------------|----|----|-------------------------------------------------------|-----------------------------|--------|------|--------|----|-----|
| SI-V89<br>SI pump B recirculation to RWST<br>phase of ECCS operation, and is<br>direction since it is taken out of it<br>Section 6.3         | closed during th      | ne recirculatio | n phase of ECCS           | operation. Also t | ested in t  | he open          | -        |                          |    |    | pen Test<br>lose Test<br>RV Test<br>FS Tes<br>ST Tes  | Freq:(<br>Freq:<br>t Dir:   | Quarte | rly  | Closed | X  |     |
| SI-V90<br>SI pump A miniflow recirculation<br>injection phase of ECCS operation<br>the open direction since it is take<br>UFSAR Section 6.3. | on, and is closed     | during the re   | circulation phase         | of ECCS operation | on. Also te | ested in         | -        |                          |    |    | pen Test<br>lose Test<br>RV Test<br>FS Tes<br>ST Tes  | Freq: 0<br>Freq:<br>st Dir: | Quarte | erly | Closed | X  |     |
| SI-V91<br>SI pump 6A min-flow recirc chect<br>prevent suction piping overpress<br>P&ID D20446                                                |                       |                 |                           |                   |             |                  | -        |                          |    |    | pen Test<br>lose Test<br>RV Test<br>FS Tes<br>ST Tes  | Freq: 0<br>Freq:<br>st Dir: |        |      |        |    |     |
| SI-V93<br>SI pump A/B common miniflow re<br>injection phase of ECCS operation<br>P&ID D20446, UFSAR Section 6                                | on, and is closed     |                 |                           |                   |             |                  | -        | SI-CSJ-2                 |    |    | pen Test<br>lose Test<br>RV Test<br>FS Tes<br>ST Tes  | Freq: 0<br>Freq:<br>st Dir: |        | x    |        | х  |     |
| SI-V96<br>SI pump 6A discharge check val<br>suction piping overpressurization<br>P&ID D20446.                                                |                       |                 |                           |                   |             |                  | -        |                          |    |    | ppen Test<br>lose Test<br>RV Test<br>FS Tes<br>ST Tes | Freq:<br>Freq:<br>st Dir:   |        |      |        |    | х   |

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SYSTEM: SI

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IST VALVE TEST TABLE

P&ID No.: D20446

| Valve Number | Class | | Size (in.) | | | | | | | | | Progra
ommiti | | n | | | | |
|--|--|---|---|---|---|---|-----|------------|----|----|----------------------|--|--------------------------------|----------|-------|----|----|-----|
| valve Number | and | Valve | and | Actuator | F | Position | 3 | Relief Req | | | - | ommit | | | | | | |
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | DI | FE | FS | LJ | LK | PE | ΡI | RT | ST | CME |
| SI-V101 | 2
(G-7) | С | 0.75
Relief/Safety | Self | С | 0 | - | | | | | Test Fr | | | | х | | |
| SI Pump 6A discharge relief valve.
scope per ISTA-1100. References: | | | iping in the event | of RCS check va | ive leakag | ie. In | | | | C | RV T
FS | Test Fr
Test Fr
S Test
T Test | req: 1
Dir: | 0 Yea | irs | | | |
| SI-V102 | 2
(G-7) | В | 4.0
Gate | Motor | С | O/C | - | SI-CSJ-1 | | X | | Test Fi | req: C | SD | Х | | Х | |
| SI Train A hot leg 1&4 injection con
initiate ECCS hot leg recirculation a
penetration X-25 -exempt from App
6.2-83, TS 3/4.5.2. | ainment isola | 18 hours afte | ith power removed
or the accident. Th | is valve is also th | e ORC Cl | V for | | | | (| RV [*]
F | Test Fi
Test Fi
S Test
T Test | req:
Dir: | <u>(</u> | Open | | | |
| SI-V106 | 1 | A/C | 2.0 | Self | . C | O/C | - | | | | | | х | | | | | х |
| RCS loop 4 HL check valve-CIV. Th
considered an RCS/SI pressure iso
since this valve is backed up by a n
isolation barrier, however, it is PIV t
valve in TRM Section 2.18. It also p
scenarios. This valve is normally cle
approximately 18 hours after the ac
3/4.4.6.2, TRM Section 2.18. | lation valve, s
ormally close
ested as a co
rovides an ov
osed and ope | CIV for X-25-
subject to sea
d MOV, it is n
nservative m
verpressure p
ns during the | Check
exempt from App
t leakage testing
ot technically con
easure. This valve
rotection function
ECCS hot leg rec | endix J Type C Ll
per TS 3/4.4.6.2.
sidered a high-to
e is designated a
for certain therma
circulation phase o | Per UFSA
-low press
pressure i
ally induce
of operatic | is also
R 5.4.7,
sure
solation
ed
on | | | | | Close
RV
F: | Test F
Test F
Test F
S Test
T Test | req: F
req:
Dir:
Dir: | 'lVs p | er TS | | | |
| SI-V110
RCS loop 1 HL check valve-CIV. Th
considered an RCS/SI pressure iso
designated a pressure isolation valv
normally closed MOV, it is not techn
tested as a conservative measure.
scenarios. This valve is normally c
approximately 18 hours after the ac
3/4.4.6.2, TRM Section 2.18. | lation valve, s
ve in TRM Se
nically consid-
It also provid
osed and ope | subject to sea
ction 2.18. Pe
ered a high-to
es an overpre
ens during the | t leakage testing
er UFSAR 5.4.7, s
p-low pressure iso
essure protection
e ECCS hot leg re | per TS 3/4.4.6.2.
ince this valve is
lation barrier, how
function for certai
circulation phase | This valve
backed up
vever, it is
n thermall
of operati | e is
o by a
i PIV
ly induce
ion | | | | | Close
RV
F | Test F
Test F
Test F
S Test
T Test | req: F
req:
Dir: | יⅣs p | er TS | | | x |

1-F4.117 SITR Rev. 23

SYSTEM: SI

IST VALVE TEST TABLE

P&ID No.: D20446

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| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | Posit
NRM SA | | Relief Req
C.S. Just. | IST Program Plan
Commitment
Commitment
DI FE FS LJ LK PE PI RT ST (| CME |
|---|--|-------------------------------|--|--|-------------------------------|------------|--------------------------|---|-----|
| SI-V111
SI Train B discharge cross connect
leg recirculation phase of ECCS op
Also tested in the open direction sir
P&ID D20446, UFSAR Section 6.3. | eration and is | closed durin | g the hot leg recirc | ulation phase of | ECCS operati | ld | | X X X
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
leg recirculation phase of ECCS op
Also tested in the open direction sir
P&ID D20446, UFSAR Section 6.3. | eration and is | closed durin | g the hot leg recirc | ulation phase of | ECCS operat | ld | | X X X
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 relie
In scope per ISTA-1100. Reference | | | 0.75
Relief/Safety
ssure piping in the | Self
event of RCS ch | C C | -
age. | | X
Open Test Freq:
Close Test Freq: 10 Years
FS Test Dir:
ST Test Dir: | |
| SI-V114
SI Pumps common discharge to col
Modes 1,2&3), remains open during
closed during the hot leg recirculation
valve is also the ORC CIV for pene
UFSAR Section 6.3, Table 6.2-83, T | the injection
on phase of E
tration X-27 | and cold leg
CCS operatio | recirculation phase
on approximately 1 | es of ECCS oper
8 hours after the | ation, and is accident. This | | SI-CSJ-3 | X X X
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 va
and the RCS pressure is below the
seat leakage tested per TS 3/4.4.6.2
C LLRT. It also provides an overpre
P&ID D20446, UFSAR Sections 5.4 | pump shutoff
2, and it is an
essure protect | head. This vi
IRC isolatio | alve is an RCS/SI
n for penetration X
for certain thermall | pressure isolatio
-27- exempt fror
y induced scena | n valve which
n Appendix J | is
Type | | X
Open Test Freq:
Close Test Freq: PIVs per TS
RV Test Freq:
FS Test Dir:
ST Test Dir: | х |

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#### SYSTEM: SI

## IST VALVE TEST TABLE

#### P&ID No.: **D20446**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	~. Positior NRM SAF	s FAL	Relief Req I C.S. Just.	IST Program Plan Commitment Commitment DI FE FS LJ LK PE PI RT	ST CME
SI-V122 SI loop 2 cold leg injection check va and the RCS pressure is below the seat leakage tested per TS 3/4.4.6.2 C LLRT. It also provides an overpre- P&ID D20446, UFSAR Sections 5.4	oump shutoff 2, and  it is ar ssure protect	head. This va IRC isolatio ion function f	alve is an RCS/SI n for penetration ) or certain thermall	pressure isolati X-27- exempt fro y induced scena	on valve which is m Appendix J Typ	e		X Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:	x
SI-V126 SI loop 3 cold leg injection check va and the RCS pressure is below the seat leakage tested per TS 3/4.4.6.2 C LLRT. It also provides an overpre- P&ID D20446, UFSAR Sections 5.4	oump shutoff 2, and it is ar ssure protect	head. This vi IRC isolatio ion function f	alve is an RCS/SI in for penetration or certain thermall	pressure isolati X-27- exempt fro ly induced scena	on valve which is m Appendix J Typ	- Ie		X Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:	Х
SI-V130 SI loop 4 cold leg injection check va and the RCS pressure is below the seat leakage tested per TS 3/4.4.6.2 C LLRT. It also provides an overpre P&ID D20446, UFSAR Sections 5.4	pump shutoff 2, and it is ar ssure protect	head. This vi IRC isolatio ion function f	alve is an RCS/SI n for penetration ) or certain thermall	pressure isolati X-27- exempt fro ly induced scena	on valve which is m Appendix J Typ	- Ie		X Open Test Freq: Close Test Freq: PIVs per TS RV Test Freq: FS Test Dir: ST Test Dir:	Х
SI-V131 SI cold leg injection check valyes ter from Appendix J Type C LLRT. This valve may be periodically opened to D20446, UFSAR Section 5.4.7, 6.3,	valve is norr measure the	nally closed a seat leakage	and receives a cor e past the SI cold :	ntainment isolatio leg PIVs. Refere	on X-27- Exempt on "T" signal. This nces : P&ID	С		X X X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: FS Test Dir: Closed ST Test Dir: Closed	х
SI-V132 SI hot leg 3 PIV test line isolation. 7 header and is required to be closed Reference: P&ID D20446					age detection	C		X Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	

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#### SYSTEM: SI

## IST VALVE TEST TABLE

#### P&ID No.: **D20446**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Position SAF	s FAL	Relief Req C.S. Just.	DI	FE		nmitme nmitme	ent		ΡI	RT	ST	CME
<b>SI-V133</b> SI hot leg 2 PIV test line isolation. Th header and is required to be closed Reference: P&ID D20446							C			CI		st Freq	;; ;; ;;		x			
SI-V134 Loops 2 & 3 HL check valves test lin Appendix J Type C LLRT. This valve may be periodically opened to meas D20446, UFSAR Section 5.4.7, 6.3,	e is normally o sure the seat	losed and red leakage past	ceives a contair	ment isolation "T" s	ignal. Th	is valve				CI		st Freq	: Qu  : r: Clo	osed	Х У		х	
SI-V157 SI accumulator fill isolation valve. Th "T" signal to close. SI-V157 may be isolation valve for penetration X35A References: P&ID D20446, UFSAR	periodically o which is subj	pened to adju ect to Type C	st SI accumulat	tor level. This is also	a conta	inment	С			CI	pen Te ose Te RV Te FS T	st Freq	i: Qu I: r: Clo	osed	Х У		х	
SI-V160 Loops 1 & 4 HL backup check valve from Appendix J Type C LLRT. This valve may be periodically opened to D20446, UFSAR Section 5.4.7, 6.3,	valve is norm measure the	ally closed ar seat leakage	nd receives a co	ontainment isolation	"T" sign	al. This	C			Cl		st Fred	i: Qu i: r: Clo	osed	X y		х	
SI-V248 SI pump common recirculation line r leakage. In scope per ISTA-1100. Re		rotects lower	0.75 Relief/Safety pressure piping	Self g in the event of RCS	C S check v	O valve	-					st Fred	; ;: ;: 10 r;	Years	s	х		

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#### SYSTEM: SI

# IST VALVE TEST TABLE

P&ID No.: **D20447** 

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| P&ID NO.: D20447
Valve Number | Class
and | Valve | Size (in.)
and | Actuator | | Positions
SAF FA | Relief Req | DI | FE | IST Prog
Comm
Comm
FS LJ | itment
itment | t
t | I F | RΤ | ST | CME |
|---|---|--|---|--|-----------------------------|---|-----------------|----|--------|--------------------------------------|-----------------------------|------------------------|-----|----|----|-----|
| Remarks | Coord | (CAT) | Туре | Туре | INFXIV | SAF TA | ∟
C.S. Just. | | | 10 20 | | | | | | |
| SI-V138 | 2
(H-6) | В | 4.0
Gate | Motor | С | 0/C - | | | X
O | pen Test | Freq: | X
Refueling | C | | Х | |
| CCP-SI cold leg isolation valve and
Type C LLRT. This valve is normally
recirculation. Closed following termi
valve is also in the alternate boration
P&ID D20447, UFSAR Sections 5.4 | ORC contain
/ closed, rec
nation of hi-h
n injection flo | eives an oper
ead injection
w path and m | and to restore nor | al, and remains o
mal charging ope | erations. T | his | SI-RJ-1 | | C | RV Test
FS Tes | Freq:
t Dir: | Refueling
Open/Clos | | | | |
| SI-V139 | 2
(H-6) | В | 4.0
Gate | Motor | С | 0/C - | | | | | | ر
Refueling | < | | Х | |
| CCP-SI cold leg isolation valve and
Type C LLRT. This valve is normally
recirculation. This valve is also in th
shutdown. Closed following termina
P&ID D20447, UFSAR Sections 5. | ORC contair
y closed, rece
e alternate b
tion of hi-hea | eives an oper
oration injecti
id injection ar | n valve for penetra
SI injection signa
on flow path and n
d to restore norma | al, and remains o
nav be cycled du | pen for co
ring safe | na ieg | SI-RJ-1 | | С | RV Test
FS Tes | Freq:
st Dir:
st Dir: | Refueling
Open/Clos | sed | | | Ň |
| SI-V140
CCP SI injection to Cold Legs comr | 1
(G-5) | | 3.0
Check
BC isolation valve | Self | C
f from Apr | O/C · | | | | Open Test
Slose Test | | PiVs per | TS | | | х |
| Type C LLRT. This valve is normall
valve is designated a pressure isol
up by a normally closed MOV, it is
PIV tested as a conservative measu
induced scenarios. References: P | y closed and
ation valve in
not technicall
ure. It also pr | opens upon i
TRM Section
y considered
ovides an ove | nitiation of hi-head
1 2.18. Per UFSAF
a high-to-low pres
arpressure protecti | SI flow to the R
S.5.4.7, since this
sure isolation bai
ion function for ce | valve is l
rrier, howe | egs. This
backed
ever, it is
mally | | | | RV Test
FS Te
ST Te | st Dir: | | | | | |
| SI-V144 | 1
(D-4) | A/C | 1.5
Check | Self | С | O/C | - | | | Open Test | | | те | | | Х |
| CCP SI injection loop 1 cold leg chu
flow to the RCS cold legs. This valu
5.4.7, since this valve is backed up
pressure isolation barrier, however
protection function for certain them | by a normall | ted a pressure
y closed MO ^V
red as a consi | e isolation valve in
/, it is not technica
ervative measure. | I RIVI Section 2.
Illy considered a
It also provides a | high-to-lov
high overpre | w
wessure | | | Ĺ | RV Test
RV Test
FS Te
ST Te | Freq:
st Dir: | | 10 | | | |
| SI-V148 | 1
(E-4) | A/C | 1.5
Check | Self | С | O/C | - | | | Open Tes | | | | | | Х |
| CCP SI injection loop 2 cold leg ch
flow to the RCS cold legs. This val-
5.4.7, since this valve is backed up
pressure isolation barrier, however
protection function for certain them | eck valve. Th
ve is designa
by a normal | ted a pressur
ly closed MO
ted as a cons | rmally closed and
e isolation valve ir
V, it is not technica
ervative measure. | ally considered a
lt also provides a | high-to-lo
an overpre | r SAR
W
essure | | | C | RV Tes
FS Te | | | TS | | | |

SYSTEM: SI

IST VALVE TEST TABLE

P&ID No.: **D20447**

| Valve Number
Remarks | Class
and
Coord | Valve
(CAT) | Size (in.)
and
Type | Actuator
Type | | Position:
SAF | s
FAL | Relief Req
C.S. Just. | DI | FE | Co | ommit
ommit | am Pla
iment
iment
LK | | Pl | RT | ST | CME |
|--|--|---|--|--|----------------------------------|-------------------|------------------------|--------------------------|-------|----|-----|--------------------------|--------------------------------|-------|-------|----|----|-----|
| SI-V152
CCP SI injection loop 3 cold leg chec
flow to the RCS cold legs. This valve
5.4.7, since this valve is backed up to
pressure isolation barrier, however, i
protection function for certain therma
6.3, TS 3/4.4.6.2, TRM Section 2.18 | is designate
y a normally
t is PIV teste
illy induced s | d a pressure i
closed MOV,
d as a conserv | solation valve in
it is not technica
vative measure. | TRM Section 2.18
Ily considered a high
It also provides an | . Per UF
gh-to-lov
overpre | SAR
v
ssure | - | 0.0, Just. | | | . – | est Fr | req: P
req:
Dir: | IVs p | er TS | | | х |
| SI-V156
CCP SI injection loop 4 cold leg chec
flow to the RCS cold legs. This valve
5.4.7, since this valve is backed up to
pressure isolation barrier, however, i
protection function for certain therma
6.3, TS 3/4.4.6.2, TRM Section 2.18 | - | | | | | est Fr | req: P
req:
Dir: | IVs p | er TS | | | Х | | | | | | |
| SI-V158
SI cold leg injection backup check va
Exempt from Appendix J Type C LLF
signal. This valve may be periodicall
P&ID D20447, UFSAR Section 5.4.7 | RT. This valve
y opened to r | e is normally c
neasure the s | losed and receiv | ves a containment | isolation | "T" | С | | | | | est Fr
est Fr
Test | req: C | losed | | | х | |
| SI-V159
SI cold leg injection primary check va
periodically opened to measure the s
97-095). References : P&ID D20447 | eat leakage | past the SI co | ld leg PIVs. Pass | | | | С | | | | | est Fr | req:
req:
Dir: | | Χ. | | | |

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SYSTEM: SI

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IST VALVE TEST TABLE

P&ID No.: **D20450**

| Valve Number | Class
and | Valve | Size (in.)
and | Actuator | | Position | | Relief Req | | | | Comn
Comn | pram Pl
nitment
nitment | | | DT | ST | CME |
|--|---|--|--|--|---|---|---------|------------|----|----|-----------|--|---|----|----|----|----|-------|
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL | C.S. Just. | DI | FI | EF | S L. | J LK | PE | ΡI | RT | 51 | CIVIE |
| SI-FV2475
SI accumulator A nitrogen vent iso
accumulator for cold shutdown sho
Sections 5.4.7, 7.4, 6.3. THIS VAL
TEN YEAR INTERVAL REVIEW. S
active, as its use would be for ope
However, this valve would still hav
tested per ISTC-3700. Design Er
considered active for the Cold Shu | ould the accun
VE WAS ADD
Subsequent C
ration beyond
re a passive sa
ingineering has | nulator outlet
DED TO THE
omponent En
the plant's lic
afety function
included this | MOV fail to close
IST PROGRAM A
gineering review
ensing basis of s
to be closed for A
valve in the UFS | . References: P&IL
AS A RESULT OF ⁻
determined this va
hutdown to hot star
Accumulator operat | THE SEC
Ive to be
ndby cont
pility and | , UPSAN
OND
not
ditions.
would b | | | | | Clos
R | n Test
e Test
/ Test
FS Tes
ST Tes | Freq:
Freq:
st Dir: | | Х | | | |
| SI-FV2476
SI accumulator A nitrogen vent iso
accumulator for cold shutdown shu
Sections 5.4.7, 7.4, 6.3. THIS VAL
TEN YEAR INTERVAL REVIEW.
active, as its use would be for ope
However, this valve would still hav
tested per ISTC-3700. Design En
considered active for the Cold Shu | ould the accur
VE WAS ADE
Subsequent C
ration beyond
/e a passive singineering has | nulator outlet
DED TO THE
component Er
the plant's lic
afety function
included this | MOV fail to close
IST PROGRAM /
ingineering review
censing basis of s
to be closed for /
valve in the UFS | References: P&IL
AS A RESULT OF
determined this va
hutdown to hot sta
Accumulator operal | D D20450
THE SEC
Ilve to be
ndby con
bility and | , UFSA
OND
not
ditions.
would b | | | | | Clos
R | e Test
V Test
FS Te | Freq:
Freq:
Freq:
st Dir:
st Dir: | | х | · | | |
| SI-FV2477
SI accumulator C nitrogen vent is
accumulator for cold shutdown sh
Sections 5.4.7, 7.4, 6.3. THIS VAI
TEN YEAR INTERVAL REVIEW.
active, as its use would be for ope
However, this valve would still har
tested per ISTC-3700. Design E | ould the accur
LVE WAS ADI
Subsequent C
eration beyond
ve a passive s | mulator outlet
DED TO THE
Component Er
I the plant's lic
afety function | MOV fail to close
IST PROGRAM
agineering review
censing basis of s
to be closed for | A References: P&II
AS A RESULT OF
determined this vashutdown to hot sta
Accumulator opera | D D20450
THE SE0
alve to be
indby con
ibility and | D, UPSA
COND
not
ditions.
would b | к
)e | | | | Clos | e Test
V Test
FS Te | t Freq:
t Freq:
t Freq:
est Dir:
est Dir: | | X | | | |

tested per ISTC-3700. Design Engineering has included this valve considered active for the Cold Shutdown condition (DCR 00-0001).

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1-F4.123 SITR Rev. 23

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SYSTEM: SI

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IST VALVE TEST TABLE

P&ID No.: **D20450**

| Valve Number | Class | | Size (in.) | | | | | | | | Cor | | ment | | | | | |
|---|-------------------|-----------------|---------------------|----------------------|-----------------------|-------------------|------|------------|----|-----|---------------------|----------------|------|----|----|-----|----|-----|
| Valve Nulliber | and | Valve | and | Actuator | Р | ositions | | Relief Req | | | Cor | nmiti | ment | | | | | |
| Remarks | Coord | (CAT) | Туре | Туре | NRM | SAF | FAL. | | DI | FE | FS | LJ | LΚ | ΡE | Pl | .RT | ST | CME |
| | | | | | | | | C.S. Just. | | | | | | | | | | |
| SI-FV2482 | 2 | В | 1.0 | Solenoid | С | С | С | | | ~ | | - 4 F . | | | Х | | | |
| | (F-9) | | Globe | lia ananad ta dan | rocourizo | the SI | | | | | Dpen Te
lose Te | | | | | | | |
| SI accumulator B nitrogen vent is
accumulator for cold shutdown sh | plation valve. If | nis valve is no | MOV fail to close | References: P&IC | D20450 | | | | | 0 | RV Te | | • | | | | | |
| Sections 5.4.7, 7.4, 6.3. THIS VA | VF WAS ADD | ED TO THE I | ST PROGRAM A | S A RESULT OF | THE SECO | OND | | | | | | Test I | · • | | | | | |
| TEN YEAR INTERVAL REVIEW. | Subsequent Co | omponent En | aineering review a | letermined this val | lve to be n | ot | | | | | ST | Test l | Dir: | | | | | |
| active, as its use would be for ope | eration beyond | the plant's lic | ensing basis of sh | utdown to hot star | ndby condi | tions. | | | | | | | | | | | | |
| However, this valve would still hat tested per ISTC-3700. Design Er | ve a passive sa | fety function | to be closed for A | ccumulator operat | le because | ouia pe
it is | | | | | | | | | | | | |
| considered active for the Cold Sh | utdown conditio | on (DCR 00-0 | 001). | | C Debuduo | 51110 | | | | | | | | | | | | |
| | | | ,- | | • | | | | | | | | | | | | | |
| SI-FV2483 | 2 | В | 1.0 | Solenoid | С | С | С | | | | | . – | | | Х | | | |
| | (F-8) | | Globe | dia amampada alam | recourizo | the SI | | | | | Dpen Te
Close Te | | | | | | | |
| SI accumulator B nitrogen vent is
accumulator for cold shutdown sh | olation valve. | his valve is n | ormally closed and | a is opened to dep | | | , | | | C C | RV Te | | | | | | | |
| Sections 5.4.7, 7.4, 6.3.THIS VAL | VE WAS ADDI | FD TO THE L | ST PROGRAM AS | S A RESULT OF T | THE SECC | ND | • | | | | | Test | | | | | | |
| TEN YEAR INTERVAL REVIEW. | Subsequent Co | omponent En | gineering review of | determined this va | lve to be n | lot | | | | | ST | Test | Dir: | | | | | |
| active, as its use would be for op- | eration beyond | the plant's lic | ensing basis of sh | utdown to hot stai | ndby cond | itions. | | | | | | | | | | | | |
| However, this valve would still ha | ve a passive sa | afety function | to be closed for A | ccumulator operat | ollity and w | oula be
bit is | • | | | | | | | | | | | |
| tested per ISTC-3700. Design El
considered active for the Cold Sh | utdown conditio | nciudea inis | | | ne becaus | 6 11 15 | | | | | | | | | | | | |
| considered active for the obld of | didown condia | | | | | | | | | | | | | | | | | |
| SI-FV2486 | 2 | в | 1.0 | Solenoid | С | С | С | | | | | | | | Х | | | |
| | (F-6) | | Globe | | | | | | | | Open Te | | | | | | | |
| SI accumulator C nitrogen vent is | olation valve. T | his valve is n | ormally closed an | d is opened to dep | oressurize | the SI | | | | Ĺ | Close Te
RV Te | | | | | | | |
| accumulator for cold shutdown sl
Sections 5.4.7, 7.4, 6.3. THIS VA | hould the accur | | MOV fail to close. | References: Pall | J D20450,
THE SECI | UFSAR
NND | K | | | | | Test | | | | | | |
| TEN YEAR INTERVAL REVIEW. | LVE WAS ADD | moonent Fina | ineering review de | etermined this value | re to be no | t active. | | | | | | Test | | | | | | |
| as its use would be for operation | beyond the pla | nt's licensing | basis of shutdown | ו to hot standby co | onditions. | | | | | | | | | | | | | |
| However, this valve would still ha | ve a passive sa | afety function | to be closed for A | ocumulator operal | bility and v | vould be | 9 | | | | | | | | | | | |
| tested per ISTC-3700. Design E | ngineering has | included this | valve in the UFSA | AR active valve tab | ble becaus | e it is | | | | | | | | | | | | |
| considered active for the Cold Sh | lutaown conditie | on (DCK 00-0 | iuut). | | | | | | | | | | | | | | | |

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IST Program Plan

#### SYSTEM: SI

## IST VALVE TEST TABLE

#### P&ID No.: **D20450**

| Valve Number<br>Remarks                                                                                                                                                                                                                                                                                                     | Class<br>and<br>Coord                                                                                 | Valve<br>(CAT)                                                                                        | Size (in.)<br>and<br>Type                                                                                            | Actuator<br>Type                                                                                     | NRM                                                        | Position<br>SAF                               | s<br>FAL   | Relief Req<br>C.S. Just. | DI | FE | mitment<br>mitment | t   | Ρl         | RT | ST | СМЕ |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------|------------|--------------------------|----|----|--------------------|-----|------------|----|----|-----|
| SI-FV2495<br>SI accumulator D nitrogen vent isola<br>accumulator for cold shutdown shou<br>Sections 5.4.7, 7.4, 6.3. THIS VALV<br>TEN YEAR INTERVAL REVIEW. Su<br>active, as its use would be for opera<br>However, this valve would still have<br>tested per ISTC-3700. Design Eng<br>considered active for the Cold Shutc | ld the accumu<br>E WAS ADDE<br>ibsequent Co<br>tion beyond ti<br>a passive saf<br>ineering has it     | Ilator outlet M<br>D TO THE IS<br>nponent Eng<br>ne plant's lice<br>ety function to<br>ncluded this v | OV fail to close.<br>T PROGRAM A<br>ineering review on<br>sing basis of sh<br>be closed for A<br>alve in the UFSA    | References: P&IE<br>S A RESULT OF<br>determined this va<br>butdown to hot star<br>ccumulator operate | D20450<br>THE SEC<br>Ive to be<br>ndby cond<br>pility and  | , UFSAF<br>OND<br>not<br>ditions.<br>would be |            |                          |    |    | Freq:              |     | х          |    |    |     |
| SI-FV2496<br>SI accumulator D nitrogen vent isola<br>accumulator for cold shutdown shou<br>Sections 5.4.7, 7.4, 6.3. THIS VALV<br>TEN YEAR INTERVAL REVIEW. Su<br>active, as its use would be for opera<br>However, this valve would still have<br>tested per ISTC-3700. Design Eng<br>considered active for the Cold Shutc | Id the accumu<br>E WAS ADDE<br>absequent Cont<br>tion beyond the<br>a passive saft<br>ineering has it | Ilator outlet M<br>D TO THE IS<br>mponent Eng<br>ne plant's lice<br>ety function to<br>ncluded this v | IOV fail to close.<br>IT PROGRAM A<br>ineering review of<br>nsing basis of sh<br>be closed for A<br>alve in the UFS/ | References: P&IE<br>S A RESULT OF<br>determined this va<br>nutdown to hot star<br>ccumulator operate | DD20450<br>THE SEC<br>Ive to be<br>ndby cond<br>bility and | , UFSAF<br>OND<br>not<br>ditions.<br>would be |            |                          |    |    | Freq:              |     | х          |    |    |     |
| SI-V3<br>SI accumulator A outlet isolation val<br>pressure >1000psig. It also receives<br>pressure is greater than 100 psig. R                                                                                                                                                                                              | an SI open s                                                                                          | ignal. This va                                                                                        | ive is closed in N                                                                                                   | /lodes 4&5 when a                                                                                    | accumulat                                                  | or                                            | -<br>0001. | SI-CSJ-4                 |    |    | <br>t Freq:        | CSD | X<br>Close | d  | х  |     |
| SI-V4<br>SI accumulator A Cold Leg 1 check<br>measure PIV seat leakage. Passive<br>Section 6.3.                                                                                                                                                                                                                             |                                                                                                       |                                                                                                       |                                                                                                                      |                                                                                                      |                                                            |                                               | С          |                          |    |    | <br>t Freq:        |     | х          |    |    |     |

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SYSTEM: SI

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	6	Relief Reg		IST Progra Commitr Commitr	ment				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI F	E FS LJ	LK I	PE PI	RT	ST	CME
SI-V5 SI to RCS Loop 1 CL injection. Com closed during plant operation and op discharge pressure. This is also a P thermally induced scenarios. Referen	ens during sa ressure Isolai	ifety injection tion Valve. Al	when the RCS p so provides over	ressure drops bel pressure protectio	ow the S n for cer	il pump tain	-			Open Test Fr Close Test Fr RV Test Fr FS Test I ST Test I	eq: PI\ eq: Dir:	/s per T	3		х
SI-V6 SI accumulator Tank 9A outlet check during safety injection when the RC Isolation Valve. References: P&ID D	S pressure dr	ops below th	e accumulator pre	essure. This also		•	-			Open Test Fr Close Test Fr RV Test Fr FS Test I ST Test I	eq: PI\ eq: Dir:	/s per T	3		x
SI-V10 SI accumulator Tank 9A nitrogen reli	2 (F-11) ef valve. This	C valve is in s	1.0 Relief/Safety cope per ISTA-11	Self 00. Reference:P&	C kID D204	O 150	-			Open Test Fr Close Test Fr RV Test Fr FS Test I ST Test I	req: req: 10 Dir:	Years	X		
SI-V15 SI accumulator A fill / drain isolation. accumulator level. Passive closed fu					o adjust l	he SI	C 3.			Open Test Fr Close Test Fr RV Test Fr FS Test ST Test	eq: eq: Dir:	Х			
SI-V17 SI accumulator B outlet isolation valu pressure >1000psig. It also receives pressure is greater than 100 psig. Re	an SI open s	ignal. This va	alve is closed in N	lodes 4&5 when a	iccumula	tor	-	SI-CSJ-4		X Open Test Fr Close Test Fr RV Test Fr FS Test ST Test	eq: CS eq: Dir:	D		х	

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SYSTEM: SI

IST VALVE TEST TABLE

P&ID No.: **D20450**

Valve Number	Class	Valve	Size (in.) and	Actuator		Position	e	Relief Reg		T Prograr Commitrr Commitrr	nent				
Remarks	and Coord	(CAT)	Туре	Type	NRM		FAL	C.S. Just.		S LJ		E Pl	RT	ST	CME
SI-V18 SI accumulator B Cold Leg 2 check v measure PIV seat leakage. Passive Section 6.3.	2 (E-10) alve test line closed functio	B solation. This n only (per E	0.75 Globe s valve is norma WR 97-095). F	Air/Diaphragm ally closed but may b References: P&ID D2	C be ope 20450,	C n to UFSAR	C		Close R\ I	n Test Fre e Test Fre / Test Fre -S Test D ST Test D	eq: eq: Dir:	х			·
SI-V20 SI to RCS Loop 2 CL injection. Comr closed during plant operation and op discharge pressure. This is also a Pa thermally induced scenarios. Referen	ens during sa essure Isolati	ety injection on Valve. Als	when the RCS so provides ove	pressure drops belo protection	w the for ce	SI pump rtain	-		Close R\	n Test Fre e Test Fre / Test Fre FS Test D ST Test D	eq: PIVs eq: Dir:	per T	5		Х
SI-V21 SI accumulator Tank 9B outlet check opens during safety injection when th Isolation Valve. References: P&ID D2	e RCS press	ure drops bel	low the accumu	lator pressure. This			-		Close R\	n Test Fre e Test Fre / Test Fre FS Test D ST Test D	eq: PIVs eq: Dir:	per T	5		х
SI-V23 SI accumulator B fill / drain isolation. accumulator level. Passive closed fur	2 (E-8) This valve is nction only (p	B normally clos er EWR 97-0	1.0 Globe sed but may be 95). References	Air/Diaphragm periodically open to s: P&ID D20450, UF	C adjust SAR S	C the SI Section 6.	C 3.		Close R ^V	n Test Fre e Test Fre / Test Fre FS Test E ST Test E	∋q: ∋q: Dir:	х			
SI-V30 SI accumulator Tank 9B nitrogen reli	2 (F-9) ef valve. This		1.0 Relief/Safety cope per ISTA-1	Self 1100. Reference:P&	C ID D20	O 9450	-		Clos R'	n Test Fre e Test Fre V Test Fre FS Test I ST Test I	eq: eq: 10 Y Dir:	ears	х		

1-F4.127 SITR Rev. 23

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SYSTEM: SI

IST VALVE TEST TABLE

P&ID No.: **D20450**

/alve Number	Class	Valve	Size (in.) and	Actuator		Position		Relief Req	DI	FE	Cor Cor	nmitn nmitn		두	РI	RT	ST	CME
emarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	ы		10	LU		L			-	ome
SI-V32 SI accumulator C outlet isola pressure >1000psig. It also ro pressure is greater than 100	eceives an SI open	signal. This v	alve is closed in	Modes 4&5 when a	accumulat	tor	- 001.	SI-CSJ-4			ose Te RV Te FS	est Fre est Fre Test D	•	D	X		х	
SI-V33 SI accumulator C Cold Leg 3 neasure PIV seat leakage. F Section 6.3.	2 (E-8) check valve test lin Passive closed funct	B e isolation. Tl ion only (per l	0.75 Globe his valve is norm EWR 97-095).	Air/Diaphragm nally closed but may References: P&ID D	C / be open 020450, U	C to IFSAR	С					est Fre	eq: eq: Dir:		х			
SI-V35 SI to RCS Loop 3 CL injection closed during plant operation lischarge pressure. This is a hermally induced scenarios.	n and opens during s also a Pressure Isol	afety injectio ation Valve. A	n when the RCS Also provides ov	S pressure drops be erpressure protection	low the S on for cert	l pump ain	-				RV Te	est Fre	eq: Pl\ eq: Dir:	/s pe	r TS			х
SI-V36 SI accumulator Tank 9C out opens during safety injection Isolation Valve. References:	1 (D-7) tlet check valve and when the RCS pres	A/C PIV. This val	10.0 Check ve is normally cl elow the accum	Self osed during plant o ulator pressure. Thi	C peration a s also a F	O/C and					RV To FS	est Fr	eq: Pi\ eq: Dir:	/s pe	er TS			х
SI-V38 SI accumulator C fill / drain i accumulator level. Passive c	2 (E-6) solation. This valve losed function only	B is normally cl (per EWR 97-	1.0 Globe osed but may be -095). Reference	Air/Diaphragm e periodically open t es: P&ID D20450, U	C o adjust t IFSAR Se	C he SI ection 6.3	C 3.					est Fr	eq: eq: Dir:		х			

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SYSTEM: SI

D20450

P&ID No .

IST VALVE TEST TABLE

IST Program Plan Size (in.) Commitment Valve Number Class Positions Relief Reg Commitment and Valve and Actuator SAF FAL DI FE FS LJ LK PE PI RT ST CME Remarks Coord (CAT) Type Type NRM C.S. Just. SI-V45 С С Х 2 1.0 Self 0 (F-7) Relief/Safetv Open Test Freq: SI accumulator Tank 9C nitrogen relief valve. This valve is in scope per ISTA-1100. Reference:P&ID D20450 Close Test Freq: RV Test Freq: 10 Years FS Test Dir: ST Test Dir: **SI-V47** в 10.0 0 O/C Х х Х Motor 1 (D-5) Gate SI-CSJ-4 Open Test Freq: CSD SI accumulator D outlet isolation valve. This valve is normally open and deenergized in Modes 1-3 with RCS Close Test Freg: CSD pressure >1000psig. It also receives an SI open signal. This valve is closed in Modes 4&5 when accumulator RV Test Frea: FS Test Dir: 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. ST Test Dir: Open/Closed **SI-V48** в 0.75 Air/Diaphragm С С С Х 2 (E-5) Globe Open Test Freq: SI accumulator D Cold Leg 4 check valve test line isolation. This valve is normally closed but may be open to Close Test Freq: measure PIV seat leakage. Passive closed function only (per EWR 97-095), References: P&ID D20450, UFSAR RV Test Frea: FS Test Dir: ST Test Dir: SI-V50 С O/C х A/C 10.0 Self Х 1 Open Test Frea: (B-4) Check SI to RCS Loop 4 CL injection. Common SI accumulator, LPSI, SI check valve and PIV. This valve is normally Close Test Freq: PIVs per TS closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump RV Test Frea: discharge pressure. This is also a Pressure Isolation Valve. Also provides overpressure protection for certain FS Test Dir: thermally induced scenarios. References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18. ST Test Dir: SI-V51 A/C 10.0 Self С O/C Х Х 1 (D-4) Check Open Test Freq: SI accumulator Tank 9D outlet check valve and PIV. This valve is normally closed during plant operation and Close Test Freq: PIVs per TS opens during safety injection when the RCS pressure drops below the accumulator pressure. This also a Pressure RV Test Frea: Isolation Valve, References: P&ID D20450, UFSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18. FS Test Dir: ST Test Dir:

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SYSTEM: SI

## IST VALVE TEST TABLE

P&ID No.: D20450

| Valve Number                                                                                                            | Class                         |                  | Size (in.)                              |                       |            |           |     |            |    |    | С                | ommit                                          | ment                     | 211                        |     |         |          |      |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------|-----------------------------------------|-----------------------|------------|-----------|-----|------------|----|----|------------------|------------------------------------------------|--------------------------|----------------------------|-----|---------|----------|------|
|                                                                                                                         | and                           | Valve            | and                                     | Actuator              |            | Position  |     | Relief Req |    |    |                  | ommit                                          |                          |                            | -   | <b></b> | <b>~</b> | 0.45 |
| Remarks                                                                                                                 | Coord                         | (CAT)            | Туре                                    | Туре                  | NRM        | SAF       | FAL | C.S. Just. | DI | FE | FS               | LJ                                             | LK                       | PE                         | Ρl  | RT      | ST       | CME  |
| SI-V53                                                                                                                  | 2<br>(E-3)                    | В                | 1.0<br>Globe                            | Air/Diaphragm         | С          | С         | С   |            |    | c  | )non -           | Test F                                         | 00'                      |                            | Х   |         |          |      |
| SI accumulator D fill / drain isolatio<br>accumulator level. Passive closed                                             | n. This valve i               |                  | sed but may be                          |                       |            |           | 3.  |            |    |    | lose<br>RV<br>FS | Test F<br>Test F<br>S Test<br>F Test           | req:<br>req:<br>Dir:     |                            |     |         |          |      |
| SI-V60                                                                                                                  | 2                             | С                | 1.0                                     | Self                  | С          | 0         | -   |            |    |    |                  |                                                |                          |                            |     | х       |          |      |
| SI accumulator Tank 9D nitrogen r                                                                                       | (F-4)<br>elief valve. Th      | is valve is in s | Relief/Safety<br>scope per ISTA-1       | 100. Reference:P&     | ID D204    | 150       |     |            |    |    | lose<br>RV<br>FS | Test F<br>Test F<br>Test F<br>S Test<br>F Test | req:<br>req: 1<br>Dir:   | 0 Yea                      | rs  |         |          |      |
| SI-V62                                                                                                                  | 2<br>(H-8)                    | А                | 0.75<br>Globe                           | Air/Diaphragm         | С          | С         | С   |            |    | X  | X<br>Doen        | X<br>Test F                                    | rea:                     |                            | Х   |         | Х        |      |
| PIV test line, acccumulator fill/ drai<br>periodically open for check valve te<br>signal to close. This valve is subjec | n header OR<br>sting or to ac | ljust accumul    | X-35 isolation. T<br>ator level, and re | ceives a containmer   | nt isolati | ion ('T') | 3.  | ·          |    |    | lose<br>RV<br>FS | Test F<br>Test F<br>6 Test                     | req: (<br>req:<br>Dir: ( | Quarte<br>Closed<br>Closed | rly |         |          |      |
| SI-V70                                                                                                                  | 2                             | А                | 0.75                                    | Air/Diaphragm         | С          | С         | С   |            |    | Х  |                  |                                                |                          |                            | х   |         | х        |      |
| PIV test line, accumulator fill/ drain<br>periodically open for check valve te<br>signal to close. This valve is subjec | esting or to ac               | just accumul     | ator level, and re                      | ceives a containmer   | nt isolati | ion ('T') | 3.  |            |    |    | lose<br>RV<br>FS | Test F<br>5 Test                               | req: (<br>req:<br>Dir: ( | Quarte<br>Closed<br>Closed |     |         |          |      |
| SI-V247                                                                                                                 | 2                             | A/C              | 0.75<br>Deliaf/Cafaty                   | Self                  | С          | O/C       | -   |            |    |    | )                | X                                              |                          |                            |     | х       |          |      |
| SI test line Containment penetratio<br>provides overpressure protection f<br>References: P&ID D20450, UFSAF             | or X-35 due to                | thermal exp      | ansion of trapped                       | d fluid under accider | nt condif  |           |     |            |    |    | lose<br>RV<br>FS |                                                | req: F<br>req: 1<br>Dir: | Per Ap<br>0 Yea            |     | хJ      |          |      |

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1-F4.130 SITR Rev. 23

IST Program Plan

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#### SYSTEM: SS

## IST VALVE TEST TABLE

#### P&ID No.: D20520

| Valve Number                                                                                                                           | Class<br>and                                           | Valve                           | Size (in.)<br>and                                            | Actuator                                | .*                         | Position          | s   | Relief Req | ·  |        | Co                   | ommit         | am Pla<br>tment<br>tment | an                          |    |    |    |   |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------|--------------------------------------------------------------|-----------------------------------------|----------------------------|-------------------|-----|------------|----|--------|----------------------|---------------|--------------------------|-----------------------------|----|----|----|---|
| Remarks                                                                                                                                | Coord                                                  | (CAT)                           | Туре                                                         | Туре                                    | NRM                        | SAF               | FAL | C.S. Just. | DI | FE     | FS                   | LJ            | LK                       | PE                          | Ρl | RT | ST | C |
| SS-FV2857                                                                                                                              | 2<br>(G-5)                                             | А                               | 0.5<br>Globe                                                 | Solenoid                                | С                          | С                 | С   |            |    | X<br>C | X<br>Ipen T          |               | req:                     |                             | Х  |    | Х  |   |
| PASS sample return isolation va<br>is opened to return PASS samp<br>P&ID D20518, UFSAR Table 6.                                        | alve- ORC-ĆIV fo<br>le/flush fluid to t                | or penetration<br>he containme  | X-19, subject to A<br>int and receives a                     | Appendix J Type (<br>"T" closure signal | C LLRT. T<br>. Referen     | his valvo<br>ces: | e   |            |    | С      | RV T<br>FS           | est F<br>Test | req:<br>Dir: (           | 2 Year:<br>Closed<br>Closed |    |    |    |   |
| SS-V273                                                                                                                                | 2<br>(G-4)                                             | A/C                             | 0.5<br>Check                                                 | Self                                    | С                          | O/C               | -   |            |    | c      | )<br>pen T           | X<br>Test F   | rea:                     |                             |    |    |    |   |
| PASS sample return line check<br>valve is opened to return PASS<br>valve is also relied upon to oper<br>accident conditions References | valve- ÌRC-CIV<br>sample/flush flu<br>to relieve overp | id to the cont<br>pressure caus | n X-19, subject to<br>ainment and close<br>ed by thermal exp | es for containment<br>ansion of trapped | t isolation.<br>fluid unde | . This<br>er      |     |            |    |        | lose T<br>RV T<br>FS |               | req:<br>req:<br>Dir:     |                             |    |    |    |   |

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SYSTEM: SW

## IST VALVE TEST TABLE

P&ID No.: **D20794** 

| Valve Number                                                                                                                                       | Class           |               | Size (in.)        |                     |            |           |     |            |    |    |                                            | ommitn                                               |                      |        |     |    |    |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|-------------------|---------------------|------------|-----------|-----|------------|----|----|--------------------------------------------|------------------------------------------------------|----------------------|--------|-----|----|----|-----|
|                                                                                                                                                    | and             | Valve         | and               | Actuator            |            | Positions |     | Relief Req |    |    | -                                          | ommitn                                               |                      |        |     |    |    |     |
| Remarks                                                                                                                                            | Coord           | (CAT)         | Туре              | Туре                | NRM        | SAF       | FAL | C.S. Just. | DI | FE | FS                                         | LJ                                                   | LK                   | PE     | ΡI  | RT | ST | CME |
| SW-V1                                                                                                                                              | 3<br>(H-7)      | С             | 24.0<br>Check     | Self                | DE         | O/C       | -   |            |    | C  | )pen <sup>-</sup>                          | rest Fre                                             | iα.                  |        |     |    |    | х   |
| Service water pump P-41A dischar<br>and close to prevent bypass flow fi<br>D20794, DBD-SW-01 revision 1.                                           | ge check valv   |               | must open when t  |                     |            |           |     |            |    |    | iose <sup>-</sup><br>RV <sup>-</sup><br>FS | Fest Fre<br>Fest Fre<br>Test E<br>Test E             | eq:<br>eq:<br>Dir:   |        |     |    |    |     |
| SW-V2                                                                                                                                              | 3               | В             | 24.0<br>Dutte flu | Motor               | DE         | O/C       | -   |            |    | x  | · · · · · ·                                | <b>54 5-</b>                                         |                      |        | X   |    | х  |     |
| Service water pump P-41A dischar<br>valve closes when the pump is sec<br>DBD-SW-01 revision 1.                                                     |                 |               |                   |                     |            | This      |     |            |    |    | lose<br>RV<br>FS                           | Fest Fre<br>Fest Fre<br>Fest Fre<br>Test E<br>Test E | eq: Q<br>eq:<br>Dir: | luarte | rlý | đ  |    |     |
| SW-V3                                                                                                                                              | 3               | С             | 24.0              | Self                | DE         | O/C       | -   |            |    |    |                                            |                                                      |                      |        |     |    |    | х   |
| Service water pump P-41C dischar<br>and close to prevent bypass flow 1<br>D20794, DBD-SW-01 revision 1.                                            |                 |               |                   |                     |            |           | ],  |            |    |    | lose<br>RV<br>FS                           | Fest Fre<br>Fest Fre<br>Fest Fre<br>Test E<br>Test E | eq:<br>eq:<br>Dir:   |        |     |    |    |     |
| SW-V22                                                                                                                                             | 3               | в             | 24.0              | Motor               | DE         | O/C       | -   |            |    | х  | · · · ·                                    |                                                      | ~                    |        | Х   |    | х  |     |
| Service water pump P-41C dischar<br>valve closes when the pump is sec<br>DBD-SW-01 revision 1.                                                     |                 |               |                   |                     |            | This      |     |            |    |    | lose<br>RV<br>FS                           | Test Fre<br>Test Fre<br>Test Fre<br>Test E<br>Test E | eq:Q<br>eq:<br>Dir:  | uarte) | rly | d  |    |     |
| SW-V24                                                                                                                                             | 3               | С             | 24.0<br>Chaola    | Self                | С          | 0         | -   |            |    |    | <b>`</b>                                   | <b>Fact 17</b> 4                                     |                      |        |     |    |    | Х   |
| Service water cooling tower pump I<br>the cooling tower pump is operating<br>is closed when the pump is not ope<br>basin. References: P&ID D20794. | g. This valve o | loes not have | a reverse closure | e function since th | ie dischar | ge MOV    |     |            |    |    | lose<br>RV<br>FS                           | Test Fre<br>Test Fre<br>Test Fre<br>Test E<br>Test E | eq:<br>eq:<br>Dir:   |        |     |    |    |     |

IST Program Plan

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SYSTEM: SW

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IST VALVE TEST TABLE

P&ID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	DI F	IST Program P Commitmen Commitmen E FS LJ LK	t t	יו RT	ST	CME
SW-V25 SW cooling tower pump (P-1 This valve opens when the p DBD-SW-01, revision 1.	3 (C-7) 110B) discharge isola oump is started and o	B ation valve. In closes when t	24.0 Butterfly teriocked to allow the pump is stopp	Motor pump to start wh ed. References: F	C en fully cl v&ID D20	O/C losed. 794,	-			X Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	Quarterly Quarterly		х	
SW-V26 Service water Cooling Towe valve is normally locked clos ISTC-3700 prior to being res	sed with power remo	ved. Passive	valve function onl	y. To be tested in	accordar	C er. This nce with	-			Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	:	x		
SW-V27 SW cooling tower pump (P- closes when the pump start column and pipe. Reference	ts and discharge valv	ve opens on a	"TA" signal. This	Motor 70% when the p function is to ven	O oump is se t the purr	O/C ecured an	- id			X Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	Quarterly Quarterly		х	
SW-V28 Service water pump P-41B and close to prevent bypas D20794, DBD-SW-01 revisio	s flow from the stan	C re. This valve dby pump as	24.0 Check must open when the discharge MC	Self the service wate V is closing. Refe	DE r pump is erences: F	O/C operating 2&ID	-],			Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:				Х
SW-V29 Service water pump P-41B valve closes when the pump DBD-SW-01, Revision 1.	3 (G-7) discharge isolation v p is secured, and ope	B alve. Interlock ens when the	24.0 Butterfly ked to allow pump pump is started. I	Motor to start when full References: P&ID	DE y closed. D20794,	O/C This	-			X Open Test Freq: Close Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:	Quarterly Quarterly	,	х	

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#### SYSTEM: SW

## IST VALVE TEST TABLE

P&ID No.: **D20794** 

| Valve Number                                                                                                                                                                                         | Class                                             |                                                   | Size (in.)                               |                                        |                          |                  |     |            |    |    |                          | Comn                                           |                       |                    |        |    |    |    |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------|------------------------------------------|----------------------------------------|--------------------------|------------------|-----|------------|----|----|--------------------------|------------------------------------------------|-----------------------|--------------------|--------|----|----|----|-----|
| Remarks                                                                                                                                                                                              | and<br>Coord                                      | Valve<br>(CAT)                                    | and<br>Type                              | Actuator<br>Type                       |                          | Positions<br>SAF | FAL | Relief Req | DI | FE |                          | Comn<br>S L.                                   |                       | ient<br>LK F       | ۶E     | PI | RT | ST | CME |
| SW-V30                                                                                                                                                                                               | 3<br>(F-7)                                        | С                                                 | 24.0<br>Check                            | Self                                   | DE                       | O/C              | -   | C.S. Just. |    | ſ  | Oner                     | ı Test                                         | Free                  | a.                 |        |    |    |    | х   |
| Service water pump P-41D discharg<br>and close to prevent bypass flow fr<br>D20794, DBD-SW-01 revision 1.                                                                                            | je check valv                                     |                                                   | must open when t                         |                                        |                          |                  | ,   |            |    |    | Close<br>R\<br>I         | e Test<br>/ Test<br>FS Tes<br>ST Tes           | Frec<br>Frec<br>st Di | q:<br>q:<br>ir:    |        |    |    |    |     |
| <b>SW-V31</b><br>Service water pump P-41D discharg<br>valve closes when the pump is secu<br>DBD-SW-01, Revision 1.                                                                                   |                                                   |                                                   |                                          |                                        |                          | O/C<br>ſhis      | -   |            |    |    | Oper<br>Close<br>R\<br>I | e Test<br>/ Test<br>FS Te                      | Frec<br>Frec<br>st Di | •                  | arterl | lý | 1  | х  |     |
| SW-V44<br>Service water pump suction isolatio<br>power removed. Would only be re-p<br>This function is no longer employed<br>Passive valve function only. To be t<br>References: P&ID D20794, DBD-St | ositioned in v<br>, generally, b<br>ested in acco | ery limited ci<br>ecause the cl<br>rdance with l  | rcumstances to pro-<br>norination system | ovide tunnel heat<br>performs the inte | t treatmen<br>ended fun  | t (THT).         | -   |            |    |    | Close<br>R\<br>I         | n Test<br>e Test<br>/ Test<br>FS Tes<br>ST Tes | Frec<br>Frec<br>st Di | q:<br>q:<br>ir:    |        | x  |    |    |     |
| SW-V46<br>Service water pump suction isolatio<br>with power removed. Would only be<br>(THT). This function is no longer en<br>function. Passive valve function on<br>References: P&ID D20794, DBD-SM | re-positioned<br>ployed, gene<br>ly. To be teste  | d in very limit<br>rally, becaus<br>ed in accorda | ed circumstances<br>e the chlorination   | to provide tunnel<br>system performs   | heat treat<br>the intend | iment<br>led     | -   |            |    |    | Close<br>R\              | n Test<br>e Test<br>/ Test<br>FS Te<br>ST Te   | Fred<br>Fred<br>st Di | q:<br>q:<br>lir:   |        | x  |    |    |     |
| SW-V53<br>Service water cooling tower pump F<br>the cooling tower pump is operating<br>is closed when the pump is not ope<br>basin. References: P&ID D20794.                                         | . This valve c                                    | loes not have                                     | a reverse closure                        | function since the                     | ne dischar               | ge MOV           | -   |            |    |    | Close<br>R\              | n Test<br>e Test<br>/ Test<br>FS Te<br>ST Te   | Free<br>Free<br>st Di | eq:<br>eq:<br>vir: |        |    |    |    | х   |

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IST Program Plan

#### SYSTEM: SW

# IST VALVE TEST TABLE

P&ID No.: **D20794** 

|                                                                                                                   |                |                  |                     |                   |          |           |     |            |    | IST               | Program                                                       | Pian           |           |    |    |     |
|-------------------------------------------------------------------------------------------------------------------|----------------|------------------|---------------------|-------------------|----------|-----------|-----|------------|----|-------------------|---------------------------------------------------------------|----------------|-----------|----|----|-----|
| Valve Number                                                                                                      | Class<br>and   | Valve            | Size (in.)<br>and   | Actuator          |          | Positions |     | Relief Reg |    |                   | ommitm<br>ommitm                                              |                |           |    |    |     |
| Remarks                                                                                                           | Coord          | (CAT)            | Туре                | Type              |          |           | FAL | •          | DI | -                 |                                                               | LK PE          | Ы         | RT | ST | CME |
| 018/11/54                                                                                                         |                | -                |                     |                   | ~        | 0.10      |     | C.S. Just. |    |                   |                                                               |                | .,        |    |    |     |
| SW-V54                                                                                                            | 3<br>(C-9)     | В                | 24.0<br>Butterfly   | Motor             | С        | O/C       | -   |            |    | X<br>Open         | Test Fre                                                      | a: Quart       | X<br>erlv |    | Х  |     |
| SW cooling tower pump (P-110A) dis<br>This valve opens when the pump is a<br>DBD-SW-01, revision 1.               | scharge isola  |                  | erlocked to allow   |                   |          |           |     |            |    | Close<br>RV<br>FS | Test Fre<br>Test Fre<br>S Test D                              | q: Quart<br>q: | erly      | d  |    |     |
| SW-V55                                                                                                            | 3              | В                | 24.0                | Motor             | С        | С         | -   |            |    |                   |                                                               |                | х         |    |    |     |
| Service water Cooling Tower pump<br>valve is normally locked closed with<br>ISTC-3700 prior to being restored to  | power remov    | ed. Passive      | alve function only  | . To be tested in | accordan |           |     |            |    | Close<br>RV<br>FS | Test Free<br>Test Free<br>Test Free<br>S Test Di<br>F Test Di | q:<br>q:<br>r: |           |    |    |     |
| SW-V56                                                                                                            | 3              | В                | 24.0                | Motor             | 0        | O/C       | -   |            |    | Х                 |                                                               |                | Х         |    | Х  |     |
| SW cooling tower pump ( P-110A) S<br>closes when the pump starts and di<br>column and pipe. References: P&ID      | scharge valv   | e opens on a     | "TA" signal. This f |                   |          |           | ıd  |            |    | Close<br>RV<br>FS | Test Fre<br>Test Fre<br>3 Test Di                             |                | erly      | d  |    |     |
| SW-V139                                                                                                           | 3              | В                | 24.0                | Motor             | 0        | С         | -   |            |    | x                 |                                                               |                | Х         |    | х  |     |
| SW cooling tower Train A spray hea<br>tower is placed into operation, and is<br>temperature. References: P&ID D20 | s cycled close | ed to initiate s | prays by the opera  |                   |          |           |     |            |    | Close<br>RV<br>FS | Test Fre<br>S Test D                                          | q: Quart<br>q: | 5         |    |    |     |
| SW-V140                                                                                                           | 3              | в                | 24.0                | Motor             | 0        | С         | -   |            |    | х                 |                                                               |                | х         |    | х  |     |
| SW cooling tower Train B spray hea<br>tower is placed into operation, and is<br>temperature. References: P&ID D20 | s cycled close | ed to initiate s | prays by the opera  |                   |          |           |     |            |    | Close<br>RV<br>FS | Test Fre<br>5 Test D                                          | q: Quart<br>q: |           |    |    |     |

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#### SYSTEM: SW

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## IST VALVE TEST TABLE

|                                                                                        |                                              |                                       |                                                       | •••                             |                |                  |          |            |    |    |                                                                     |                            |               |      |    |     |
|----------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------------|-------------------------------------------------------|---------------------------------|----------------|------------------|----------|------------|----|----|---------------------------------------------------------------------|----------------------------|---------------|------|----|-----|
| P&ID No.: <b>D20795</b>                                                                |                                              |                                       |                                                       |                                 |                |                  |          |            |    |    | IST Progra                                                          | am Plan                    | 1             |      |    |     |
| Valve Number<br>Remarks                                                                | Class<br>and<br>Coord                        | Valve<br>(CAT)                        | Size (in.)<br>and<br>Type                             | Actuator<br>Type                |                | Positions<br>SAF | ;<br>FAL | Relief Req | DI | FE | Commit<br>Commit<br>FS LJ                                           | tment<br>tment             | PE P          | I RT | ST | CME |
| SW-V4<br>Service water to SCC isolation valve                                          | 3<br>(E-11)<br>. This valve                  | B<br>is normally op                   | 12.0<br>Butterfly<br>sen and closes on                | Motor<br>a safety injection     | O<br>signal to | C<br>isolate     | -        | C.S. Just. |    |    | pen Test F<br>lose Test F                                           | req: Qu                    | X<br>Jarterly | ,    | х  |     |
| the SW NNS loads. References: P&I                                                      | D D20795, [                                  | 0BD-SW-01, 1                          | revision 1.                                           |                                 |                |                  |          |            |    | •  | RV Test F<br>FS Test<br>ST Test                                     | Dir:                       | osed          |      |    |     |
| SW-V5<br>Service water to SCC isolation valve<br>the SW NNS loads. References: P&      | 3<br>(E-11)<br>t. This valve<br>ID D20795, I | B<br>is normally of<br>DBD-SW-01,     | 12.0<br>Butterfly<br>pen and closes on<br>revision 1. | Motor<br>a safety injectior     |                | C<br>isolate     | -        |            |    |    | open Test F<br>lose Test F<br>RV Test F<br>FS Test<br>ST Test       | req: Qu<br>req:<br>Dir:    | •             |      | Х  |     |
| <b>SW-V15</b><br>SW outlet from the CC heat exchang<br>References: P&ID D20795, DBD-SV | 3<br>(E-8)<br>ger (CC-E17,<br>V-01, revisio  | B ↔<br>A). This valve<br>n 1.         | 24.0<br>Butterfly<br>is considered pa                 | Motor<br>ssive per 08MMC        | O<br>0510.     | 0                | -        |            |    |    | Open Test F<br>Close Test F<br>RV Test<br>FS Test<br>ST Test        | Freq:<br>Freq:<br>t Dir:   | >             | (    |    |     |
| SW-V16<br>EDG A jacket water heat exchanger<br>started. References: P&ID D20795        | 3<br>(B-8)<br>• outlet isolat<br>DBD-SW-0    | B<br>ion valve. Thi<br>1, revision 1. | 16.0<br>Butterfly<br>s valve is normall               | Air/Piston<br>y closed and oper | C              | O<br>the EDG     | O        |            |    |    | X<br>Dpen Test F<br>Close Test F<br>RV Test F<br>FS Test<br>ST Test | Freq:<br>Freq:<br>t Dir: O | uarterly      | x    | x  |     |

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1-F4.136 SITR Rev. 23

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SYSTEM: SW

IST VALVE TEST TABLE

P&ID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Position SAF	s FAL	Relief Req C.S. Just.		Program Plar commitment commitment LJ LK	PE PI	RT	ST	CME
SW-V17 SW outlet from the CC heat exchang References: P&ID D20795, DBD-SV			24.0 Butterfly is considered pas	Motor sive per 08MMO	O D510	0	-		Close RV FS	Test Freq: Test Freq: Test Freq: S Test Dir: T Test Dir:	x			
SW-V18 EDG B jacket water heat exchanger started. References: P&ID D20795,			16.0 Butterfly valve is normally	Air/Piston closed and open	C s when th	O ie EDG i	O		Close RV FS	Test Freq: Qu Test Freq: Test Freq: S Test Dir: Op T Test Dir: Op	pen		x	
SW-V19 Service water Train B to the dischard Actuation (TA) Signal to divert SW fl							-		Close RV FS	Test Freq: Test Freq: Qi Test Freq: S Test Dir: T Test Dir: Cl			х	
SW-V20 Service water Train A to the dischard Actuation (TA) Signal to divert SW fl							-		Close RV F:	Test Freq: Test Freq: Qi Test Freq: S Test Dir: T Test Dir: Cl	,		х	
SW-V23 Service water Train B return to the c Actuation (TA) Signal allowing SW fi	•		•				-		Close RV F:	Test Freq: Qi Test Freq: Test Freq: S Test Dir: T Test Dir: Qi	·		х	

1-F4.137 SITR Rev. 23

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SYSTEM: SW

IST VALVE TEST TABLE

P&ID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	s FAL	Relief Req C.S. Just.	DI FE	IST Program F Commitmer Commitmer FS LJ Lk	it it	ΡI	RŤ	ST	CME
SW-V32 Service water -PCCW heat exchange	3 (E-9) er 17A outlet	C relief valve-	2.0 Relief/Safety in scope per ISTA-	Self. 1100. Reference	C es: P&ID :	O D20795.	-			open Test Freq: lose Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:		s	х		
SW-V34 Service water Train A return to the co Actuation (TA) Signal allowing SW flo							-			open Test Freq: lose Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:		х у		х	
SW-V73 Service water -PCCW heat exchang	3 (D-9) er 17B outlet	C relief valve-	2.0 Relief/Safety in scope per ISTA-	Self 1100. Reference	C es: P&ID	O D20795.	-			open Test Freq: lose Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:		s	х		
SW-V74 Service water- SCC return header is open and closes on a safety injection DBD-SW-01, revision 1.							-			open Test Freq: lose Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:		X y		х	
SW-V76 Service water- SCC return header is open and closes on a safety injection DBD-SW-01, revision 1.							-			open Test Freq: lose Test Freq: RV Test Freq: FS Test Dir: ST Test Dir:		X Iy		х	·

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SYSTEM: SW

IST VALVE TEST TABLE

P&ID No.: **D20795**

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|                                                                                                                                                                                                                                                  |                                                 |                                                  |                                                               |                                                              |                                       |                      |     |            |    |    | IST Progr                                                     | am Die                 |       |    |    |    |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------|----------------------|-----|------------|----|----|---------------------------------------------------------------|------------------------|-------|----|----|----|-----|
| Valve Number                                                                                                                                                                                                                                     | Class<br>and                                    | Valve                                            | Size (in.)<br>and                                             | Actuator                                                     | F                                     | Positions            |     | Relief Req |    |    | Commi                                                         | tment                  | a11   |    |    |    |     |
| Remarks                                                                                                                                                                                                                                          | Coord                                           | (CAT)                                            | Туре                                                          | Туре                                                         | NRM                                   | SAF F                | FAL | C.S. Just. | DI | FE | FS LJ                                                         | LK                     | PE    | ΡI | RT | ST | CME |
| SW-V174<br>Service water to EDG B HX Inlet vac<br>System remains operable if testing of<br>is normally closed, opens when the<br>and closes to prevent water dischar<br>conditions. DCR 98-34 replaced the<br>D20795, DBD-SW-01, revision 1.     | occurs when<br>SW pump trij<br>ge or air intro  | the associate<br>os to preclude<br>oduction when | d Train is supplied<br>water hammer tra<br>n the system is op | d by the Cooling T<br>ansients on subs<br>erating under ste  | Fower. Thi<br>equent pui<br>ady state | s valve<br>mp start, | -   |            |    |    | pen Test F<br>lose Test F<br>RV Test F<br>FS Test<br>ST Test  | req:<br>req:<br>Dir:   |       |    |    |    | Х   |
| SW-V175<br>Service water to PCCW HX B vacuu<br>remains operable if testing occurs v<br>normally closed, opens when the SV<br>and closes to prevent water discharg<br>conditions. DCR 98-34 replaced the                                          | vhen the ass<br>V pump trips<br>ge or air intro | ociated Train<br>to preciude w<br>duction when   | is supplied by the<br>vater hammer tran<br>the system is ope  | Cooling Tower. T<br>sients on subseq<br>erating under stea   | This valve<br>juent pump<br>ady state | is<br>o start,       | -   |            |    |    | open Test F<br>lose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir:   |       |    |    |    | Х   |
| SW-V176<br>Service water to EDG A HX Inlet va<br>System remains operable if testing of<br>is normally closed, opens when the<br>and closes to prevent water dischar<br>conditions. DCR 98-34 replaced the                                        | occurs when<br>SW pump trij<br>ge or air intro  | the associate<br>os to preclude<br>oduction when | d Train is supplied<br>water hammer tra<br>n the system is op | d by the Cooling T<br>ansients on subs<br>perating under ste | Tower. Thi<br>equent pu<br>ady state  | s valve<br>mp start, | -   |            |    |    | open Test F<br>lose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir:   |       |    |    |    | Х   |
| <b>SW-V177</b><br>Service water to PCCW HX A Outle<br>System remains operable if testing of<br>is normally closed, opens when the<br>and closes to prevent water dischar<br>conditions. DCR 98-34 replaced the<br>D20795, DBD-SW-01, revision 1. | occurs when<br>SW pump tri<br>ge or air intr    | the associate<br>os to preclude<br>oduction whe  | d Train is supplied<br>water hammer tra<br>n the system is op | d by the Cooling T<br>ansients on subs<br>erating under ste  | Tower. Thi<br>equent pu<br>ady state  | s valve<br>mp start, | -   |            |    |    | open Test F<br>lose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req:<br>Dir:   |       |    |    |    | x   |
| <b>SW-V514A</b><br>EDG A jacket water heat exchanger                                                                                                                                                                                             | 3<br>(B-10)<br>service wate                     | C<br>er relief valve.                            | 0.75<br>Relief/Safety<br>This valve is in so                  | Self<br>cope per ISTA-11                                     | C<br>00.                              | 0                    | -   |            |    |    | open Test F<br>lose Test F<br>RV Test F<br>FS Test<br>ST Test | req:<br>req: 1<br>Dir: | 0 Yea | rs | х  |    |     |

1-F4.139 SITR Rev. 23

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SYSTEM: SW

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# IST VALVE TEST TABLE

P&ID No.: **D20795** 

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| Valve Number                     | Class<br>and   | Valve           | Size (in.)<br>and      | Actuator         | I   | Position | IS  | Relief Req |    |    | С        | Progra<br>ommif<br>ommif             |                | in     |     |    |    |    |   |
|----------------------------------|----------------|-----------------|------------------------|------------------|-----|----------|-----|------------|----|----|----------|--------------------------------------|----------------|--------|-----|----|----|----|---|
| Remarks                          | Coord          | (CAT)           | Туре                   | Туре             | NRM | SAF      | FAL | C.S. Just. | DI | FE | FS       | LJ                                   | LK             | PE     | ΡI  | RT | ST | CM | E |
| SW-V514B                         | 3<br>(C-10)    | С               | 0.75<br>Relief/Safety  | Self             | С   | 0        | -   |            |    |    |          | Test F                               |                |        |     | х  |    |    |   |
| EDG B jacket water heat exchange | er service wat | er relief valvo | e. This valve is in sc | ope per ISTA-110 | 00. |          |     |            |    | (  | RV<br>FS | Геst F<br>Test F<br>S Test<br>Г Test | req: 1<br>Dir: | 10 Yea | irs |    |    |    |   |

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1-F4.140 SITR Rev. 23

SYSTEM: VG

## IST VALVE TEST TABLE

P&ID No.: **D20780** 

| Malua Newslere                | 0                     |               |                 |                 |             |          |     |            |    |    |            | Program   |         |      |    |    |     |
|-------------------------------|-----------------------|---------------|-----------------|-----------------|-------------|----------|-----|------------|----|----|------------|-----------|---------|------|----|----|-----|
| Valve Number                  | Class                 |               | Size (in.)      | A 1 . 1         |             |          |     | D          |    |    |            | ommitme   |         |      |    |    |     |
|                               | and                   | Vaive         | and             | Actuator        |             | Position | -   | Relief Req |    |    | -          | ommitme   |         |      |    |    |     |
| Remarks                       | Coord                 | (CAT)         | Туре            | Туре            | NRM         | SAF      | FAL |            | DI | FE | FS         | LJ L      | к ре    | E Pl | RT | ST | CME |
|                               |                       |               |                 |                 |             |          |     | C.S. Just. |    |    |            |           |         |      |    |    |     |
| VG-FV1661                     | 2                     | А             | 2.0             | Solenoid        | 0           | С        | С   |            |    | Х  | х          | х         |         | Х    |    | Х  |     |
|                               | (C-8)                 |               | Diaphragm       |                 |             |          |     |            |    | C  | )<br>Den T | est Fred  |         |      |    |    |     |
| Hydrogenated vent header IF   | · · ·                 | on X-17- subi |                 | Type CLLRT Th   | us valve is | s norma  | llv |            |    |    |            | lest Fred |         | ars  |    |    |     |
| open and receives a "T" clos  |                       |               |                 | ••              |             |          | ,   |            |    | -  |            | est Fred  |         |      |    |    |     |
| open and receives a 1 clos    | ule signal. Reference | 65. F 01D D20 |                 | 10 0.2-00.      |             |          |     |            |    |    |            | Test Di   |         | - d  |    |    |     |
|                               |                       |               |                 |                 |             |          |     |            |    |    |            |           |         |      |    |    |     |
|                               |                       |               |                 |                 |             |          |     |            |    |    | 51         | Test Di   | Close   | ea   |    |    |     |
| VG-FV1712                     | 2                     | А             | 2.0             | Solenoid        | 0           | С        | С   |            |    | х  | х          | х         |         | х    |    | х  |     |
|                               | (C-7)                 |               | Diaphragm       | Colonola        | Ũ           | Ū        | Ũ   |            |    |    |            | Test Fred |         |      |    |    |     |
| Hudrogonated yeart based on C | · · ·                 | lian V 17 aut |                 | ITURA CLIDE T   | 'hie velve  |          |     |            |    |    | •          | fest Fred |         |      |    |    |     |
| Hydrogenated vent header C    | •                     |               |                 | •••             |             | IS       |     |            |    | C  |            |           |         | ais  |    |    |     |
| normally open and receives a  | a "I" closure signal. | References:   | P&ID D20780, UF | SAR Table 6.2-8 | 3.          |          |     |            |    |    |            | est Frec  |         |      |    |    |     |
|                               |                       |               |                 |                 |             |          |     |            |    |    |            | 6 Test Di |         |      |    |    |     |
|                               |                       |               |                 |                 |             |          |     |            |    |    | ST         | Test Di   | : Close | ed   |    |    |     |
|                               |                       |               |                 |                 |             |          |     |            |    |    |            |           |         |      |    |    |     |

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SYSTEM: WLD

# IST VALVE TEST TABLE

P&ID No.: **D20218** 

| Valve Number                         | Class                   |                 | Size (in.)                 |                    |            |           |     |            |    |    |                         | iitment |                  |       |           |    |       |
|--------------------------------------|-------------------------|-----------------|----------------------------|--------------------|------------|-----------|-----|------------|----|----|-------------------------|---------|------------------|-------|-----------|----|-------|
|                                      | and                     | Valve           | and                        | Actuator           |            | Positions |     | Relief Req |    |    |                         | itment  |                  |       | <b>DT</b> | от | CME   |
| Remarks                              | Coord                   | (CAT)           | Туре                       | Туре               | NRM        | SAF       | FAL | C.S. Just. | DI | FE | FS L.                   | LK      | PE               | ΡI    | RŤ        | 51 | CIVIE |
| WLD-V81                              | 2                       | А               | 3.0                        | Air/Piston         | 0          | С         | С   |            |    | X  | X X                     |         |                  | Х     |           | Х  |       |
| Reactor Coolant Drain Tank dischar   | (F-11)                  | for ponotratic  | Globe                      | Appendix   Type    | CHRT       | This      |     |            |    |    | pen Test<br>lose Test   |         | Quarter          | dv    |           |    |       |
| valve is normally open and receives  | a "T" closure           | signal. Refe    | rences: P&ID D20           | 218.               | O LEITI    | 11110     |     |            |    | Ū  | RV Test                 | Freq:   |                  |       |           |    |       |
|                                      |                         | U,              |                            |                    |            |           |     |            |    |    |                         |         | Closed<br>Closed |       |           |    |       |
|                                      |                         |                 |                            |                    |            |           |     |            |    |    |                         |         | Josed            |       |           |    |       |
| WLD-V213                             | 2                       | A/C             | 1.5                        | Self               | С          | O/C       | -   |            |    | ~  | X<br>Den Test           |         |                  |       | Х         |    |       |
| Containment penetration X-32 relief  | (F-12)<br>valve subier  | ot to Appendi   | Relief/Safety              | This valve opens f | to relieve | pressur   | e   |            |    |    | lose Test               |         | Per Apr          | pendi | ix J      |    |       |
| caused by thermal expansion of tra   | pped fluid un           | der accident    | condition. Referen         | ices; P&ID D2021   | 9, Engin   | eering    | -   |            |    |    | RV Test                 |         | 10 Year          | rs    |           |    |       |
| Evaluation SS-EV-960023, revision    | 0.                      |                 |                            |                    |            |           |     |            |    |    | FS Tes<br>ST Tes        |         |                  |       |           |    |       |
|                                      |                         |                 |                            |                    |            |           |     |            |    |    |                         |         |                  |       |           |    |       |
| P&ID No.: D20219                     |                         |                 |                            |                    |            |           |     |            |    |    |                         |         |                  |       |           |    |       |
| WLD-FV8331                           | 2                       | А               | 2.0                        | Solenoid           | 0          | С         | С   |            |    |    | X X                     |         |                  | Х     |           | Х  |       |
| ICI sump discharge IRC-CIV for pe    | (E-11)<br>netration X-3 | 4- subject to   | Globe<br>Appendix J Type ( | CITRT This valve   | e is norm  | aliv oper | n   |            |    |    | Open Test<br>Close Test |         | 2 Years          | 5     |           |    |       |
| and receives a "T" closure signal. R | eferences: P            | &ID D20219      | Appendix 6 13pe (          |                    |            |           | •   |            |    | _  | RV Test                 | Freq:   |                  |       |           |    |       |
| Ç                                    |                         |                 |                            |                    |            |           |     |            |    |    |                         |         | Closed<br>Closed |       |           |    |       |
|                                      |                         |                 |                            |                    |            |           |     |            |    |    |                         |         | olosca           |       |           |    |       |
| WLD-V209                             | 2                       | A/C             | 0.75<br>Relief/Safety      | Self               | С          | O/C       | -   |            |    | c  | ۲<br>Dpen Test          |         |                  |       | х         |    |       |
| Containment floor sump penetration   | (E-11)<br>X-34 therma   | al relief valve |                            | dix J Type C LLR   | T. This v  | alve      |     |            |    |    | lose Test               |         | Per Ap           | pend  | ix J      |    |       |
| opens to relieve pressure caused by  | y thermal exp           | ansion of tra   | pped fluid under a         | ccident condition. | Referen    | ces; P&II | D   |            |    |    | RV Test<br>FS Te        |         | 10 Yea           | ſS    |           |    |       |
| D20219, Engineering Evaluation S     | S-EV-960023             | s, revision 0.  |                            |                    |            |           |     |            |    |    | ST Te                   |         |                  |       |           |    |       |
| DUD No. DO0001                       |                         |                 |                            |                    |            |           |     |            |    |    |                         |         |                  |       |           |    |       |
| P&ID No.: <b>D20221</b>              |                         |                 |                            |                    |            |           |     |            |    |    |                         |         |                  |       |           |    |       |
| WLD-FV8330                           | 2                       | А               | 2.0                        | Solenoid           | 0          | С         | С   |            |    | X  | X ک<br>Dpen Test        |         |                  | Х     |           | Х  |       |
| ICI sump discharge ORC-CIV for p     | (F-6)<br>enetration X-  | 34- subject to  | Globe<br>Appendix J Type   | C LLRT. This val   | ve is nor  | maily     |     |            |    |    | Close Test              |         | 2 Year:          | s     |           |    |       |
| open and receives a "T" closure sig  | nal. Reference          | ces: P&ID D2    | 0221                       |                    |            |           |     |            |    |    | RV Test                 |         | <b>o</b>         |       |           |    |       |
|                                      |                         |                 |                            |                    |            |           |     |            |    |    |                         |         | Closed<br>Closed |       |           |    |       |
|                                      |                         |                 |                            |                    |            |           |     |            |    |    |                         |         |                  |       |           |    |       |

1-F4.142 SITR Rev. 23

IST Program Plan

#### SYSTEM: WLD

# IST VALVE TEST TABLE

. 45

P&ID No.: **D20222** 

| Valve Number                     | Class         |                           | Size (in.)        |                   |           |          |     |            |    |    | Co     | ommit  |        | n      |     |    |    |     |
|----------------------------------|---------------|---------------------------|-------------------|-------------------|-----------|----------|-----|------------|----|----|--------|--------|--------|--------|-----|----|----|-----|
|                                  | and           | Valve                     | and               | Actuator          |           | Positior | IS  | Relief Req |    |    | C      | ommit  | ment   |        |     |    |    |     |
| Remarks                          | Coord         | (CAT)                     | Туре              | Туре              | NRM       | SAF      | FAL |            | Di | FE | FS     | LJ     | LK     | PE     | Ρl  | RT | ST | CME |
| i comanto                        |               | ()                        | - 31              |                   |           |          |     | C.S. Just. |    |    |        |        |        |        |     |    |    |     |
| WLD-V82                          | 2             | А                         | 3.0               | Air/Piston        | 0         | С        | С   |            |    | Х  | Х      | Х      |        |        | Х   |    | Х  |     |
|                                  | (G-6)         |                           | Globe             |                   |           |          |     |            |    | 0  | Dpen T | est F  | req:   |        |     |    |    |     |
| Reactor Coolant Drain Tank disc  | charge-ORC-CI | V for penetrat            | ion X-32- subject | to Appendix J Typ | be C LLRT | ſ. This  |     |            |    | C  | lose T | est F  | req: C | Quarte | rly |    |    |     |
| valve is normally open and recei |               |                           |                   |                   |           |          |     |            |    |    | RV T   | est Fi | req:   |        |     |    |    |     |
| vano le nonnanj opon ana roco    |               | • • • • • • • • • • • • • |                   |                   |           |          |     |            |    |    | FS     | Test   | Dir: C | Closed | I   |    |    |     |
|                                  |               |                           |                   |                   |           |          |     |            |    |    | ST     | Test   | Dir: C | Closed | I   |    |    |     |

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1-F4.143 SITR Rev. 23

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| Cold Shutdown<br><u><sup>T</sup>ustification</u> : | CBS - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                                    | CBS-V8, CBS-V14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Category:                                          | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Code Class:                                        | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Function:                                          | (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.                                                                                                                                                                                                                                                                         |
| Test Requirements:                                 | ISTC-3510 Exercise (3 months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Basis for Cold<br><u>Shutdown Testing</u> :        | These valves cannot be exercised during normal plant operation without<br>draining the piping from the ECCS sumps to the suction of RHR and CBS<br>pumps. Draining the suction piping is required to prevent the introduction of<br>water into the ECCS sumps. The RHR and CBS pumps are disabled at the<br>Main Control Board while the suction piping is drained, to prevent introducing<br>water into the containment ECCS sumps, and remain disabled until the suction<br>piping is refilled and vented. |
| Alternate Testing:                                 | These valves shall be full stroke exercised during cold shutdowns and at refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| Cold Shutdown<br><u>Justification</u> :     | CBS - CSJ-2                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                             | CBS-V49                                                                                                                                                                                                                                                                                                                                                                                                               |
| Category:                                   | В                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 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<br><u>Shutdown Testing</u> : | 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.                                                                                                                                                                                                                                                                                                                             |

|                                             | C C                                                                                                                                                                                                   |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cold Shutdown<br>Justification:             | CC- CSJ-1                                                                                                                                                                                             |
| <u>Valves</u> :                             | CC-V341                                                                                                                                                                                               |
| Category:                                   | В                                                                                                                                                                                                     |
| Code Class:                                 | 3                                                                                                                                                                                                     |
| Function:                                   | (Active) Primary Component Cooling Water Isolation Valves                                                                                                                                             |
| Test Requirements:                          | ISTC-3510 Exercise (3 Months)                                                                                                                                                                         |
| Basis for Cold<br><u>Shutdown Testing</u> : | 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. |
| <u>Alternate Testing</u> :                  | This valve shall be full stroke exercised at cold shutdowns and refueling outages, when the non-essential cooling load can be isolated.                                                               |
|                                             |                                                                                                                                                                                                       |

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

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Refueling Justification:

CC- RJ-2

(not used)

| Refueling<br>Justification:            | CC - RJ-3                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CC-V57, CC-V121, CC-V122, CC-V168, CC-V175, CC-V176, CC-V256,<br>CC-V257                                                                                                                                                                                                                                                                                                                     |
| Category:                              | Α                                                                                                                                                                                                                                                                                                                                                                                            |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                            |
| Function:                              | (Active) Containment Isolation                                                                                                                                                                                                                                                                                                                                                               |
| Test Requirements:                     | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                |
| Basis for Refueling<br>Outage Testing: | Exercising these values quarterly during power operation or during cold<br>shutdowns (when the reactor coolant pumps are still normally in operation)<br>would isolate cooling water to the reactor coolant pump bearing oil coolers and<br>motor air coolers, possibly damaging the reactor coolant pumps.<br>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<br>of cycles on the pumps and extend the length of cold shutdown outages.<br>Engineering recommends testing these valves at least each refueling outage.                                                                                                                                                    |
| Alternate Testing:                     | These valves shall be full stroke exercised at refueling outages.                                                                                                                                                                                                                                                                                                                            |

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| Refueling<br>Justification:            | CC - RJ-4                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CC-V1092, CC-V1095, CC-V1101, CC-V1109                                                                                                                                                                                                                                                                                                                                         |
| Category:                              | В                                                                                                                                                                                                                                                                                                                                                                              |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                              |
| Function:                              | (Passive) PCCW Thermal Barrier Containment Isolation                                                                                                                                                                                                                                                                                                                           |
| Test Requirements:                     | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                  |
| Basis for Refueling<br>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.<br>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<br>of cycles on the pumps and extend the length of cold shutdown outages.<br>Engineering recommends testing these valves at least each refueling outage.                                                                                                                                      |
| Alternate Testing:                     | These valves shall be full stroke exercised at refueling outages.                                                                                                                                                                                                                                                                                                              |

| Cold Shutdown<br><u>`ustification</u> :     | CS - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valve:                                      | CS-V426                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Category:                                   | В                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 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<br><u>Shutdown Testing</u> : | Exercising this normally closed valve to the open position during power<br>operation could cause a sudden increase in the reactor coolant system boron<br>inventory. This valve supplies highly concentrated borated water to the<br>suctions of the charging pumps. A rapid addition of this highly concentrated<br>borated water would add large amounts of negative reactivity to the reactor<br>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.                                                                                                                                                                                                                                                                                                             |

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Cold Shutdown <u>Justification</u>:

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CS - CSJ-2 (not used)

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

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| CS - RJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| CS-LCV112D, CS-LCV112E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (Active) Charging Pump Suction Isolation Valves from the RWST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul> <li>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.</li> <li>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 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.</li> </ul> |
| These valves shall be full stroke exercised and stroke timed in both directions at refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| Refueling<br><u>Justification</u> :    | 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<br>Outage Testing: | The normal charging to the RCS Regenerative Heat Exchanger Isolation<br>Valves (CS-V142 and CS-V143) and the RCS Letdown Flow Isolation Valves<br>(CS-V149 and CS-V150) provide pressurizer level control and chemistry<br>control of the RCS. Full stroke exercising these valves during power operation<br>could cause a loss of pressurizer level control and possibly trip the plant.<br>During most cold shutdowns, the reactor coolant pumps are still normally in<br>operation. These exercise tests should not be performed at that time in order to<br>prevent loss of seal cooling flow, or to minimize pressure swings on the seal<br>flow to the reactor coolant pumps at each cold shutdown solely to<br>allow for the testing of these valves would increase wear, stress and the number<br>of cycles on the pumps and extend the length of cold shutdown outages.<br>Engineering recommends testing these valves at least each refueling outage. |
| <u>Alternate Testing</u> :             | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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| Refueling<br>Justification:            | CS - RJ-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CS-V192                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Category:                              | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <u>Function</u> :                      | (Active) Reverse flow protection after sump switch over when RHR Pump<br>Discharge is routed to the CS Pump Suction, and Forward Flow for Safe<br>Shutdown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Test Requirements:                     | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Basis for Refueling<br>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. |
| <u>Alternate Testing</u> :             | CS-V192 shall be forward flow exercised and reverse flow exercised during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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| Refueling<br>Justification:            | CS - RJ-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CS-LCV112B, CS-LCV112C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Category:                              | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Function:                              | (Active) Volume Control Tank Suction Isolation Valves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test Requirements:                     | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Basis for Refueling<br>Outage Testing: | <ul> <li>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.</li> <li>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.</li> <li>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</li> </ul> |
| <u>Alternate Testing</u> :             | outage.<br>These valves shall be full stroke exercised and stroke timed in the close<br>direction at refueling outage intervals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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| Refueling<br>Justification:            | CS - RJ-5                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CS-V219, CS-V221                                                                                                                                                                                                                                                                                                              |
| Category:                              | В                                                                                                                                                                                                                                                                                                                             |
| 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<br>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.<br>These exercise tests should not be performed at that time in order to prevent<br>loss of seal cooling flow, or to minimize pressure swings on the seal flow to<br>the reactor coolant pumps.                                                      |
|                                        | Stopping and restarting reactor coolant pumps at each cold shutdown solely to<br>allow for the testing of these valves would increase wear, stress and the<br>number of cycles on the pumps and extend the length of cold shutdown<br>outages. Engineering recommends testing these valves at least each refueling<br>outage. |
| Alternate Testing:                     | Full stroke exercising shall be performed during refueling outages.                                                                                                                                                                                                                                                           |

| Refueling<br>Justification:            | CS - RJ-6                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CS-V167, CS-V168                                                                                                                                                                                                                                                                                                           |
| Category:                              | Α                                                                                                                                                                                                                                                                                                                          |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                          |
| Function:                              | (Active) Containment Isolation                                                                                                                                                                                                                                                                                             |
| Test Requirements:                     | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                              |
| Basis for Refueling<br>Outage Testing: | These valves isolate the Reactor Coolant Pump No. 1 Seal Leakoff flow and Excess Letdown flow.                                                                                                                                                                                                                             |
|                                        | Isolating these values during power operation and during startup could cause<br>damage to the Reactor Coolant Pump Seals. During most cold shutdowns, the<br>reactor coolant pumps remain in service. These exercise tests should not be<br>performed at that time.                                                        |
|                                        | Stopping and restarting reactor coolant pumps at each cold shutdown solely to<br>allow for the testing of these valves would increase wear, stress and the number<br>of cycles on the pumps and extend the length of cold shutdown outages.<br>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.                                                                                                                                                                                                                                |

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| <u>Refueling</u><br><u>Justification</u> : | CS - RJ-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                            | CS-V439, CS-V442                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Category:                                  | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Code Class:                                | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Function:                                  | (Active) Gravity Feed - Boration Flow Path                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Test Requirements:                         | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Basis for Refueling<br>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<br>allow for the testing of these valves would increase wear, stress and the<br>number of cycles on the pumps and extend the length of cold shutdown<br>outages. Engineering recommends testing these valves at least each refueling<br>outage.                                                                                                                                                                                                                       |
| Alternate Testing:                         | These valves shall be full stroke exercised during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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| <u>Refueling</u><br>Justification:     | CS - RJ-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CS-V154, CS-V158, CS-V162, CS-V166                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Category:                              | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Function:                              | (Active) Seal Injection Isolation Valves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Test Requirements:                     | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Basis for Refueling<br>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.<br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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| Cold Shutdown<br>Justification:     | FW - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | FW-V30, FW-V39, FW-V48, FW-V57                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Code Class:                         | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Function:                           | (Active) Feedwater Isolation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Test Requirements:                  | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Basis for Cold<br>Shutdown Testing: | Full closure of these valves to satisfy the requirements of ISTC-3510 would<br>require plant shutdown. Periodic testing of the FWIVs by closing at power<br>would induce steam generator water level transients and oscillations and any<br>operation which induces main feedwater flow perturbations, whether deliberate<br>or otherwise, generally leads to a reactor trip and should be avoided.<br>Similarly, partial stroke testing at power is also considered impractical. This<br>testing could result in an unnecessary plant shutdown, cause unnecessary<br>challenges to safety systems, place undue stress on components, cause<br>unnecessary cycling of equipment or unnecessarily reduce the life expectancy of<br>the plant systems or components. This is an example of an impractical condition<br>defined as testing that could cause a plant trip or require a power reduction.<br>Main Feedwater Isolation Valves (MFIV) should not be tested at power since<br>even a part stroke exercise increases the risk of a valve closure with the unit<br>generating power.<br>The risk of part-stroke testing the FWIVs during power operations outweighs the<br>potential safety benefit of performing the testing. Furthermore, review of past<br>component work history reveals no cases of any FWIV sticking in the open<br>position and failing to close upon demand, including during part-stroke testing. |

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.

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| Cold Shutdown<br>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<br><u>Shutdown Testing</u> : | 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.                         |

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

| Cold Shutdown<br><u>Justification</u> :     | FW - CSJ-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                             | FW-V216, FW-V357                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <u>Category</u> :                           | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Code Class:                                 | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Function:                                   | (Active) Startup Feed Pump/EFW Header Check Valves                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test Requirements:                          | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Basis for Cold<br><u>Shutdown Testing</u> : | Full flow through these normally closed check valves on a quarterly basis<br>would require establishing emergency feedwater flow to the steam generators.<br>This would introduce cold water into the steam generators causing a thermal<br>shock to the feedwater nozzles. This testing could also cause feedwater control<br>problems during plant operation which could lead to a reactor trip. Quarterly<br>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.                                                                                                                                                                                                                                                                                                                                                      |

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| Cold Shutdown<br>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<br>(FW-V351), Emergency Feedwater Common Recirc Line Check Valve (FW-<br>V349)                                                                                                                                                                                                      |
| Test Requirements:                          | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                               |
| Basis for Cold<br><u>Shutdown Testing</u> : | 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.                                                                                                                                                                                                                                          |

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| Cold Shutdown<br>Justification:            | FW - CSJ-7                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves:</u>                             | FW-FV4214A/B, FW-FV4224A/B, FW-FV4234A/B and FW-FV4244A/B                                                                                                                                                                                                                                                                                                                         |
| Category:                                  | В                                                                                                                                                                                                                                                                                                                                                                                 |
| Code Class:                                | 3                                                                                                                                                                                                                                                                                                                                                                                 |
| Function:                                  | (Active) Steam Generator EFW Isolation Valves                                                                                                                                                                                                                                                                                                                                     |
| Test Requirements:                         | ISTC-3510 Exercise (3 months)                                                                                                                                                                                                                                                                                                                                                     |
| Basis for Cold<br><u>Shutdown Testing:</u> | 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.                                                                                                                                                                                                                                                                    |

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Cold Shutdown Justification:

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MS - CSJ-1 (not used)

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| Cold Shutdown<br><u>Justification</u> :     | MS - CSJ-2                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                             | MS-V86, MS-V88, MS-V90, MS-V92                                                                                                                                                                                                                                                                                                                                                                                                        |
| Category:                                   | В                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Code Class:                                 | 2                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Function:                                   | (Active) Main Steam Isolation                                                                                                                                                                                                                                                                                                                                                                                                         |
| Test Requirements:                          | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                         |
| Basis for Cold<br><u>Shutdown Testing</u> : | 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.                                                                                                                                                                                                       |
| <u>Alternate Testing</u> :                  | 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. |

| Cold Shutdown<br>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<br><u>Shutdown Testing</u> : | It is impractical to open these valves during operation when RCS pressure is<br>above 365 psig. These valves have system interlocks which prevent them<br>from opening with the RCS pressure above 365 psig to prevent<br>overpressurization of the RHR system piping. |
| Alternate Testing:                          | These valves shall be full stroke exercised and timed during cold shutdowns and refueling outages.                                                                                                                                                                     |

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| Cold Shutdown<br><u>Justification</u> :     | RC - CSJ-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                     | RC-PCV456A, RC-PCV456B                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Category:                                   | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 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<br><u>Shutdown Testing</u> : | Full stroke exercising of these valves is impractical during power operation.<br>These valves demonstrate a high probability of sticking open and are not<br>needed for overpressure protection during power operation. The safety<br>function of these valves is to protect the reactor vessel and the reactor coolant<br>system from low temperature overpressurization conditions, and shall be<br>exercised prior to initiation of system conditions for which vessel protection is<br>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<br>Justification:             | RC - CSJ-3                                                                                                                         |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                     | RC-V323                                                                                                                            |
| Category:                                   | В                                                                                                                                  |
| 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<br><u>Shutdown Testing</u> : | 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. |

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| Cold Shutdown<br>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<br><u>Shutdown Testing</u> : | 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 values 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 value leakage rate tests per Technical Specification 4.4.6.2.2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Refueling<br>Justification:            | RC - RJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | RC-LCV459, RC-LCV460                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Category:                              | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 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<br>Outage Testing: | The letdown subsystem of the Chemical and Volume Control System provides<br>pressurizer level control of the reactor coolant system. Full stroke exercising<br>these valves during power operation on a quarterly basis could cause a loss of<br>pressurizer level control and possibly a plant trip.<br>During most cold shutdowns, the reactor coolant pumps remain in service.<br>These exercise tests should not be performed at that time in order to prevent<br>loss of seal cooling flow, or to minimize pressure swings on the seal flow to<br>the reactor coolant pumps.<br>Stopping and restarting reactor coolant pumps at each cold shutdown solely to<br>allow for the testing of these valves would increase wear, stress and the<br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| Cold Shutdown<br>Justification:             | RH - CSJ-1                                                                                                                                                                            |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                             | RH-V14, RH-V26                                                                                                                                                                        |
| Category:                                   | В                                                                                                                                                                                     |
| Code Class:                                 | 2                                                                                                                                                                                     |
| Function:                                   | (Active) RHR Cold Leg Isolation                                                                                                                                                       |
| Test Requirements:                          | ISTC-3510 Exercise (3 Months)                                                                                                                                                         |
| Basis for Cold<br><u>Shutdown Testing</u> : | These values 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.                                                                                              |

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| Cold Shutdown<br>Justification:             | RH - CSJ-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                     | RH-V35, RH-V36                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Category:                                   | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <u>Test Requirements</u> :                  | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Basis for Cold<br><u>Shutdown Testing</u> : | These valves cannot be exercised during normal plant operation without the use<br>of electrical jumpers to defeat system interlocks. Should an ECCS actuation<br>occur while these valves were open, the suction source to the charging and<br>safety injection pumps would be the RHR system, and the borated water<br>supplied would be at the boron concentration of the RHR system at the time the<br>RHR system was last shutdown. This boron concentration could be less than<br>the boron concentration in the CS/SI pumps normal suction supply (RWST)<br>and may result in an increase in the time required to borate the reactor coolant<br>system. |
| Alternate Testing:                          | These valves shall be full stroke exercised during cold shutdowns and refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Cold Shutdown<br>Justification:             | RH - CSJ-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                             | RH-V21, RH-V22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Category:                                   | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Code Class:                                 | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Function:                                   | (Active) Residual Heat Removal System Crossover Valves                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test Requirements:                          | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Basis for Cold<br><u>Shutdown Testing</u> : | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| Cold Shutdown<br>Justification:             | RH - CSJ-4                                                                                                                                                                                                           |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                             | RH-V32, RH-V70                                                                                                                                                                                                       |
| Category:                                   | В                                                                                                                                                                                                                    |
| Code Class:                                 | 2                                                                                                                                                                                                                    |
| Function:                                   | (Active) RHR Hot Leg Isolation                                                                                                                                                                                       |
| Test Requirements:                          | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                        |
| Basis for Cold<br><u>Shutdown Testing</u> : | 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.                                                                                                                             |

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| Refueling<br>Justification:                    | RMW - RJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                                | RMW-V119                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Category:                                      | С.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Code Class:                                    | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Function:                                      | (Active) Forward flow for emergency boration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test Requirements:                             | ISTC-3510 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Basis for Refueling<br><u>Outage Testing</u> : | Reverse closure testing of this valve would require isolation of the VCT. Since<br>the VCT is the normal suction path to the charging pumps, a suction swap to<br>the RWST would be required, introducing colder borated water into the RCS<br>causing a reactivity imbalance. Forward flow through this valve could be<br>achieved by inserting reactor makeup water directly to the suction of the<br>charging pumps, however, the open and closed exercise tests need to be<br>performed in the same interval per ISTC-3522a.<br>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<br>Tanks in order to monitor system flow. This exercise test should not be<br>performed when the Reactor Coolant pumps are running. During most cold<br>shutdowns, the reactor coolant pumps and charging pumps remain in service.                                                                                                                                                                                                                                                                                                  |
|                                                | Stopping and restarting reactor coolant pumps at each cold shutdown solely to<br>allow for the testing of these valves would increase wear, stress and the<br>number of cycles on the pumps and extend the length of cold shutdown<br>outages. Engineering recommends testing these valves at least each refueling<br>outage.                                                                                                                                                                                                                                                                                     |
| Alternate Testing:                             | Forward and reverse exercising shall be performed during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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| Cold Shutdown<br>Justification:     | SB - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | SB-V9, SB-V10, SB-V-11, SB-V12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 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<br>Shutdown Testing: | SG B blowdown isolation valve ORC-CIV. These valves are<br>normally open and close on a HELB isolation signal, high flash tank level or<br>pressure, EFW pump running signal and receives a "T" closure signal. These<br>valves are equipped with train specific solenoids (connected in series with each<br>other) with both solenoids actuated by a dual train control switch.<br>Accessing the "A" solenoids involves climbing around hot pipes and would<br>require significant physical activity to configure the solenoids for train specific<br>testing. This testing is intrusive and requires both climbing / crawling access<br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| Cold Shutdown<br>Justification:     | SI - CSJ-1                                                                                                                                                                                                              |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | SI-V77, SI-V102                                                                                                                                                                                                         |
| Category:                           | В                                                                                                                                                                                                                       |
| 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<br>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.                                                                      |

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#### FIGURE F4

# Cold Shutdown and Refueling Justifications

| Cold Shutdown<br><u>Justification</u> :     | SI - CSJ-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                     | SI-V93                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Category:                                   | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Code Class:                                 | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Function:                                   | (Active) Minimum Flow Common Recirculation Isolation for SI-P6A and SI-<br>P6B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <br>Test Requirements:                      | ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Basis for Cold<br><u>Shutdown Testing</u> : | Isolating this valve during power operations is impractical. Isolating this valve<br>would render both safety injection pumps inoperable in the event of a safety<br>injection actuation. The valve is designed to provide a minimum flow through<br>the safety injection pumps during the time of an event when the RCS pressure is<br>greater than the shutoff head of the SI pumps. Isolating this minimum flow<br>path from both SI pumps would possibly damage the pumps and significantly<br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| Cold Shutdown<br>Justification:             | SI - CSJ-3                                                                                                                                                                                                |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                             | SI-V114                                                                                                                                                                                                   |
| Category:                                   | В                                                                                                                                                                                                         |
| 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<br><u>Shutdown Testing</u> : | This value 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.                                                          |

| Cold Shutdown<br>Justification:                   | SI - CSJ-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                           | SI-V3, SI-V17, SI-V32, SI-V47                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Category:                                         | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Code Class:                                       | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Function:                                         | (Active) Accumulator Isolation Valves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test Requirements:                                | ISTC-3510 Full Stroke Exercise, Full Stroke Time (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Basis for Cold<br><u>Shutdown Testing</u> :<br>7: | 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

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| <u>Valves</u> :                              | SI-V138 and SI-V139                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Category:                                    | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 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<br>Outage Testing:<br>'7 | These valves cannot be exercised during normal plant operation or under<br>certain Cold Shutdown alignments. Exercising these valves would direct<br>normal charging pump flow to the high head safety injection flow path. Since<br>normal charging water is heated by the RCS letdown in the regenerative heat<br>exchanger, the inversion through the HHSI flow path introduces relatively cold<br>water to the RCS, thermally shocking these piping lines. Further, it would<br>divert seal injection flow from the Reactor Coolant Pumps (RCP), possibly<br>damaging RCP seals and bearings. During most cold shutdowns, the reactor<br>coolant pumps remain in service. These exercise tests should not be performed<br>at that time in order to prevent loss of seal cooling flow, or to minimize<br>pressure swings on the seal flow to the reactor coolant pumps.<br>Stopping and restarting reactor coolant pumps at each cold shutdown solely to<br>allow for the testing of these valves would increase wear, stress and the<br>number of cycles on the pumps and extend the length of cold shutdown<br>outages. Engineering recommends testing these valves at least each refueling<br>outage. |
| Alternate Testing:                           | These valves shall be full stroke exercised and timed during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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Refueling Justification:

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SW - RJ-1 (not used)

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#### FIGURE F5 ADMINISTRATIVE RELIEF REQUEST

There are no Administrative Relief Request for the Third Interval

SITR Rev. 23

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# PART II

# SEABROOK STATION

# PUMP AND VALVE INSERVICE TESTING (IST) PROGRAM PLAN

# **EXCLUSION JUSTIFICATION DOCUMENT**

SITR Rev. 23

#### 1.0 INTRODUCTION

#### 1.1 OBJECTIVE

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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. <u>P&IDs</u>

Controlled drawings, which delineate the boundaries of safety-related and non-safety-related (NNS) systems and associated components.

#### 2. <u>Active Valves</u>

Any valve which is required to change position to accomplish its specific safety-related function.

#### 3. <u>Passive Valves</u>

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. <u>Control Valves</u>

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. <u>Power Operated Valves</u>

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 <u>REFERENCES</u>

1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 2004 Edition.

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- 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 <u>SCOPE</u>

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

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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 <u>PUMPS</u>

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### 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 <u>VALVES</u>

### 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 inscope 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).

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### 6.0 COMPONENT EXCLUSION JUSTIFICATION TABLE NOMENCLATURE

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The following abbreviations have been used in the Component Exclusion Justification Table:

| Valve Type                                   | Actuator Type                                     |
|----------------------------------------------|---------------------------------------------------|
| BFV - Butterfly Valve<br>BLV - Ball Valve    | ADA - Air/Diaphragm<br>APA - Air/Piston           |
|                                              | DIA - Diaphragm                                   |
| CHV - Check Valve                            | HOA - Hydraulic                                   |
| DIV - Diaphragm Valve                        | NPA - Nitrogen/Piston<br>NDA - Nitrogen/Diaphragm |
| GLV - Globe Valve                            | MAA - Manual                                      |
| GTV - Gate Valve                             | MOA - Motor                                       |
| PGV - Plug Valve                             | SEA - Self                                        |
| REV - Relief Valve                           | SOA - Solenoid                                    |
|                                              | Positions                                         |
| SAV - Saunders Weir Valve                    |                                                   |
| SCV - Stop Check Valve<br>SEV - Safety Valve | O - Open                                          |
|                                              | C - Closed                                        |
| TMV Three Way Valve                          |                                                   |
| , S                                          | LO - Locked Open                                  |

LC - Locked Closed

TH - Throttled

DE - Normal position depends on system condition.

# 7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT

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| 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-<br>ASME component classification (N), ANSI component<br>classification (e.g., Class 3*) and the component location on the<br>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<br>NRM SAF FAL | The expected valve position during normal plant<br>operation, the safety position and fail-safe position, as abbreviated<br>in Section 6.0, "Component Exclusion Justification Table<br>Nomenclature." |
| Justification            | Statement providing the basis for exclusion from the IST Program Plan.                                                                                                                                 |

|    | System                         | <u>P&amp;ID No.</u>                                                                                   | <u>Page No.</u> |
|----|--------------------------------|-------------------------------------------------------------------------------------------------------|-----------------|
| 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<br>1-SI-D20446<br>1-SI-D20447                                                            | 2-F6.2          |
| 5. | Component Cooling Water (CC)   | 1-CC-D20205<br>1-CC-D20206<br>1-CC-D20207<br>1-CC-D20209<br>1-CC-D20211<br>1-CC-D20212<br>1-CC-D20213 | 2-F6.3          |

# 7.0 <u>COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT</u>(Continued)

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| System                            | <u>P&amp;ID No.</u>                                                                                                                                | <u>Page No.</u> |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 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<br>1-CS-D20725<br>1-CS-D20726<br>1-CS-D20729<br>1-RH-D20662<br>1-RH-D20663                                                             | 2-F6.10         |
| 10. Diesel Generator (DG)         | 1-DG-D20458<br>1-DG-D20459<br>1-DG-D20460<br>1-DG-D20461<br>1-DG-D20462<br>1-DG-D20463<br>1-DG-D20464<br>1-DG-D20465<br>1-DG-D20466<br>1-DG-D20467 | 2-F6.21         |
| 11. Demineralized Water (DM)      | 1-DM-D20349<br>1-DM-D20352                                                                                                                         | 2-F6.61         |
| 12. Fire Protection (FP)          | 1-FP-D20271                                                                                                                                        | N/A             |
| 13. Feedwater (FW)                | 1-CO-D20426<br>1-FW-D20686<br>1-FW-D20687<br>1-FW-D20688<br>1-FW-D20690<br>1-FW-D20691                                                             | 2-F6.62         |
| 14. Instrument Air (IA)           | 1-IA-D20640<br>1-IA-D20643<br>1-IA-D20644<br>1-IA-D20645                                                                                           | 2-F6.72         |
| 15. Leak Detection (LD)           | 1-LD-D20864                                                                                                                                        | N/A             |

# 7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT (Continued)

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| System                                          | P&ID No.                                                                                                              | <u>Page No.</u> |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------|
| 16. Main Steam (MS)                             | 1-MS-D20580<br>1-MS-D20581<br>1-MS-D20582<br>1-MS-D20583<br>1-MS-D20587                                               | 2-F6.76         |
| 17. Nitrogen Gas (NG)                           | 1-NG-D20135<br>1-NG-D20136                                                                                            | 2-F6.77         |
| 18. Reactor Coolant (RC)                        | 1-RC-D20841<br>1-RC-D20842<br>1-RC-D20843<br>1-RC-D20844<br>1-RC-D20845<br>1-RC-D20846<br>1-SS-D20518<br>1-WLD-D20218 | 2-F6.78         |
| 19. Residual Heat Removal (RH)                  | 1-RH-D20662<br>1-RH-D20663                                                                                            | 2-F6.79         |
| 20. Reactor Makeup Water (RMW)                  | 1-CS-D20729<br>1-RMW-D20360                                                                                           | 2-F6.81         |
| 21. Service Air (SA)                            | 1-SA-D20652                                                                                                           | N/A             |
| 22. Steam Generator Blowdown (SB)               | 1-RC-D20841<br>1-RC-D20842<br>1-RC-D20843<br>1-RC-D20844                                                              | 2-F6.82         |
| 23. Spent Fuel Pool<br>Cooling and Cleanup (SF) | 1-SF-D20482<br>1-SF-D20483<br>1-SF-D20484<br>1-SW-D20796                                                              | 2-F6.84         |
| 24. Safety Injection (SI)                       | 1-SI-D20446<br>1-SI-D20447<br>1-SI-D20450                                                                             | 2-F6.87         |
| 25. Sample (SS)                                 | 1-SS-D20520                                                                                                           | N/A             |
| 26. Service Water (SW)                          | 1-SW-D20794<br>1-SW-D20795<br>1-SW-D20796                                                                             | 2-F6.88         |

# 7.0 <u>COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT</u>(Continued)

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| System                                      | P&ID No.                                | <u>Page No.</u> |
|---------------------------------------------|-----------------------------------------|-----------------|
| 27. Vent Gas (VG)                           | 1-VG-D20780                             | N/A             |
| 28. Waste Gas (WG)                          | 1-WG-D20773                             | 2-F6.91         |
| 29. Waste Processing<br>Liquid Drains (WLD) | 1-WLD-D20218<br>through<br>1-WLD-D20229 | 2-F6.92         |

SYSTEM: CAP

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

P&ID No.: **D20504** 

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator   | F   | Position | s   |  |
|--------------|--------------|-------|-------------------|------------|-----|----------|-----|--|
| Remarks      | Coord        | (CAT) | Туре              | Туре       | NRM | SAF      | FAL |  |
| CAP-V1       | 2<br>(B-8)   | В     | 36.0<br>Butterfly | Air/Piston | LC  | LC       | с   |  |

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     | В | 36.0      | Air/Piston | LC | LC | С |
|--------|-------|---|-----------|------------|----|----|---|
|        | (C-7) |   | Butterfly |            |    |    |   |

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                | В           | 36.0               | Air/Piston           | LC        | LC   | С |
|--------------------------------------------------------------------------------------------------------------------|------------------|-------------|--------------------|----------------------|-----------|------|---|
|                                                                                                                    | (C-7)            |             | Butterfly          |                      |           |      |   |
| 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 accentable                                                                                 | lovole during re | fueling Pre | -ontry subsystem v | will reduce containr | nent airb | orne |   |

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     | В | 36.0      | Air/Piston | LC | LC | С |  |
|--------|-------|---|-----------|------------|----|----|---|--|
|        | (E-8) |   | Butterfiy |            |    |    |   |  |

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.

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SITR Rev. 23

SYSTEM: CBS

P&ID No.: D20233

| Valve Number                                                                                                                                                                                                                                                                                                                                                                                         | Class<br>and | Valve | Size (in.)<br>and | Actuator | F   | Position | s   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------|-------------------|----------|-----|----------|-----|
| Remarks                                                                                                                                                                                                                                                                                                                                                                                              | Coord        | (CAT) | Туре              | Туре     | NRM | SAF      | FAL |
| CBS-V35                                                                                                                                                                                                                                                                                                                                                                                              | 2<br>(G-8)   |       | 4.0<br>Gate       | Manual   | С   | С        | -   |
| 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 |              |       |                   |          |     |          |     |
| CRS.V61                                                                                                                                                                                                                                                                                                                                                                                              | 3            |       | 40                | Manual   | С   | С        | -   |

| CBS-V61                                                                                                                                                                           | 3                                                                    | 4.0                                                          | Manual            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------|-------------------|
|                                                                                                                                                                                   | (B-4)                                                                | Diaphragm                                                    |                   |
| RWST to SF pool makeup isolatic<br>safety function as described in IS<br>abnormal operating procedures, t<br>determined a valve operated in th<br>that operation. References: OS1 | TA-1100. Although<br>his is a short evolution<br>his manner need not | opened for SF pool makeup (<br>on in terms of time. Engineer | during<br>ing has |

**CBS-P377** 

(F-12)

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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,

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# cc EXCLU

P&ID No.: **D20205** 

SYSTEM:

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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| Valve Number                                                                                                                                         | Class<br>and                   | Valve                         | Size (in.)<br>and    | Actuator 🚲 🕬 | с     | osition |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------|----------------------|--------------|-------|---------|-----|
| Remarks                                                                                                                                              | Coord                          | (CAT)                         | Туре                 | Туре         | NRM   | SAF     | FAL |
| CC-V1267                                                                                                                                             | 3<br>(A-8)                     |                               | 16.0<br>Butterfly    | Manual       | Locke | С       | -   |
| PCCW return header cross-connec<br>valve. Passive valve with only safe<br>Excluded from IST program since t<br>References: DCR 94-45                 | ty function be                 | ing to mainta                 | in CC pressure bou   | ndary.       |       |         |     |
| CC-V1268                                                                                                                                             | 3<br>(F-11)                    |                               | 24.0<br>Butterfly    | Manuai       | Locke | 0       | -   |
| PCCW CC-E-17A heat exchanger<br>open valve. Passive valve with only<br>Excluded from IST program since t<br>References: DCR 94-45                    | / safety funct                 | ion being to <mark>n</mark>   | naintain CC pressur  | e boundary.  |       |         |     |
| CC-V1272                                                                                                                                             | 3<br>(D-8)                     |                               | 4.0<br>Butterfly     | Manual       | Locke | С       | -   |
| PCCW head tank cross-connect m<br>Passive valve with only safety func<br>from IST program since there is no<br>References: DCR 94-45                 | tion being to                  | maintain CC                   | oressure boundary.   | Excluded     |       |         |     |
| CC-V486                                                                                                                                              | NNS<br>(B-6)                   |                               | 3.0<br>Relief/Safety | Self         | С     | 0       | -   |
| CC A Train containment return hea<br>adjacent piping OPP for penetration<br>therefore excluded from IST. Will b<br>D20207, Engineering Evaluation St | ns X-20 & X-2<br>be tested und | 21. However,<br>er other App. | this valve is non-AS | SME and      |       |         |     |
| P&ID No.: <b>D20208</b>                                                                                                                              |                                |                               |                      |              |       |         |     |

### CC-Various1

There are no SSD or accident mitigating components on this P&ID CC-D20208.

2-F6.3 SITR Rev. 23

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Valve Number Size (in.) Class and Valve and Actuator Positions Remarks SAF FAL Coord (CAT) Туре Туре NRM CC-V1266 3 16.0 С Manual Locke (A-9) Butterfly 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 24.0 Manual Locke 0 (F-11) Butterfly 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 4.0 Manual Locke C (D-9) Butterfly 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 3.0 Self С 0 (A-10) Relief/Safety 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

### CC-Various2

SYSTEM:

P&ID No.:

CC

D20211

There are no SSD or accident mitigating components on this drawing P&ID CC-D20215.

2-F6.4 SITR Rev. 23

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### SYSTEM: CGC

P&ID No.: **B20612** 

FSAR Section 6.2.5.

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# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Class                                                                                                 |                                                                                    | Size (in.)                                                                                                                              |                                                                       |     |          |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----|----------|-----|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | and                                                                                                   | Valve                                                                              | and                                                                                                                                     | Actuator                                                              |     | Position |     |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Coord                                                                                                 | (CAT)                                                                              | Туре                                                                                                                                    | Туре                                                                  | NRM | SAF      | FAL |
| CGC-V56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | NNS<br>(D-5)                                                                                          |                                                                                    | 0.13<br>Globe                                                                                                                           | Manual                                                                | 0   | -        | -   |
| Containment air sample vessel MM<br>and remains closed when the hydr<br>operating procedure (OS1023.71)<br>collection of the post accident cont<br>function will be tested periodically<br>Sampling Procedure. References:                                                                                                                                                                                                                                                                                                                               |                                                                                                       |                                                                                    |                                                                                                                                         |                                                                       |     |          |     |
| CGC-V57                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | NNS<br>(D-5)                                                                                          |                                                                                    | 0.13<br>Globe                                                                                                                           | Manual                                                                | 0   | -        | -   |
| Containment air sample vessel MM-782 return isolation valve. This valve is normally closed<br>and remains closed when the hydrogen analyzer is in service. Note that the analyzer<br>operating procedure (OS1023.71) addresses a flow path through the sample vessel, however<br>collection of the post accident containment air sample is not a safety related function. This<br>function will be tested periodically using Chem. Procedure CS0925.07, Post Accident Gas<br>Sampling Procedure. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5. |                                                                                                       |                                                                                    |                                                                                                                                         |                                                                       |     |          |     |
| CGC-V58                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2<br>(E-6)                                                                                            |                                                                                    | 0.75<br>Diaphragm                                                                                                                       | Manual                                                                | С   | С        | -   |
| Containment air sample vessel Mi<br>and remains closed when the hydr<br>operating procedure (OS1023.71)<br>collection of the post accident cont<br>function will be tested periodically<br>Sampling Procedure. Serves pass<br>therefore excluded from IST. Refe                                                                                                                                                                                                                                                                                          | ogen analyze<br>addresses a f<br>ainment air sa<br>using Chem. F<br>ive function of                   | r is in service<br>low path thro<br>ample is not a<br>Procedure CS<br>isolating NN | . Note that the ana<br>ugh the sample ves<br>a safety related fund<br>30925.07, Post Acc<br>S piping. No positio                        | alyzer<br>ssel, however<br>ction. This<br>ident Gas<br>on indication, |     |          |     |
| CGC-V59                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2*<br>(E-5)                                                                                           |                                                                                    | 0.75<br>Diaphragm                                                                                                                       | Manual                                                                | С   | С        | -   |
| Containment air sample vessel Mi<br>and remains closed when the hydr<br>operating procedure (OS1023.71)<br>collection of the post accident cont<br>function will be tested periodically<br>Sampling Procedure. Serves pass<br>and is ANSI Class 2, therefore exc                                                                                                                                                                                                                                                                                         | M-782 return i<br>ogen analyze<br>addresses a f<br>ainment air sa<br>using Chem. F<br>ive function of | r is in service<br>low path thro<br>ample is not a<br>Procedure CS<br>isolating NN | e. This valve is norr<br>Note that the and<br>ugh the sample ves<br>a safety related fund<br>30925.07, Post Acc<br>S piping. No positic | alyzer<br>ssel, however<br>ction. This<br>ident Gas<br>on indication  |     |          |     |

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### SYSTEM: CGC

P&ID No.: **B20612** 

FSAR Section 6.2.5.

# 5 FIGURE F6 **EXCLUSION JUSTIFICATION DOCUMENT** TABLES

| Valve Number                                                                                                                                                                                                                               | Class<br>and                                                                                                                                          | Valve                                                                           | Size (in.)<br>and                                                                                                                    | Actuator                                                              | 1   | Position | e   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----|----------|-----|
| Remarks                                                                                                                                                                                                                                    | Coord                                                                                                                                                 | (CAT)                                                                           | Туре                                                                                                                                 | Туре                                                                  | NRM | SAF      | FAL |
| CGC-V60                                                                                                                                                                                                                                    | . NNS<br>(D-5)                                                                                                                                        |                                                                                 | 0.13<br>Globe                                                                                                                        | Manual                                                                | 0   | -        | -   |
| Containment air sample ves<br>and remains closed when the<br>operating procedure (OS10<br>collection of the post accide<br>function will be tested perio<br>Sampling Procedure. Reference                                                  | he hydrogen analyzer<br>23.71) addresses a flo<br>ent containment air sa<br>dically using Chem. P                                                     | is in service.<br>ow path throu<br>mple is not a<br>rocedure CS                 | Note that the an-<br>ugh the sample ves<br>safety related func<br>0925.07, Post Acc                                                  | alyzer<br>ssel, however<br>ction. This<br>ident Gas                   |     |          |     |
| CGC-V61                                                                                                                                                                                                                                    | NNS<br>(D-5)                                                                                                                                          |                                                                                 | 0.13<br>Globe                                                                                                                        | Manual                                                                | 0   | -        | -   |
| Containment air sample ves<br>and remains closed when ti<br>operating procedure (OS10<br>collection of the post accide<br>function will be tested perio<br>Sampling Procedure. Refer                                                       | he hydrogen analyzer<br>23.71) addresses a flo<br>ent containment air sa<br>dically using Chem. P                                                     | is in service<br>ow path throu<br>mple is not a<br>rocedure CS                  | Note that the ana<br>ugh the sample ves<br>safety related fund<br>0925.07, Post Acc                                                  | alyzer<br>ssel, however<br>ction. This<br>ident Gas                   |     |          |     |
| CGC-V62                                                                                                                                                                                                                                    | 2<br>(C-6)                                                                                                                                            |                                                                                 | 0.75<br>Globe                                                                                                                        | Manual                                                                | С   | С        | -   |
| Containment air sample ves<br>and remains closed when the<br>operating procedure (OS10<br>collection of the post accide<br>function will be tested perior<br>Sampling Procedure. Serve<br>therefore excluded from IS                       | he hydrogen analyzer<br>23.71) addresses a flo<br>ent containment air sau<br>dically using Chem. P<br>es passive function of                          | is in service.<br>ow path throu<br>mple is not a<br>rocedure CS<br>isolating NN | Note that the ana<br>ugh the sample ves<br>safety related fund<br>30925.07, Post Acc<br>S piping. No positio                         | alyzer<br>ssel, however<br>ction. This<br>ident Gas<br>on indication, |     |          |     |
| CGC-V63                                                                                                                                                                                                                                    | 2*<br>(C-5)                                                                                                                                           |                                                                                 | 0.75<br>Globe                                                                                                                        | Manual                                                                | С   | С        | -   |
| Containment air sample ves<br>and remains closed when th<br>operating procedure (OS10<br>collection of the post accide<br>function will be tested perior<br>Sampling Procedure. Serve<br>and ANSI Class 2, therefore<br>ESAP Section 6.2.5 | ssei MM-783 return is<br>he hydrogen analyzer<br>23.71) addresses a fil<br>ent containment air sau<br>dically using Chem. P<br>es passive function of | is in service.<br>ow path throu<br>mple is not a<br>rocedure CS<br>isolating NN | e. This valve is norr<br>Note that the an-<br>ugh the sample ver<br>safety related fund<br>0925.07, Post Acc<br>S piping. No positic | alyzer<br>ssel, however<br>ction.This<br>ident Gas<br>on indication   |     |          |     |

SITR Rev. 23

2-F6.6

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SYSTEM: CGC

P&ID No.: B20612

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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| Valve Number                                                                                                                                                                                                                            | Class<br>and                                                   | Valve                                                            | Size (in.)<br>and                                                                 | Actuator                                             | F   | osition | 5 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------|-----|---------|---|
| Remarks                                                                                                                                                                                                                                 | Coord                                                          | (CAT)                                                            | Туре                                                                              | Туре                                                 | NRM | SAF     | F |
|                                                                                                                                                                                                                                         |                                                                |                                                                  |                                                                                   |                                                      |     |         |   |
| CGC-V64                                                                                                                                                                                                                                 | NNS<br>(E-5)                                                   |                                                                  | 0.5<br>Globe                                                                      | Manual                                               | 0   | -       |   |
| Containment air sample vessel MM-<br>and remains closed when the hydrog<br>operating procedure (OS1023.71) ac<br>collection of the post accident contai<br>function will be tested periodically us<br>Sampling Procedure. References: P | gen analyzer<br>ddresses a fl<br>inment air sa<br>sing Chem. F | is in service.<br>ow path throu<br>mple is not a<br>Procedure CS | Note that the an<br>igh the sample ve<br>safety related fun<br>0925.07, Post Acc  | alyzer<br>ssel, however<br>ction. This<br>sident Gas |     |         |   |
| CGC-V65                                                                                                                                                                                                                                 | NNS<br>(E-6)                                                   |                                                                  | 0.5<br>Globe                                                                      | Manual                                               | 0   | -       |   |
| Containment air sample vessel MM<br>and remains closed when the hydrog<br>operating procedure (OS1023.71) ac<br>collection of the post accident contai<br>function will be tested periodically us<br>Sampling Procedure. References: P  | gen analyzer<br>ddresses a fl<br>inment air sa<br>sing Chem. F | is in service,<br>ow path throu<br>mple is not a<br>Procedure CS | Note that the an<br>igh the sample ver<br>safety related fun<br>0925.07, Post Acc | alyzer<br>ssel, however<br>ction. This<br>sident Gas |     |         |   |
| CGC-V66                                                                                                                                                                                                                                 | NNS<br>(C-5)                                                   |                                                                  | 0.5<br>Globe                                                                      | Manual                                               | 0   | -       |   |
| Containment air sample vessel MM-<br>and remains closed when the hydrog<br>operating procedure (OS1023.71) ac<br>collection of the post accident contai<br>function will be tested periodically us<br>Sampling Procedure. References: P | gen analyzer<br>ddresses a fl<br>inment air sa<br>sing Chem. F | is in service.<br>ow path throu<br>mple is not a<br>Procedure CS | Note that the an<br>igh the sample ve<br>safety related fun<br>0925.07, Post Acc  | alyzer<br>ssel, however<br>ction. This<br>sident Gas |     |         |   |
| CGC-V67                                                                                                                                                                                                                                 | NNS<br>(C-5)                                                   |                                                                  | 0.5<br>Globe                                                                      | Manual                                               | 0   | -       | , |
| Containment air sample vessel MM<br>and remains closed when the hydrog<br>operating procedure (OS1023.71) ac<br>collection of the post accident contai<br>function will be tested periodically us<br>Sampling Procedure. References: P  | gen analyzer<br>ddresses a fl<br>inment air sa<br>sing Chem. F | is in service.<br>ow path throu<br>mple is not a<br>Procedure CS | Note that the an<br>igh the sample ve<br>safety related fun<br>0925.07, Post Acc  | alyzer<br>ssel, however<br>ction. This<br>sident Gas |     | ·       |   |

SITR Rev. 23 2-F6.7

FAL

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SYSTEM: CO P&ID No.: D20426

| Valve Number                                                                                                                                        | Class<br>and<br>Coord           | Valve<br>(CAT)                  | Size (in.)<br>and<br>Type                                               | Actuator<br>Type               | P<br>NRM     | osition<br>SAF | s<br>F |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|-------------------------------------------------------------------------|--------------------------------|--------------|----------------|--------|
| Remarks<br>CO-V142<br>CST to startup aux feedwater pump<br>locked closed (SC-3 to NNS interf<br>water volume to the startup feedwa                  | ace isolation                   | ), and is open                  | ed to align the CST                                                     | protected                      | NRM<br>Locke | SAF<br>C       | F      |
| 3.7.1.2 This valve was included in t<br>Engineering review determined this<br>beyond the plant's licensing basis of<br>D20426, TS 3.7.1.2.          | he IST progr<br>valve to be     | am scope via<br>not active, as  | SITR Rev 10. Subs<br>its use would be for<br>conditions. Referen<br>8.0 | equent<br>operation            | С            |                |        |
| Startup feedwater pump suction ch<br>normally closed and opens when th<br>a safety related close function. Ho<br>IST. Will be tested under other Ap | ie startup fee<br>wever, this v | ed pump is op<br>alve is non-AS | erating. This valve of<br>SME and therefore e                           | loes not have<br>excluded from |              |                |        |
| CO-V430                                                                                                                                             | NNS<br>(A-6)                    |                                 | 0.75<br>Relief/Safety                                                   | Self                           | С            | -              |        |

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.

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SYSTEM: COP P&ID No.: **D20504** 

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| Valve Number                                                   | Class<br>and    | Valve          | Size (in.)<br>and     | Actuator           | F          | osition | s   |
|----------------------------------------------------------------|-----------------|----------------|-----------------------|--------------------|------------|---------|-----|
| Remarks                                                        | Coord           | (CAT)          | Туре                  | Туре               | NRM        | SAF     | FAL |
| COP-V7                                                         | NNS<br>(F-10)   |                | 4.0<br>Butterfly      | Motor              | С          | -       | -   |
| COP Exhaust throttle valve used fo<br>described in ISTA-1100.  | r fine control. | NNS valve w    | vith no safety functi | on as              |            |         |     |
| COP-V8                                                         | NNS<br>(F-10)   |                | 8.0<br>Butterfly      | Motor              | С          | -       | -   |
| COP Exhaust throttle valve used for<br>described in ISTA-1100. | r coarse conf   | trol. NNS valv | ve with no safety fu  | nction as          |            |         |     |
| COP-V11                                                        | NNS<br>(F-10)   |                | 8.0<br>Gate           | Manual             | С          | -       | -   |
| COP Exhaust valve PAH-F-16 byp                                 | ass. NNS val    | ve with no sa  | fety function as des  | cribed in ISTA-110 | <b>)</b> . |         |     |
| COP-V12                                                        | NNS<br>(F-10)   |                | 8.0<br>Gate           | Manual             | 0          | -       | -   |

COP Exhaust valve PAH-F-16 inlet. NNS valve with no safety function as described in ISTA-1100.

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# SYSTEM: CS P&ID No.: D20662

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | F   | osition | S   |
|--------------|--------------|-------|-------------------|----------|-----|---------|-----|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF     | FAL |
| CS-V496      | 2<br>(B-7)   |       | 3.0<br>Check      | Self     | DE  | С       | -   |

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.

| CS-V828 | 2     |
|---------|-------|
|         | (C-7) |

3.0 Gate

Manual

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. с с

2-F6.10 SITR Rev. 23

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | i   | osition | s |
|--------------|--------------|-------|-------------------|----------|-----|---------|---|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF     | F |
| CS-V497      | 2<br>(B-7)   |       | 3.0<br>Check      | Self     | DE  | С       |   |

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     | 3.0  |
|---------|-------|------|
|         | (B-7) | Gate |
|         |       |      |

SYSTEM:

P&ID No.:

CS

D20663

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.

SAF FAL

С

#### С C

Manual

2-F6.11 SITR Rev. 23

# SYSTEM: **CS** P&ID No.: **D20722**

#### Valve Number Class Size (in.) and Valve and Actuator Positions SAF Remarks Coord (CAT) Type Type NRM 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 1.0 Air/Diaphragm C C (C-11) Globe 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 3.0 Air/Diaphragm 0 0 (C-6) Globe 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 2.0 Motor DE (F-9) Globe 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 2.0 Motor DE (F-9) Globe 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 Air/Diaphragm 3.0 0 С Globe (F-10) 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.

SYSTEM: CS

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

P&ID No.: D20722

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator      | I   | Position | S   |
|--------------|--------------|-------|-------------------|---------------|-----|----------|-----|
| Remarks      | Coord        | (CAT) | Туре              | Туре          | NRM | SAF      | FAL |
| CS-V170      | 2<br>(C-9)   |       | 1.0<br>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      | 0.75  | Self |
|---------|--------|-------|------|
|         | (D-12) | Check |      |

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<br>(B-4)                     | В           | 3.0<br>Gate           | Manual       |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------|-----------------------|--------------|
| This valve was to be used as the S<br>piping during RHR slipstream ope<br>are used for this purpose instead t<br>safety function as described in IST | rations. Howe<br>o preserve RH | ver, RH-V18 | and RH-V19 which      | are upstream |
| CS-V834                                                                                                                                              | NNS<br>(B-4)                   |             | 0.75<br>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

P&ID No.: D20723

CS

Valve Number

Remarks

SYSTEM:

Valve (CAT) Size (in.) Type

Actuator

Туре

and

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.

Class

and

Coord

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.

#### 2-F6.14 SITR Rev. 23

С

SYSTEM: CS

P&ID No.: D20725

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| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator      | F   | osition | s   |
|--------------|--------------|-------|-------------------|---------------|-----|---------|-----|
| Remarks      | Coord        | (CAT) | Туре              | Туре          | NRM | SAF     | FAL |
| CS-FCV121    | 2<br>(D-12)  |       | 3.0<br>Globe      | Air/Diaphragm | 0   | -       | 0   |

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     | 2.0   | Motor |
|---------|-------|-------|-------|
|         | (D-6) | Globe |       |

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

2-F6.15 SITR Rev. 23

# SYSTEM: **CS** P&ID No.: **D20725**

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | I   | Position | s   |
|--------------|--------------|-------|-------------------|----------|-----|----------|-----|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF      | FAL |
| CS-V230      | 2<br>(F-11)  |       | 1.0<br>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.

| CS-V492 | 2     | 0.75          | Self |
|---------|-------|---------------|------|
|         | (D-6) | Relief/Safety |      |

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

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### SYSTEM: CS P&ID No.: **D20726**

| Valve Number ·                                                                                                                                                                                          | Class                                            | Volue                                                   | Size (in.)                                              | Actuator                             | г   | Decition         | _        |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|--------------------------------------|-----|------------------|----------|--|
| Remarks                                                                                                                                                                                                 | and<br>Coord                                     | Valve<br>(CAT)                                          | and<br>Type                                             | Actuator<br>Type                     | NRM | Position:<br>SAF | s<br>FAL |  |
| CS-Various2                                                                                                                                                                                             | 2                                                |                                                         |                                                         |                                      |     | -                | -        |  |
| The RCP seal water return componer<br>not required for SSD or accident mitig<br>and should be removed from the IST<br>which is required for CCP min flow of<br>water injection valves are within the IS | ation and are<br>Program. On<br>cooling is inclu | e not within the<br>ily that portion<br>ided within the | IST scope per IS<br>of the seal water<br>IST scope. RCF | STA-1100,<br>return piping<br>? Seal |     |                  |          |  |
| CS-V10                                                                                                                                                                                                  | 2<br>(A-12)                                      |                                                         | 0.75<br>Globe                                           | Air/Diaphragm                        | 0   | -                | 0        |  |
| RCP A seal water leakoff isolation val<br>mitigation, and is therefore excluded<br>and RCS is less than 100 psig to prev<br>equipment protection feature and not<br>Sections 9.3.4, 5.4.7, 7.4.         | per ISTA-110<br>/ent crud bac                    | 0. Valve is clo<br>kleakage into                        | sed when RCP is<br>seals. This is mo                    | s shutdown<br>re of an               |     |                  |          |  |
| CS-V28                                                                                                                                                                                                  | 2<br>(B-12)                                      |                                                         | 0.75<br>Globe                                           | Air/Diaphragm                        | 0   | -                | 0        |  |
| RCP B seal water leakoff isolation va<br>mitigation, and is therefore excluded<br>and RCS is less than 100 psig to prev<br>equipment protection feature and not<br>Sections 9.3.4, 5.4.7, 7.4.          | per ISTA-110<br>/ent crud bac                    | 0. Valve is clo<br>kleakage into                        | sed when RCP is<br>seals. This is more                  | s shutdown<br>re of an               |     |                  |          |  |
| CS-V44                                                                                                                                                                                                  | 2<br>(C-12)                                      |                                                         | 0.75<br>Globe                                           | Air/Diaphragm                        | 0   | -                | 0        |  |
| RCP C seal water leakoff isolation va<br>mitigation, and is therefore excluded<br>and RCS is less than 100 psig to prev<br>equipment protection feature and not                                         | per ISTA-110<br>/ent crud bac                    | 0. Valve is clo<br>kleakage into                        | osed when RCP i<br>seals. This is mo                    | s shutdown<br>re of an               |     |                  |          |  |

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Sections 9.3.4, 5.4.7, 7.4.

#### SITR Rev. 23 2-F6.17

Actuator

Type

Air/Diaphragm

SYSTEM: **CS** P&ID No.: **D20726** 

**CS-V59** 

Valve Number Class and Remarks Coord

(D-12) Globe 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.

2

Valve

(CAT)

Size (in.)

and

Type

0 75

| CS-V1166                                                                                     | 2<br>(A-12)                                                | 0.75<br>Check                                      | Self                |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------|---------------------|
| RCP A seal water return che<br>mitigation, and is therefore e<br>Sections 9.3.4, 5.4.7, 7.4. | eck valve. Seal water return<br>excluded per ISTA-1100. Re | is not required for SSD of ferences: P&ID D 20726, | er accident<br>FSAR |
| CS-V1167                                                                                     | 2                                                          | 0.75                                               | Self                |

(B12) Check 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                    | 0.75                               | Self   |
|-------------------------------|----------------------|------------------------------------|--------|
|                               | (C-12)               | Check                              |        |
| RCP C seal water return check | valve. Seal water re | turn is not required for SSD or ac | cident |

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                       | 0.75                       | Self     |
|--------------------------------|-------------------------|----------------------------|----------|
|                                | (D-12)                  | Check                      |          |
| DOD D as al water return aboat | walve Seel water return | is not required for SSD or | accident |

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.

Positions NRM SAF FAL

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# FIGURE F6 **EXCLUSION JUSTIFICATION DOCUMENT** $\gamma$

P&ID No.: D20727

CS

SYSTEM:

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| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | 1   | osition | s   |  |
|--------------|--------------|-------|-------------------|----------|-----|---------|-----|--|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF     | FAL |  |
| CS-Various3  |              |       | ·                 |          |     | -       | -   |  |

**TABLES** 

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

### **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.

2F6,19 SITR Rev. 23

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SYSTEM: **CS** P&ID No.: **D20729** 

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| Valve Number                                                                                                                                                                                   | Class<br>and                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Valve                                            | Size (in.)<br>and                                             | Actuator                                           | F   | Position | s   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------|-----|----------|-----|
| Remarks                                                                                                                                                                                        | Coord                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (CAT)                                            | Туре                                                          | Туре                                               | NRM | SAF      | FAL |
| CS-FCV110A                                                                                                                                                                                     | 3<br>(A-5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  | 2.0<br>Globe                                                  | Air/Diaphragm                                      | DE  | -        | 0   |
| other downstream valves, if necess<br>normal plant operation. Per UFSAF<br>safe shutdown operation as there a                                                                                  | (A-5) Globe<br>Boric Acid Blender flow control valve. Can be isolated by manual upstream valve CS-V432 or<br>other downstream valves, if necessary. Piping is seismic, as these lines are used during<br>normal plant operation. Per UFSAR Table 9.3-7, position of this valve is inconsequential to<br>safe shutdown operation as there are alternate means of boration which are unaffected by the<br>position of this valve. No safety function as described in ISTA-1100 |                                                  |                                                               |                                                    |     |          |     |
| CS-FCV110B                                                                                                                                                                                     | 2<br>(C-4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  | 2.0<br>Saunders Weir                                          | Air/Diaphragm                                      | DE  | -        | С   |
| Boric Acid Blender flow control val-<br>valve can be isolated by upstream<br>these lines are used during normal<br>valve is inconsequential to safe sh<br>which are unaffected by the position | or downstrea<br>  plant operati<br>utdown opera                                                                                                                                                                                                                                                                                                                                                                                                                              | m valves, if n<br>on. Per UFSA<br>tion as there. | ecessary. Piping i<br>،R Table 9.3-7, po<br>are alternate mea | s seismic, as<br>osition of this<br>ns of boration |     |          |     |
| CS-FCV111A                                                                                                                                                                                     | 3<br>(D-5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  | 2.0<br>Globe                                                  | Air/Diaphragm                                      | DE  | -        | С   |
| RMW to Boric Acid Blender flow co<br>prior to emergency boration to ave<br>inconsequential to safe shutdown                                                                                    | oid dilution. F                                                                                                                                                                                                                                                                                                                                                                                                                                                              | er UFSAR Ta                                      | ible 9.3-7 position                                           | of this valve is                                   |     |          |     |
| CS-FCV111B                                                                                                                                                                                     | 2<br>(C-4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  | 2.0<br>Saunders Weir                                          | Air/Diaphragm                                      | DE  | -        | С   |
| Boric Acid Blender to VCT flow co<br>valves, if necessary. Per UFSAR T<br>shutdown operation. No safety fun                                                                                    | able 9.3-7 pc                                                                                                                                                                                                                                                                                                                                                                                                                                                                | sition of this v                                 | valve is inconsequ                                            | lownstream<br>uential to safe                      |     |          |     |
| CS-V434                                                                                                                                                                                        | 3<br>(A-5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  | 2.0<br>Check                                                  | , Self                                             | DE  | -        | -   |
| Boric Acid supply to BA Blender cl<br>CS-V432 or other downstream val                                                                                                                          | neck valve. C<br>ves, if necess                                                                                                                                                                                                                                                                                                                                                                                                                                              | ary. Piping is                                   | seismic, as these                                             | e 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

2-F6.20 SITR Rev. 23

Size (in.) Valve Number Class Valve Actuator Positions and and NRM SAF FAL Type Remarks Coord (CAT) Type 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

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

SYSTEM:

P&ID No.:

DG

D20458

### 3\* (B-5)

3\*

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

### (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.

2-F6.21 SITR Rev. 23

### SYSTEM: DG

P&ID No.: D20458

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number                                                                                                                                                                                                                 | Class<br>and                                                           | Valve                                                           | Size (in.)<br>and                                                                         | Actuator                               | F   | osition | 9   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------|-----|---------|-----|
| Remarks                                                                                                                                                                                                                      | Coord                                                                  | (CAT)                                                           | Туре                                                                                      | Туре                                   | NRM | SAF     | FAL |
| DG-V8A                                                                                                                                                                                                                       | 3*<br>(E-11)                                                           |                                                                 | 3.0<br>Relief/Safety                                                                      | Self                                   | С   | -       | -   |
| Motor driven aux LO pump discha<br>operation. Therefore, the RV is no<br>because it is ANS Class 3. Refere                                                                                                                   | t within the IS                                                        | r scope per IS                                                  | STA-1100. Also exc                                                                        |                                        |     |         |     |
| DG-V18A                                                                                                                                                                                                                      | 3*<br>(C-6)                                                            |                                                                 | 0.5<br>Check                                                                              | Self                                   | 0   | С       | -   |
| Motor driven rocker arm prelube p<br>close function only. This function i<br>testing through maintenance of pr<br>is excluded from IST by ISTC-12(<br>operation is not required to suppo<br>position by OS1426.25. Reference | s adequately o<br>ocess parame<br>00(c). Also ex<br>rt EDG operat      | lemonstrated<br>ters within no<br>cluded becau<br>on. The valve | during normal surv<br>rmal ranges. There<br>se it is ANS Class 3<br>e is exercised to the | eillance<br>fore, the valve<br>3. Pump |     |         |     |
| DG-V23A                                                                                                                                                                                                                      | 3<br>(G-10)                                                            |                                                                 | 5.0<br>Check                                                                              | Self                                   | С   | 0       |     |
| Engine driven LO pump discharge<br>operation. There is no safety relat<br>in the open direction during norma<br>.References: P&ID D20458, DBD                                                                                | ed close funct<br>al surveillance                                      | on for this va<br>testing, and r                                | lve. Valve is adequa                                                                      | ately tested                           |     |         |     |
| DG-V24A                                                                                                                                                                                                                      | 3<br>(F-10)                                                            |                                                                 | 5.0<br>Check                                                                              | Self                                   | 0   | С       | -   |
| Motor driven aux LO pump discha<br>support EDG operation. This valu<br>EDG. This function is adequately<br>maintenance of process parameter<br>from IST by ISTC-1200(c). Refere                                              | re, if open, must<br>tested during r<br>ers within norm                | st close to en<br>ormal surveil<br>al range. The                | sure adequate LO f<br>lance testing throug<br>prefore, the valve is                       | low to the<br>gh<br>excluded           |     |         |     |
| DG-V29A                                                                                                                                                                                                                      | 3<br>(C-10)                                                            |                                                                 | 5.0<br>Three way                                                                          | Self                                   | DE  | -       | -   |
| Self contained lube oil temperatur<br>references: P&ID D20458, DBD-D                                                                                                                                                         | e control valve                                                        | e, exempt fron                                                  | n IST per ISTC-120                                                                        | 0(b).                                  |     |         |     |
| DG-V31A                                                                                                                                                                                                                      | 3*<br>(B-5)                                                            |                                                                 | 2.0<br>Check                                                                              | Self                                   | 0   | С       | -   |
| Motor driven prelube and filter pur<br>closed when the EDG is running<br>adequately verified during normal<br>temperatures. Therefore, the valv                                                                              | mp discharge o<br>to prevent lube<br>surveillance b<br>e is excluded t | e oil bypass fl<br>y maintenanc<br>rom IST by IS                | ow. The closure fur<br>e of adequate LO p<br>STC-1200(c). Also e                          | nction is<br>pressure and              |     |         |     |

because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.

SITR Rev. 23 2-F6.22

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SYSTEM: DG P&ID No.: **D20458**

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FIGURE F6 **EXCLUSION JUSTIFICATION DOCUMENT** TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	ſ	osition	2
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V37A	3* (B-5)		Relief/Safety	Self		-	-
Prelube and filter pump integral disc EDG operation. Therefore, the value because it is ANS Class 3. Reference	e is exempt f	rom IST per I	STA-1100 (scope				
DG-V41A	3* (D-7)		0.38 Gate	Self		-	-
Lube oil reservoir tank level control 97-095) of maintaining lube oil inver integral subcomponent to the lube o App. B program commensurate with	itory. It is ex il reservoir.	cluded from It will be teste	IST because it is A	NS 3 and an			
DG-V42A	3* (D-7)		0.5 Relief/Safety	Self		-	-
Rocker arm duplex filter outlet press rocker arm lubricating header at 12 to perform a function as described ANS Class 3. References: P&ID D2	psig and is e n ISTA-110	excluded from 0, per EWR 9	IST by ISTC-120 7-095. Also exclud	D(b). Not required led because it is			
DG-V195A	NNS (D-7)		Relief/Safety	Self	С	-	-
Lube oil keep warm filter internal rel support EDG operation and the valv D20458, DBD-DG-01.							
DG-V196A	3* (G-10)		Relief/Safety	Self	С	-	-
Engine driven LO pump integral reli valve is in scope per ISTA-1100. H integral subcomponent to the pump D20458, DBD-DG-01.	ef valve, ade owever, exc	luded becaus	ed during pump or e it is ANS Class 3	3 and it is an			

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SYSTEM: **DG** P&ID No.: **D20458**

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	F NRM
DG-V257A	3* (G-6)		0.75 Globe	Self	С
		10	· · · · · · · · · · · · · · · · · · ·	data a contra la la	

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*	0.5	Self	l
	(C-6)	Check		

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.

Positions NRM SAF FAL C O -

DE O -

2-F6.24 SITR Rev. 23

С

С

0

0

SYSTEM: DG P&ID No.: D20459

Valve Number	Class and	Valve	Size (in.) and	Actuator	1	Position	s
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-P38A	3 (B-10)					-	-
The fuel oil transfer pumps skid-mountedPD pumps ha 25 GPM. The FO Transfer readiness is adequately de	ve a specified flow raping pump is required to s	ite of 20 GPM support EDG	l and an actual flow operation, and it's	v rate of 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*	1.0	Self				
	(F-7)	Check					
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				
EDG fuel header return check va excess fuel to the day tank. This		· ·					

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.

2-F6.25 SITR Rev. 23

Valve Number	Class and	Valve	Size (in.) and	Actuator	F	Position	e
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V84A	3 (H-7)		1.0 Check	Self	С	С	-
Motor driven aux fuel oil pur EDG operation, and the ch bypass. This function is add by ISTC-1200(c) Reference	eck valve has a safet equately verified duri	y close funct ng normal su	ion only to prevent	fuel oil			
DG-V85A	3* (G-7)		1.0 Check	Self	С	О	-
Engine driven fuel oil pump function only which is verifie STC-1200(c) Also excluded	ed during normal surv	eillance testi	e has a safety relate ng and may be exc	ed open sluded by			
DG-V99A	3*		Relief/Safety	Self	с	-	-
Aux motor driven fuel oil pu required to support EDG op P&ID D20459, DBD-DG-01.	eration. This valve is		otor driven fuel oil				
DG-V100A	3* (H-7)		Relief/Safetv	Self	С	0	-
Engine driven fuel oil pump excluded because it is ANS Will be tested under other A	integral relief valve. ⁻ S Class 3. Sat. opera	tion is integra	in scope per ISTA- al with sat. operatio	on of the pump.			
DG-V115	. 3 (B-10)		1.5 Check	Self	С	0	-
Fuel oil transfer pump 38A of Closure to prevent reverse tank. Exercising of this skid- of the fuel oil transfer pump References: P&ID D20459,	flow is not required si -mounted check valve testing conducted for	nce the trans e is adequate r TS 4.8.1.1.1	fer line enters the ely performed durin	top of the day g performance			·
DG-V118	3 (C-9)		1.5 X 2 Relief	Self	С	0	-
Fuel Oil transfer pump 38A	. ,	e. See CR 0	6-10718 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.: D20459

2-F6.26 SITR Rev. 23

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	I	Position	s
Remarks	Coord	(CAT)	Туре	Туре	NŔM	SAF	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.

DG-V208

NNS (D-8)

Self

6.0

Relief/Safety

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.

2-F6.27 SITR Rev. 23

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FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

FAL

Valve Number	Class	Vaive	Size (in.) and	Actuator	ſ	Position	5
Remarks	and Coord	(CAT)	Туре	Туре	NRM	SAF	F
DG-D-6A-checks	3* (F-4)		0.25 Check	Self	DE	-	
C-2A air dryer check valves open required to remove moisture to v operation of the dryer and associ reliability of the EDG and associ surveillance testing. Therefore the because they are ANS Class 3. importance to safety under anoth DG-V282A, DG-V286A, and DG	within design lim iated componen ated pneumatic ne valve are exc Will be tested p ner App. B progr	hits of the sup ots is verified components luded per IST periodically co ram. These va	plied components via proper operation which is verified b 'C-1200(c) Also ex ommensurate with alves include DG-V	Proper on and y periodic ccluded their /281A,			
DG-D-6A-SOVs	3* (F-4)		0.25 Globe	Solenoid	DE	-	
C-2A air dryer solenoid valves o dryer is required to remove mois Proper operation of the dryer an reliability of the EDG and assoc surveillance testing. Therefore, t because they are ANS Class 3.	ture to within de d associated co iated pneumatic he valves are e	esign limits of mponents is v components xcluded per l	the supplied comp verified via proper , which is verified I STC-1200(c) Also	oonents. operation and oy periodic excluded			

DG-V52A	3*	0.25	` Self
	(C-10)	Other	

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 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	0.25	Self
	(C-10)	Check	

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

Valve Number	Class and	Valve	Size (in.) and	Actuator	F	Position	s
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V54A 125 psig control air relief valve- in s	3* (C-10) cope per IST		0.5 Relief/Safety ects downstream pir	Self ping in the	С	0	-
event of pressure regulator DG-V52 by that regulator. However, exclude Appendix B program. References P	A failure, as d because i	pressure is r t is ANS Clas	educed from 600 ps s 3. Will be tested u	ig to 100 psig			
DG-V55A	3*		Other	Self		-	-
DELETED per EC 144992 >							
>							
DG-V56A	3*		0.25 Relief/Safety	Self	С	ο	-
DELETED per EC 144992 > > >							
DG-V59A	3*			Self		-	-

Other

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.

(D-8)

DG-V60A	3*		Self
	(D-8)	Other	

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.

SYSTEM: DG

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P&ID No.: **D20460**

Valve Number	Class and	Valve	Size (in.) and	Actuator	-	Position	
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V72A	3* (F-10)		Relief/Safety	Self	С	0	-
Starting air compressor discharg downstream piping because con However, excluded because it is program. References: P&IDD20	npressor rating is ANS Class 3.	s 700 psig (al Will be tested	oove system piping	design).			
DG-V220A	3* (D-8)		Other	Self		-	-
DG starting air booster valve. Pe to EWR 97-095. Self contained 200(c) and because it is ANS 3 commensurate with its importan	control valve ex . It will be tested	cluded from	IST based on ISTC	-1200(b) and			
DG-V221A	3* (D-8)		Other	Self		-	-
OG starting air booster valve. Pe to EWR 97-095. Self contained 200(c) and because it is ANS 3 ommensurate with its importan	l control valve ex 8. It will be tested	cluded from	IST based on ISTC	:-1200(b)and			
DG-V224A	3* (C-8)		Other	Self		-	-
DG main air start valve. Perform EWR 97-095. Self contained co 200(c) and because it is ANS commensurate with its importan	ontrol valve exclu 3. It will be tested	ided from IST	based on ISTC-12	200(b)and			
DG-V225A	3* (G-9)		0.5 Gate	Manual	0	С	-
Starting air compressor discharg normally open and is closed to p References: P&ID D20460, OS However, excluded because it is program.	ge Air dryer 6A c blace the backup 1026.12, DCR 94	o control air co 4-044. Added	ompressor in service to the SITR Revision	ce. ion 10.			

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SYSTEM: DG

P&ID No.: **D20460**

FIGURE F6 **EXCLUSION JUSTIFICATION DOCUMENT** TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	F	osition	2
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V226A	NNS (E-9)		0.75 Check	Self		-	-
C-2A air dryer manifold drain line of related. Removal of moisture from unit. Satisfactory performance of th EDG. Function is continuous for d Removal due to auto start/stop of of 93-39, the maintenance of ISA star function of the starting air system.	the compress ne air drying ea ryer purge flow compressor ba ndard air quali	or discharge quipment is re v and intermit used on receiv ty is not requ	is a design require eflected in the relia tent for compress ver pressure. Per l ired for the safety	ment for the ability of the or moisture Eng. Eval.			
DG-V253A	3* (E-10)		0.25 Three way	Solenoid		-	-
C-2A solenoid operated drain valve After every 30 minutes of compress the compressor discharge. The op compressor operation as well as th components. Therefore, the valve ANS Class 3. References: P&ID D	sor operation) erational readi ne reliability of is excluded pe	to remove ad ness of this v the EDG and r ISTC-1200	ccumulated conder valve is verified thr l associated pneur	nsate in ough proper natic			
DG-V258A	3* (F-10)		Relief/Safety	Self	С	0	-
C-2A integral stage relief valve. Th long term EDG operation and is in and will be periodically tested as p ANS Class 3. References: P&ID D	is RV protects scope per IST part of the com	A-1100. The	sor which is requi	er ISTC-1200(c)			
DG-V259A	3* (F-10)		Relief/Safety	Self	С	0	-
C-2A integral stage relief valve. Th long term EDG operation and is in and will be periodically tested as p ANS Class 3. References: P&ID D	scope per IST part of the com	A-1100. The	RV is excluded pe	er ISTC1200(c))			
DG-V260A	3* (E-10)		0.5 Check	Self	DE	0	-

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.

2-F6.31 SITR Rev. 23

SYSTEM: DG

P&ID No.: D20460

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	1	Position	5
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V269A	3* (D-8)		Other	Self		-	-
DG starting air booster valve. I to EWR 97-095. Self containe 1200(c) and because it is ANS commensurate with its importa	ed control valve ex 3. It will be tested	cluded from I	ST based on ISTC	-1200(b)and			
DG-V325A	3* (F-12)		0.25 Gate	Solenoid	DE	O/C	-
C-18A unloader SOV cycles o operation which is required for ensure compressor starts agai for this valve is 130 psid. This testing and is excluded per IS References: P&ID D20460, DE	long term EDG op inst no back press valve is adequatel TC-1200(c)Also ex	peration. Unlo ure. Max oper y tested durin ccluded beca	ader valve function rating Differential p g compressor surv	n is to pressure veillance			
DG-V331A	3* (G-1)		0.5 Relief/Safety	Self	С	0	-
EDG backup control air compr to support long term EDG ope excluded because it is ANS Cl References: P&ID D20460, DE	ration. Therefore, t ass 3. Will be test	he RV is in so ed under othe	cope per ISTA-110	0. However,			
DG-V332A	3* (G-9)		0.5 Ball	Manual	С	0	-
EDG backup control air compr closed, and is opened to place pressure at Backup Air Comp because it is ANS Class 3. W P&ID D20460, OS1026.12, D0	essor discharge m the backup air co ressor low pressur ill be tested under	mpressor into e setpoint is i	service when ala received. However	rm for receiver			
DG-V333A	3* (G-9)		0.5 Ball	Manual	С	Ο	-
EDG backup control air compr closed and is opened to place pressure at Backup Air Compr	essor discharge m the backup air cor	npressor into	service when alar	m 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.

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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Valve Number	Class and	Valve	Size (in.) and	Actuator	1	Position	IS
Remarks	Coord	(CAT)	Туре	' Туре	NRM	SAF	FAL
DG-V334A	3* (G-9)		0.5 Check	Self	С	ο	-
EDG backup control air co support long term EDG op valves prevent reverse flow	eration. Reverse clos	ure is not requ	uired since the air	receiver check			

valves prevent reverse how 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.

DG-V335A	3*	0.25	Self	С
	(E-12)	Relief/Safety		

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,

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2-F6.33 SITR Rev. 23

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EXCLUSION JUSTIFICATION DOCUMENT TABLES

FIGURE F6

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Valve Number	Class and	Valve	Size (in.) and	Actuator	ş	Position	s
Remarks	Coord	(CAT)	Туре	Туре	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	ΤH		
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	ΤН		

EDG air cooling water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20461, DBD-DG-01, 94MMOD506.

2-F6.34 SITR Rev. 23

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	c
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-TCV7A-1	3 (F-9)		6.0 Three way	Air/Diaphragm	ΤH	тн	0
EDG jacket coolant temperat engine speed exceeds 375 F When the engine is not runni indication Valve will be ex- its importance to safety in OS	ure control valve. C RPM. It then modulat ng it is in its pre-star cluded from IST per	tes to mainta rt position an ISTC-1200(l	in coolant tempera d has no remote c o). Tested comme	ature setpoint. controls or nsurate with			
DG-TCV7A-2	3 (F-9)		6.0 Three way	Air/Diaphragm	TH	ΤH	Ο
EDG air coolant temperature speed exceeds 375 RPM. It the engine is not running it is indication valve will be excl importance to safety in OS14	then modulates to n in its pre-start posit uded from IST per IS	naintain cool ion and has STC-1200(b)	ant temperature s no remote controls . Tested commen	etpoint. When s or			
DG-V1A	3 (G-7)		6.0 Check	Self		-	-
Aux coolant pump to jacket c not required to support EDG function. Therefore, this valve P&ID D20461, DBD-DG-01.	operation. This chee	ck valve has	no active open or	close safety			
DG-V2A	3 (F-9)		6.0 Check	Self	С	0	-
Engine driven jacket coolant diversion when the motor driv The safety related function for operating. The open functior maintenance of process temp excluded from IST per ISTC-	ven aux coolant pun or this valve is to ope n is adequately verif peratures within allo	np is running on when the ied during no wable ranges	(not safety relate engine driven coo rmal EDG surveil s. Therefore, this	ed function) lant pump is lance through			
DG-V4A	3 (D-8)		6.0 Check	Self		-	-
Aux coolant pump to air cool required to support EDG ope	ing header discharg		e. The aux coolan				

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.

2-F6.35 SITR Rev. 23

SYSTEM: **DG** P&ID No.: **D20461**

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

FAL

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Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s F
DG-V5A EDG air coolant pump discharge ch	3 (D-8)	ens to suppo	6.0 Check	Self	С	0	
related closure function prevents co open function for this valve is adeq through maintenance of process pa excluded from IST per ISTC-1200(c	olant bypass uately verified rameters with	when the au during nom in allowable	x coolant pump is o nal EDG surveilland ranges. Therefore,	operating. The ce testing			
DG-V9A	3 (F-7)		6.0 Butterfly	Air/Piston	С	С	
Aux coolant pump discharge isolatic EDG operation. This valve has no a Divert valve which opens in respons Coolant system, as a backup function defined in ISTA-1100. References:	active open of se to low cool on only. There	r close safety ant pressure efore, this val	function. Valve is signal in the respe ve is not within the	a normally closed ctive engine			
DG-V11A	3 (G-6)		6.0 Butterfly	Air/Piston	С	С	
Aux coolant pump discharge isolatio EDG operation. This valve has no a Divert valve which opens in respons Coolant system, as a backup functio defined in ISTA-1100. References:	active open of se to low cool on only. There	r close safety ant pressure efore, this val	function. Valve is signal in the respe ve is not within the	a normally closed ctive engine			
DG-V12A	3 (E-6)		6.0 Butterfly	Air/Piston	С	С	
Aux coolant pump suction isolation EDG operation. This valve has no a Divert valve which opens in respons Coolant system, as a backup function defined in ISTA-1100, References:	active open of se to low cool on only. There	r close safety ant pressure efore, this val	function. Valve is signal in the respe	a normally closed ctive engine			
DG-V13A	3 (D-6)		6.0 Butterfly	Air/Piston	С	С	
Aux coolant pump suction isolation EDG operation. This valve has no a Divert valve which opens in respons Coolant system, as a backup function defined in ISTA-1100. References:	active open of se to low cool on only. There	r close safety ant pressure efore, this val	function. Valve is signal in the respe ve is not within the	a normally closed ctive engine			

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2-F6.36 SITR Rev. 23

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SYSTEM: D20461 P&ID No.:

DG

Size (in.) Valve Number Class Valve and Actuator and (CAT) Type Type Remarks Coord 0.75 Self **DG-V86A** 3* Relief/Safety (G-10) 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*	1.5	Self
	(G-10)	Check	

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*	1.5	Self
	(G-10)	Check	
		t h in mannally an	on /to warm

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:

Positions NRM SAF FAL

0

C

0 С

C

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P&ID No.: **D20461**

SYSTEM:

DG

Valve Number	Class and	Valve	Size (in.) and	Actuator	F	osition	s
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V271	NNS (E-6)		0.5 Relief/Safety	Self	С	-	-

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

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DG-NA1

There are no valves on this drawing within the IST program scope as defined in ISTA-1100.

SITR Rev. 23 2-F6.38

SYSTEM. DG

P&ID No.: D20463

Valve Number Remarks

3*

Valve

(CAT)

Size (in.)

and

Type

Class

and

Coord

(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

DG-P115B

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 TABI FS

Actuator

Type

SAF FAL

Positions NRM

SYSTEM: DG

D20463

P&ID No.:

FIGURE F6 **EXCLUSION JUSTIFICATION DOCUMENT** TABLES

С

Ο

С

С

Valve Number Class Size (in.) and Valve and Actuator Positions NRM SAF FAL Remarks Coord (CAT) Туре Type DG-V8B 3* 3.0 Self С (E-11) Relief/Safety 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* 0.5 Self 0 (C-6) Check 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 5.0 Self С 3 Check (G-10) 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 Self Ο 3 5.0 (F-10) Check 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 Self 3 5.0 DE (C-10) Three way Self contained lube oil temperature control valve, exempt from IST per ISTC-1200(b). references: P&ID D20463, DBD-DG-01, DG-V31B 3* 2.0 Self 0 (B-5) Check 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.

2-F6.40 SITR Rev. 23

SYSTEM: DG P&ID No.: **D20463**

Valve Number	Class and	Valve	Size (in.) and	Actuator	r	Position	e
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V37B	3* (B-5)		Relief/Safety	Self		-	-
EDG operation. Therefore, the value	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 97-095) of maintaining lube oil inve integral subcomponent to the lube App. B program commensurate wit	ntory. It is e: oil reservoir.	cluded from It will be teste	ST because it is A	NS 3 and an			
DG-V42B	3* (D-7)		0.5 Relief/Safety	Self	-	-	-
Rocker arm duplex filter outlet pres rocker arm lubricating header at 12 excluded because it is ANS Class 3 1100, per EWR 97-095 References	psig, and is 3. Not require	excluded fron ed to perform a	n IST by ISTC-120 a function as desc	0(b). Also ribed in IISTA -			
DG-V195B	NNS (D-7)	,	Relief/Safety	Self	С	-	-
Lube oil keep warm filter internal re support EDG operation and the val D20463, DBD-DG-01.							
DG-V196B	3* (G-10)		Relief/Safety	Self	С	-	-
Engine driven LO pump integral rel valve is in scope per ISTA-1100. H integral subcomponent to the pump D20463, DBD-DG-01.	lowever, exc	luded becaus	e it is ANS Class 3	and it is an			

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2-F6.41 SITR Rev. 23

3.

FAL

Class Size (in.) Valve Number Actuator Positions and Valve and NRM SAF (CAT) Type Type Coord Remarks С 0 DG-V257B 3* 0.75 Self (G-6) Globe 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*	0.5	Self	DE	0
	(C-6)	Check			

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.

2-F6.42 SITR Rev. 23

D20463

DG

SYSTEM:

P&ID No.:

С

С

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Actuator

Type

P&ID No.: D20464

DG

SYSTEM:

Valve Number Remarks	Class and Coord
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,

Valve

(CAT)

Size (in.)

and

Type

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*	1.0	Self
	(F-7)	Check	

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*	1.0	Self
	(F-7)	Check	

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,

Positions NRM SAF FAL

Valve Number Class Size (in.) Positions and Valve and Actuator Remarks (CAT) SAF FAL Coord Type Type NRM DG-V84B 3 1.0 Self С С (H-7) Check 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* 1.0 Self С 0 (G-7) Check 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* Self C (H-7) Relief/Safety 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* Self С 0 (H-7) Relief/Safety 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 С 0 3 1.5 Self (B-10) Check 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 4.0 Self Relief/Safety (H-12) 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.

SYSTEM:

P&ID No.:

DG

D20464

2-F6.44 SITR Rev. 23

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class		Size (in.)				
	and	Valve	and	Actuator	F	Position	S
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V209	NNS		6.0	Self		-	-
	(D-8)		Relief/Safety				
Fuel oil storage tank relief valve	e. This valve is c	lassified non-	-nuclear safety and p	provides backup			
protection only. The tank is ver	nted to atmosphe	re through th	e DG Bldg, wall with	a flame arrestor			
attached. References: P&ID D	•	-					
DO MARA	_				~	-	

DG-V124	3	1.5 X 2	Self	С	0	
	(C-9)	Relief				
Fuel Oil transfer pump 38B dis	charge relief valve. See C	R 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.

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FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	I	Position	s
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-D-6B-checks	3* (F-4)		0.25 Check	Self	DE	-	-
C-2A air dryer check valves op required to remove moisture to operation of the dryer and asso reliability of the EDG and asso surveillance testing. Therefore they are ANS Class 3. These DG-V287B. Will be tested perio another App. B program. Refer	o within design lim ociated componer ociated pneumatic the valve are exc valves include D0 odically commens	hits of the sup ots is verified components luded per IST G-V281B, DG urate with the	plied components via proper operation which is verified b C-1200(c) Also ex V282B, DG-V286 eir importance to se	Proper on and y periodic cluded because B, and			
DG-D-6B-SOVs	3* (F-4)		0.25 Globe	Solenoid	DE	-	-
C-2A air dryer solenoid valves dryer is required to remove mo Proper operation of the dryer a reliability of the EDG and asso surveillance testing. Therefore because they are ANS Class 3 DG-V289B and DG-V288B. W safety under another App. B pr	nisture to within de and associated con- poiated pneumatic , the valves are ex . These valves in ill be tested period	esign limits of mponents is v components kcluded per IS clude DG-V2 dically comme	the supplied comp verified via proper , which is verified to STC-1200(c) Also 79B, DG-V280B, D ensurate with their	oonents. operation and oy periodic excluded iG-V285B,			
DG-V52B	3* (C-10)		0.25 Other	Self		-	-
DG control air press. reducing safety function for control air si control valve excluded from IS be tested periodically under ar	valve. Reduces a ubsystem accordi T based on ISTC-	ng to EWR 97 1200(b) and	om 600 to 100 psig 7-095. Self contair -1200(c) and beca	ned pressure use it is ANS 3. It wi	11		
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.

2-F6.46 SITR Rev. 23

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type
DG-V54B	3* (C-10)		0.5 Relief/Safety	Self

SYSTEM:

DG

P&ID No.: D20465

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	С	0
DELETED per EC 144992 > > >					
DG-V59B	3*		Self		-

Other

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.

(D-8)

DG-V60B	3*		Self
	(D-8)	Other	

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.

Positions NRM SAF FAL

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 SYSTEM:
 DG

 P&ID No.:
 D20465

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	F	Position	9
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAI
DG-V72B	3* (F-10)		Relief/Safety	Self	С	0	-
Starting air compressor disc downstream piping because However, excluded becaus program. References: P&ID	e compressor rating i e it is ANS Class 3.	s 700 psig (a Will be tested	bove system piping	, design).			
DG-V220B	3* (D-8)		Other	Self		-	-
DG starting air booster valv to EWR 97-095. Self conta -1200(c) and because it is A commensurate with its impo	ained control valve ex ANS 3. It will be teste	xcluded from	IST based on ISTC	-1200(b)and			
DG-V221B	3* (D-8)		Other	Self		-	-
DG starting air booster valv to EWR 97-095. Self conta -1200(c) and because it is A commensurate with its impo	ve. Performs safety fu ained control valve ex ANS 3. It will be teste	xcluded from	IST based on ISTC	-1200(b) and			
DG-V224B	3*		01	Self		-	-
DG main air start valve. Pe EWR 97-095. Self containe -1200(c) and because it is A commensurate with its impo	ed control valve exclu ANS 3. It will be teste	uded from IST	based on ISTC-12	200(b)and			
DG-V225B	3* (G-9)		0.5 Gate	Manual	0	С	-
Starting air compressor dise normally open and is closed References: P&ID D20465,	charge Air Dryer 6B d to place the backup	o control air co	ompressor in servio	ce.			

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.

2-F6.48 SITR Rev. 23

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FIGURE F6 **EXCLUSION JUSTIFICATION DOCUMENT** TABLES

SAF FAL

Valve Number	Class and	Valve	Size (in.) and	Actuator	1	Positions
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF F
DG-V226B	NNS (E-9)		0.75 Check	Self		-
C-2B air dryer manifold drain lir related. Removal of moisture fr unit. Satisfactory performance of EDG. Function is continuous fo Removal due to auto start/stop 93-39, the maintenance of ISA function of the starting air syste	om the compress of the air drying e r dryer purge flow of compressor ba standard air quali	or discharge quipment is r and intermit ased on recei ty is not requ	is a design require eflected in the relia tent for compresso ver pressure. Per E tired for the safety	ment for the bility of the r moisture Eng. Eval. related		
DG-V253B	3* (E-10)		0.25 Three way	Solenoid		-
C-2A solenoid operated drain v		n timer (valve	•	out 30-40 sec.		
After every 30 minutes of comp the compressor discharge. The compressor operation as well a components. Therefore, the val ANS Class 3. References: P&II	operational read s the reliability of ve is excluded pe	iness of this v the EDG and er ISTC-1200	valve is verified thro d associated pneun	ough proper natic		
DG-V258B	3*			Self	С	0
	(F-10)		Relief/Safety			
C-2A integral stage relief valve. long term EDG operation and is and will be periodically tested a ANS Class 3. References: P&I	in scope per IST as part of the com	A-1100. The	RV is excluded pe	r ISTC-1200(c)		
DG-V259B	3*			Self	С	о
	(F-10)		Relief/Safety			
C-2A integral stage relief valve. long term EDG operation and is and will be periodically tested a ANS Class 3. References: P&I	s in scope per IST as part of the com	A-1100. The	RV is excluded pe	r ISTC-1200(c)		
DG-V260B	3* (E-10)		0.5 Check	Self	DE	0
EDG starting air compressor dis provide control air for long term	scharge check va	There is no s	/e has an open safe			

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.

2-F6.49 SITR Rev. 23

SYSTEM: DG

P&ID No.: **D20465**

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class		Size (in.)					
	and	Valve	and	Actuator	-	Position	-	
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	
DG-V269B	3* (D-8)		Other	Self		-	-	
DG starting air booster valve. Per to EWR 97-095. Self contained -1200(c) and because it is ANS 3 commensurate with its importanc	forms safety fu control valve e . It will be teste	xcluded from	IST based on IST	C-1200(b)and				
DG-V325B	3* (F-12)		0.25 Gate	Solenoid	DE	O/C	-	
C-18B unloader SOV cycles on re operation which is required for lon ensure compressor starts against for this valve is 130 psid. This val testing and is excluded per ISTC- References: P&ID D20465, DBD-	ng term EDG o t no back press ve is adequate 1200(c)Also e	peration. Unic ure. Max ope ly tested durir ccluded becau	bader valve functio rating Differential ng compressor sur	n is to pressure veillance				
DG-V331B	3* (G-1)		0.5 Relief/Safety	Self	С	0	-	
EDG backup control air compress to support long term EDG operati excluded because it is ANS Class References: P&ID D20465, DBD-	sor discharge r on. Therefore, s 3. Will be tes	the RV is in s ted under oth	ompressor operation cope per ISTA-110	0. However,				
DG-V332B	3* (G-9)		0.5 Ball	Manual	С	0	-	
EDG backup control air compress closed, and is opened to place th pressure at Backup Air Compres because it is ANS Class 3. Will b P&ID D20465, OS1026.12, DCR	sor discharge r e backup air co sor low pressu e tested under	ompressor inte re setpoint is	on valve. This valv o service when ala received. Howeve	rm for receiver r, excluded				
DG-V333B	3* (G-9)		0.5 Ball	Manual	С	0	-	
EDG backup control air compress closed and is opened to place the pressure at Backup Air Compress because it is ANS Class 3. Will b P&ID D20465, OS1026 12, DCR	e backup air co sor low pressu e tested under	mpressor into e setpoint is r	service when alar eceived. However	m for receiver , excluded				

P&ID D20465, OS1026.12, DCR 94-044.

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SYSTEM: DG

P&ID No.: **D20465**

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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Valve Number	Class and	Valve	Size (in.) and	Actuator	I	Position	s
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V334B	3* (G-9)		0.5 Check	Self	C	0	-
EDG backup control air con support long term EDG oper valves prevent reverse flow	npressor discharge ation. Reverse clos	ure is not requ	uired since the air r	eceiver 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.

DG-V335B	3*	0.25	Self	С
	(E-12)	Relief/Safety		

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.

2-F6.51 SITR Rev. 23

Positions NRM SAF FAL

Actuator

Type

P&ID No.: D20466

DG

SYSTEM:

Valve Number Remarks	Class and Coord	Valve (CAT)
DG-P120B	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-P121	В
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3* (F-8)

The EDG jacket water coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during n ormal 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.

DG-P122B

NNS (E-5)

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-P231B	3*				-
	(D-7)				
The EDG air coolant pump is is adequately demonstrated of IST per ISTB-1200(c). Also ex	during normal surveillance	testing. Therefore is is ex	cluded from	1.	
DG-PV7B-1	3 (F-7)	6.0 Globe	Self	ΤΉ	тн
EDG jacket water pressure co References: P&ID D20466, D			sition.		
DG-PV7B-2	3 (D-9)	6.0 Globe	Self	ΤН	тн

Size (in.) and

Type

EDG air cooling water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20466, DBD-DG-01, 94MMOD506.

P&ID D20466, DBD-DG-01.

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### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number                                                                                                                                                                                                                                                                                                                                                                              | Class<br>and                                                                                                                                                                                                       | Valve                                                                                                                                   | Size (in.)<br>and                                                                                                                                                                                             | Actuator                                                                                                                        | Ţ     | Position | s   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------|----------|-----|
| Remarks                                                                                                                                                                                                                                                                                                                                                                                   | Coord                                                                                                                                                                                                              | (CAT)                                                                                                                                   | Туре                                                                                                                                                                                                          | Туре                                                                                                                            | NRM . | SAF      | FAL |
| DG-TCV7B-1                                                                                                                                                                                                                                                                                                                                                                                | 3<br>(F-8)                                                                                                                                                                                                         |                                                                                                                                         | 6.0<br>Three way                                                                                                                                                                                              | Air/Diaphragm                                                                                                                   | тн    | тн       | 0   |
| EDG air coolant temperature of<br>speed exceeds 375 RPM. It t<br>the engine is not running it is i<br>indication valve is excluded<br>its importance to safety in OS                                                                                                                                                                                                                      | hen modulates to n<br>in its pre-start posit<br>from IST per ISTC                                                                                                                                                  | naintain coola<br>ion and has r<br>-1200(b). Tes                                                                                        | ant temperature se<br>no remote controls<br>sted commensurat                                                                                                                                                  | etpoint. When<br>or<br>e with                                                                                                   |       |          |     |
| DG-TCV7B-2                                                                                                                                                                                                                                                                                                                                                                                | 3<br>(D-8)                                                                                                                                                                                                         |                                                                                                                                         | 6.0<br>Three way                                                                                                                                                                                              | Air/Diaphragm                                                                                                                   | ΤН    | ΤН       | 0   |
| EDG air coolant temperature of<br>speed exceeds 375 RPM. It t<br>the engine is not running it is i<br>indication valve is excluded                                                                                                                                                                                                                                                        | control valve. Contr<br>hen modulates to n<br>in its pre-start posit                                                                                                                                               | naintain coola<br>ion and has r                                                                                                         | vailable to this va<br>ant temperature se<br>to remote controls                                                                                                                                               | etpoint. When                                                                                                                   |       |          |     |
| its importance to safety in OS                                                                                                                                                                                                                                                                                                                                                            | 1426.25. Reference                                                                                                                                                                                                 | es: P&ID D20                                                                                                                            | 461, DBD-DG-01                                                                                                                                                                                                |                                                                                                                                 |       |          |     |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1426.25. Řeference<br>3<br>(G-7)                                                                                                                                                                                   | es: P&ID D20                                                                                                                            | 461, DBD-DG-01<br>6.0<br>Check                                                                                                                                                                                | Self                                                                                                                            |       | -        | -   |
| <b>DG-V1B</b><br>Aux coolant pump to jacket co<br>not required to support EDG o<br>function. Therefore, this valve                                                                                                                                                                                                                                                                        | 3<br>(G-7)<br>poling header disch<br>operation. This cheo                                                                                                                                                          | arge check v<br>ck valve has i                                                                                                          | 6.0<br>Check<br>alve. The aux coo<br>no active open or                                                                                                                                                        | Self<br>lant pump is<br>close safety                                                                                            |       | -        | -   |
| <b>DG-V1B</b><br>Aux coolant pump to jacket cc<br>not required to support EDG c<br>function. Therefore, this valve<br>P&ID D20466, DBD-DG-01.                                                                                                                                                                                                                                             | 3<br>(G-7)<br>poling header disch<br>operation. This cheo                                                                                                                                                          | arge check v<br>ck valve has i                                                                                                          | 6.0<br>Check<br>alve. The aux coo<br>no active open or                                                                                                                                                        | Self<br>lant pump is<br>close safety                                                                                            | С     | -        |     |
| its importance to safety in OS<br>DG-V1B<br>Aux coolant pump to jacket co<br>not required to support EDG of<br>function. Therefore, this valve<br>P&ID D20466, DBD-DG-01.<br>DG-V2B<br>Engine driven jacket coolant p<br>diversion when the motor drive<br>The safety related function for<br>operating. The open function<br>maintenance of process temp<br>excluded from IST per ISTC-1 | 3<br>(G-7)<br>poling header disch<br>peration. This cher<br>is not within the IS<br>3<br>(F-9)<br>pump suction check<br>en aux coolant pum<br>this valve is to ope<br>is adequately verifi<br>eratures within allo | arge check va<br>ck valve has i<br>T scope as d<br>t valve. This v<br>to p is running<br>on when the e<br>ied during no<br>wable ranges | 6.0<br>Check<br>alve. The aux coo<br>no active open or<br>efined in ISTA-11<br>6.0<br>Check<br>valve is closed to p<br>( not safety relate<br>engine driven cool<br>rmal EDG surveill<br>s. Therefore, this v | Self<br>lant pump is<br>close safety<br>00. References:<br>Self<br>prevent flow<br>d function) .<br>ant pump is<br>ance through | С     | 0        |     |

function. Therefore, this valve is not within the IST scope as defined in ISTA-1100. References:

2-F6.53 SITR Rev. 23

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#### SYSTEM: DG 🕤

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P&ID No.: **D20466** 

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Class<br>and                                                       | Valve                                                | Size (in.)<br>and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Actuator                           | F   | osition | -   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----|---------|-----|
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Coord                                                              | (CAT)                                                | Туре                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Туре                               | NRM | SAF     | FAL |
| DG-V5B                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3<br>(D-8)                                                         |                                                      | 6.0<br>Check                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Self                               | С   | 0       | -   |
| EDG air coolant pump discharge c<br>related closure function prevents c<br>open function for this valve is adea<br>through maintenance of process p<br>excluded from IST per ISTC-1200(                                                                                                                                                                                                                                                                                           | oolant bypass<br>quately verifie<br>arameters with                 | when the au<br>d during norm<br>hin allowable i      | c coolant pump is<br>al EDG surveillan<br>ranges. Therefore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | operating. The<br>ce testing       |     |         |     |
| DG-V9B                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3<br>(F-7)                                                         |                                                      | 6.0<br>Butterfly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Air/Piston                         | С   | С       | -   |
| Aux coolant pump discharge isolat<br>EDG operation. This valve has no<br>Divert valve which opens in respor<br>Coolant system, as a backup funct<br>defined in ISTA-1100. References:                                                                                                                                                                                                                                                                                             | active open c<br>se to low coo<br>ion only. Ther                   | r close safety<br>lant pressure<br>efore, this val   | function. Valve is<br>signal in the respo<br>ve is not within the                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | a normally closed                  |     |         |     |
| DG-V11B                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3<br>(G-6)                                                         |                                                      | 6.0<br>Butterfly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Air/Piston                         | С   | С       | -   |
| Aux coolant pump discharge isolat<br>EDG operation. This valve has no<br>Divert valve which opens in respor<br>Coolant system, as a backup funct<br>defined in ISTA-1100. References:                                                                                                                                                                                                                                                                                             | ion valve. The<br>active open c<br>se to low coo<br>ion only. Ther | or close safety<br>lant pressure<br>refore, this val | oump is not requir<br>function. Valve is<br>signal in the respe<br>ve is not within the                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | a normally closed<br>ective engine |     |         |     |
| DG-V12B                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3<br>(E-6)                                                         |                                                      | 6.0<br>Butterfly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Air/Piston                         | С   | С       | -   |
| (E-6) Butterfly<br>Aux coolant pump suction isolation valve. The aux coolant pump is not required to support<br>EDG operation. This valve has no active open or close safety function. Valve is a normally closed<br>Divert valve which opens in response to low coolant pressure signal in the respective engine<br>Coolant system, as a backup function only. Therefore, this valve is not within the IST scope as<br>defined in ISTA-1100. References: P&ID D20466, DBD-DG-01. |                                                                    |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                    |     |         |     |
| DG-V13B                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3<br>(D-6)                                                         |                                                      | 6.0<br>Butterfly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Air/Piston                         | С   | С       | -   |
| Aux coolant pump suction isolation<br>EDG operation. This valve has no<br>Divert valve which opens in respor<br>Coolant system, as a backup funct<br>defined in ISTA-1100. References                                                                                                                                                                                                                                                                                             | active open o<br>se to low coo<br>ion only. The                    | or close safety<br>lant pressure<br>refore, this val | function. Valve is signal in the response of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se | a normally closed<br>ective engine |     |         |     |

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### FIGURE F6 **EXCLUSION JUSTIFICATION DOCUMENT** TABLES

| Valve Number                                                                                                                                                                              | Class<br>and                                    | Valve                                             | Size (in.)<br>and                                                 | Actuator                                  | F   | Position | <i>د</i> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------|-----|----------|----------|
| Remarks                                                                                                                                                                                   | Coord                                           | (CAT)                                             | Туре                                                              | Туре                                      | NRM | SAF      | FAL      |
| DG-V86B                                                                                                                                                                                   | 3*<br>(G-10)                                    |                                                   | 0.75<br>Relief/Safety                                             | Self                                      | С   | -        | -        |
| Jacket coolant standby cir. pump re<br>support EDG operation. The stand<br>Operability, but the keep warm sys<br>this valve is not within the IST scop<br>ANS Class 3. References: P&ID D | by engine / co<br>tem does not<br>le as defined | olant temper<br>perform a sa<br>in ISTA-1100      | ature is essential for<br>fety related function                   | or EDG<br>1. Therefore,                   |     |          |          |
| DG-V87B                                                                                                                                                                                   | 3*<br>(G-10)                                    |                                                   | 1.5<br>Check                                                      | Self                                      | 0   | С        | -        |
| Engine coolant keep warm pump (<br>engine thus minimizing wear) and o<br>reverse closure function is adequat<br>through maintenance of process pa<br>excluded from IST per ISTC-1200      | closes upon e<br>ely demonstr<br>arameters wit  | ngine start to<br>ated during n<br>hin acceptabl  | prevent coolant by<br>ormal surveillance<br>e ranges. Therefore   | vpass. The<br>testing<br>e, this valve is |     |          |          |
| DG-V94B                                                                                                                                                                                   | 3*<br>(G-10)                                    |                                                   | 1.5<br>Check                                                      | Self                                      | 0   | С        | -        |
| Engine coolant keep warm pump (<br>engine thus minimizing wear) and a<br>reverse closure function is adequat<br>through maintenance of process pa<br>excluded from IST per ISTC-1200      | closes upon e<br>ely demonsti<br>arameters wit  | engine start to<br>ated during n<br>hin acceptabl | o prevent coolant by<br>ormal surveillance<br>e ranges. Therefore | /pass. The<br>testing<br>e, this valve is |     |          |          |
| DG-V272                                                                                                                                                                                   | NNS<br>(E-6)                                    |                                                   | 0.5<br>Relief/Safety                                              | Self                                      | С   | -        | -        |
| EDG aux coolant pump relief valve<br>operation. Therefore, this valve is r<br>References: P&ID D20466, DBD-D                                                                              | ot within the                                   |                                                   |                                                                   |                                           |     |          |          |

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#### SITR Rev. 23 2-F6.55

SYSTEM: DG

P&ID No.: **D20467** 

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | 1   | Position | s   |  |
|--------------|--------------|-------|-------------------|----------|-----|----------|-----|--|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | 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

#### Valve Number Class Size (in.) Valve Actuator Positions and and Remarks (CAT) Type NRM SAF Coord Type DGA-FY-ACO 3\* 0.38 Solenoid С 0 (D-11) Three way 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. DGA-FY-AS1 3 0.38 Solenoid C 0 (B-8) Three way 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. DGA-FY-AS2 3 0.38 Solenoid С 0 (B-9) Three way 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.

FAL

С

С

#### С

2-F6.57 SITR Rev. 23

FIGURE F6 **EXCLUSION JUSTIFICATION DOCUMENT** 

TABLES

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Size (in.) Valve Number Class Positions Actuator and Valve and NRM SAF FAL Туре (CAT) Туре Remarks Coord С С Solenoid DGA-FY-SDS 3 0.38 (D-9) Three way

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.

SYSTEM:

P&ID No.:

DGA

D20460

#### 2-F6.58 SITR Rev. 23

Actuator

SYSTEM: DGB P&ID No.: D20465

Valve Number

Remarks Coord (CAT) Type Туре NRM DGB-FY-ACO 3\* 0.38 Solenoid С (D-11) Three way 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. DGB-FY-AS1 3 0.38 Solenoid (B-8) Three way 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.

Valve

Size (in.)

and

Class

and

| DGB-FY-AS2 | 3     | 0.38      | Solenoid |  |
|------------|-------|-----------|----------|--|
|            | (B-9) | Three way |          |  |

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.

с о с

Positions

FAL

С

SAF

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сос

SYSTEM: DGB

P&ID No.: D20465

### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | -   | Position | IS  |
|--------------|--------------|-------|-------------------|----------|-----|----------|-----|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF      | FAL |
| DGB-FY-SDS   | 3            |       | 0.38              | Solenoid | с   | -        | С   |
|              | (D-9)        |       | Three way         |          |     |          |     |

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.

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| Valve Number | Class |       | Size (in.)    |          |     |
|--------------|-------|-------|---------------|----------|-----|
|              | and   | Valve | and           | Actuator |     |
| Remarks      | Coord | (CAT) | Туре          | Туре     | NRM |
| DM-V274      | NNS   |       | 0.75          | Self     | С   |
|              | (D-8) |       | Relief/Safety |          |     |

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:

P&ID No.:

DM

D20352

Positions NRM SAF FAL

C O -

### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator |     |
|--------------|--------------|-------|-------------------|----------|-----|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM |
| 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.

| FW-V99 | NNS   | 6.0   | Self |
|--------|-------|-------|------|
|        | (C-7) | Check |      |

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.

Positions IRM SAF FAL

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SAF

FAL

С

С

С

Valve Number Class Size (in.) Valve Actuator Positions and and Remarks (CAT) Type NRM Coord Type **FW-FCV510** NNS 16.0 Air/Diaphragm 0 (F-5) Globe 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 16.0 Air/Diaphragm 0 (D-5) Globe 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 16.0 Air/Diaphragm 0 (B-5) Globe

SYSTEM:

P&ID No.:

FW

D20686

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.

NRM

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С

Positions SAF

FAL

С

С

Valve Number Class Size (in.) and Valve and Actuator Remarks Coord (CAT) Type Туре FW-FCV540 NNS · 16.0 Air/Diaphragm (H-5) Globe 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 gualification status- and safety classification?) FW-LV4210 NNS 4.0 Air/Diaphragm (F-5) Globe 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

SYSTEM:

P&ID No.:

FW

D20686

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.

| FW-LV4220 | NNS   | 4.0   | Air/Diaphragm | С | - | С |
|-----------|-------|-------|---------------|---|---|---|
|           | (D-5) | Globe |               |   |   |   |

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.

#### 2-F6.64 SITR Rev. 23

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SYSTEM: FW P&ID No.: D20686

| Valve Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Class                                                         | Mahaa                                          | Size (in.)                                                | Actuator                                                  |     | osition | c   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|-----|---------|-----|
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | and<br>Coord                                                  | Valve<br>(CAT)                                 | and<br>Type                                               | Type                                                      | NRM | SAF     | FAL |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Coold                                                         | (0/11)                                         | ()po                                                      | .)[                                                       |     |         |     |
| FW-LV4230                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | NNS<br>(B-5)                                                  |                                                | 4.0<br>Giobe                                              | Air/Diaphragm                                             | С   | -       | С   |
| 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<br>(H-5)                                                  |                                                | 4.0<br>Globe                                              | Air/Diaphragm                                             | С   | -       | С   |
| (H-5) Globe<br>SG D Feed Reg. bypass valve. This valve may open during power operation up to 20%, and<br>closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the steam<br>line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5<br>seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to<br>SG#4 as required by TS 4.7.1.2.2.b. This valve is not equipped with safety related air. Manual<br>operator action may be required to align this valve in certain conditions. However, this valve is<br>non-ASME and therefore excluded from IST. Will be tested under other App. B program.<br>References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32. |                                                               |                                                |                                                           |                                                           |     |         |     |
| FW-V28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | NNS<br>(F-4)                                                  |                                                | 16.0<br>Gate                                              | Motor                                                     | 0   | -       | -   |
| Feed Reg. Block Valve A. This<br>an alternate function of providir<br>header (with the SUFP operati<br>manual operator action is requi<br>from an emergency power sou                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ng a flow path in<br>ing as an emerge<br>ired to align this f | the event the<br>ency feedwate<br>low path and | primary flow path<br>er pump) is not av<br>the components | a through the EPVV<br>vailable. Since<br>are not supplied |     |         |     |

| FW-V37 | NNS   | 16.0 | Motor |
|--------|-------|------|-------|
|        | (D-4) | Gate |       |

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.

> SITR Rev. 23 2-F6.65

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | 1   | Posit |
|--------------|--------------|-------|-------------------|----------|-----|-------|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SA    |
| FW-V46       | NNS          |       | 16.0              | Motor    | О   | -     |
|              | (C-4)        |       | Gate              |          |     |       |

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   | 16.0 | Motor |
|--------|-------|------|-------|
|        | (H-4) | Gate |       |

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.

Positions NRM SAF FAL

0 - -

0 - -

## SYSTEM: **FW** P&ID No.: **D20686**

## SYSTEM: **FW** P&ID No.: **D20687**

| •                                                                                                                                                                                                                                                                                                                      |                                                                                    |                                                                                  |                                                                                                    |                                                                    |            |          |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------|----------|-----|
| Valve Number                                                                                                                                                                                                                                                                                                           | Class<br>and                                                                       | Valve                                                                            | Size (in.)<br>and                                                                                  | Actuator                                                           | ī          | Position | s   |
| Remarks                                                                                                                                                                                                                                                                                                                | Coord                                                                              | (CAT)                                                                            | Туре                                                                                               | Туре                                                               | NRM        | SAF      | FAL |
| FW-Various3                                                                                                                                                                                                                                                                                                            | NNS                                                                                |                                                                                  |                                                                                                    |                                                                    |            | -        | -   |
| The SUFP and associated flow path<br>both the EFW header and the norm<br>operable in Modes 1,2 & 3. NNS C<br>identified using the applicable TS su<br>in the scope of components which a<br>excluded from IST. Those components<br>components shown on this drawing                                                    | al FW discha<br>omponents in<br>urveillance pi<br>ure important<br>ents will be to | arge header,<br>n the TS requ<br>rocedures and<br>to safety but<br>ested under o | are required by T<br>ired flow paths ha<br>I the FW P&IDs,<br>non-ASME and th<br>ther App. B progr | S 3.7.1.2 to be<br>ive been<br>for inclusion<br>nerefore<br>am. No |            |          |     |
| FW-PCV4326                                                                                                                                                                                                                                                                                                             | NNS<br>(B-8)                                                                       |                                                                                  | 3.0<br>Globe                                                                                       | Air/Diaphragm                                                      | ΤH         | -        | 0   |
| This is the SUFP recirculation flow or<br>setpoint value. The valve is set off the<br>even when the valve is closed. The<br>Excluded from IST per ISTC-1200(b<br>tested during normal SUFP surveillat<br>DBD-EFW-01 Revision 1.                                                                                        | he seat abou<br>minimum flo<br>)) and becau                                        | it 1/2" to provi<br>e required for<br>se it is non-A                             | de a 200 GPM re<br>the SUFP is 375<br>SME. This valve i                                            | circulation flow<br>GPM.<br>s adequately                           |            |          |     |
| FW-PCV4377                                                                                                                                                                                                                                                                                                             | NNS<br>(A-8)                                                                       |                                                                                  | 0.75<br>Gate                                                                                       | Air/Diaphragm                                                      | С          | -        | -   |
| (A-8) Gate<br>Startup Feed Pump Pressure Control. This is a self-contained pressure control valve which is<br>excluded from IST per ISTC 1.2b. It is also excluded because it is NNS. This valve is<br>adequately tested during normal SUFP surveillance testing. References: TS 4.7.1.2.2b,<br>DBD-EFW-01 Revision 1. |                                                                                    |                                                                                  |                                                                                                    |                                                                    |            |          |     |
| FW-PCV4378                                                                                                                                                                                                                                                                                                             | NNS<br>(A-7)                                                                       |                                                                                  | 0.75<br>Gate                                                                                       | Air/Diaphragm                                                      | С          | -        | -   |
| (A-7) Gate<br>Startup Feed Pump Pressure Control. This is a self-contained pressure control valve which is<br>excluded from IST per ISTC 1.2b. It is also excluded because it is NNS. This valve is<br>adequately tested during normal SUFP surveillance testing. References: TS 4.7.1.2.2b,<br>DBD-EFW-01 Revision 1. |                                                                                    |                                                                                  |                                                                                                    |                                                                    |            |          |     |
| FW-V1                                                                                                                                                                                                                                                                                                                  | NNS<br>(D-4)                                                                       |                                                                                  | 20.0<br>Check                                                                                      | Self                                                               | , <b>O</b> | · _      | -   |
| A Feed Pump Discharge Check Val                                                                                                                                                                                                                                                                                        |                                                                                    |                                                                                  |                                                                                                    |                                                                    |            |          |     |

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.

2-F6.67 SITR Rev. 23

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SYSTEM: **FW** P&ID No.: **D20687** 

Valve Number

Actuator Valve and and Type (CAT) Type Coord Remarks 20.0 Motor FW-V2 NNS Gate (D-4) 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. 0 20.0 Self FW-V12 NNS Check (D-7) 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. Motor **FW-V13** NNS 20.0 Gate (D-7) 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

Class

Size (in.)

| FW-V23 | NNS   | 24.0 | Motor |
|--------|-------|------|-------|
|        | (G-3) | Gate |       |

components are not supplied from an emergency power source, it is excluded from IST.

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.

| FW-V25 | NNS   | 24.0 | Motor |
|--------|-------|------|-------|
|        | (G-6) | Gate |       |

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.

Positions NRM SAF FAL

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0 - -

2-F6.68 SITR Rev. 23

SYSTEM:

P&ID No.:

FW

D20687

## **FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES**

SAF

FAL

Valve Number Class Size (in.) and Valve and Actuator Positions Remarks Coord (CAT) Type NRM Туре FW-V100 6.0 NNS Manual 0 (B-8) Gate 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 Self С 18.0 (E-4) Check 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 С NNS 6.0 Motor (B-7) Gate 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 С NNS 0.75 Self Check (D-7) 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 0.75 Self С Check (D-4) 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.

2-F6.69 SITR Rev. 23

SYSTEM: **FW** P&ID No.: **D20687** 

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Size (in.) Class Valve Number Actuator and Valve and Type NRM (CAT) Type Coord Remarks С 0.75 Manual NNS FW-V465 Globe (B-7) 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. С Motor 6.0 FW-V156 NNS Gate (H-4) 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. ΤН 0.5 Self FW-V258 3\* Relief/Safety (B-5) 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 С Self 0.25 3\* FW-V467 Relief/Safety (C-5)

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.

Positions

SAF FAL

## SYSTEM: **FW** P&ID No.: **D20690**

Valve NumberClassSize (in.)andValveandActuatorPositionsRemarksCoord(CAT)TypeTypeNRMSAF

#### 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.

#### 2-F6.71 SITR Rev. 23

## SYSTEM: **IA** P&ID No.: **B20644**

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | I   | Position | s |
|--------------|--------------|-------|-------------------|----------|-----|----------|---|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF      | } |
| IA-V545      | 3*<br>(G-12) |       | 1.0<br>Check      | Self     | 0   | С        |   |

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.

| IA-V546 | 3*     | 1.0   | Self |
|---------|--------|-------|------|
|         | (G-12) | Check |      |

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.

0 C

FAL

2-F6.72 SITR Rev. 23

SYSTEM: **IA** P&ID No.: **B20647** 

| Valve Number<br>Remarks | Class<br>and<br>Coord | Valve<br>(CAT) | Size (in.)<br>and<br>Type | Actuator<br>Type | Po<br>NRM S |
|-------------------------|-----------------------|----------------|---------------------------|------------------|-------------|
| 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*     | 0.75  | Self |  |
|---------|--------|-------|------|--|
|         | (F-10) | Check |      |  |

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*     | 0.75  | Self |
|---------|--------|-------|------|
|         | (F-10) | Check |      |

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*     | 0.75  | Self |
|---------|--------|-------|------|
|         | (H-10) | Check |      |

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, Positions RM SAF FAL

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2-F6.73 SITR Rev. 23

#### SYSTEM: IA P&ID No.: B20647

## **FIGURE F6** EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number                                                                                                                                                                                                                                                     | Class<br>and                                                                        | Valve                                                                                | Size (in.)<br>and                                                                                              | Actuator                                                             | F   | ositions |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----|----------|
| Remarks                                                                                                                                                                                                                                                          | Coord                                                                               | (CAT)                                                                                | Туре                                                                                                           | Туре                                                                 | NRM | SAF I    |
| IA-V550                                                                                                                                                                                                                                                          | 3*<br>(H-10)                                                                        |                                                                                      | 0.75<br>Check                                                                                                  | Self                                                                 | 0   | С        |
| Alternate N2 supply to MS-V393 8<br>This valve is normally open and cl<br>system and allow N2 bottles to su<br>remotely from the MCB or Remote<br>immediate operator action is not re<br>moves to its failed position. Howe<br>excluded from IST. Will be tested | oses on loss o<br>pply nitrogen<br>Shutdown Pa<br>equired before<br>ver. this valve | of normal instr<br>to the valve a<br>anel and allow<br>the N2 bottle<br>is non-ASME  | ument air to isolat<br>ctuators. This pern<br>s sufficient time so<br>s bleed down and<br>(ANSI Class 3) an    | e the NNS<br>nits operation<br>o that<br>the valve<br>id therefore   |     |          |
| IA-V8030                                                                                                                                                                                                                                                         | 3*<br>(B-10)                                                                        |                                                                                      | 1.0<br>Check                                                                                                   | Self                                                                 | 0   | С        |
| Backup air supply to CC-TV2171-<br>is normally open and closes on lo<br>allow N2 bottles to supply nitroge<br>from the MCB or Remote Shutdov<br>operator action is not required be<br>failed position. However, this valv<br>IST. Will be tested under other A   | ss of normal in<br>n to the valve<br>vn Panel and<br>fore the N2 bo<br>e is non-ASM | nstrument air<br>actuators. Th<br>allows sufficie<br>ttles bleed do<br>E (ANSI Class | to isolate the NNS<br>is permits operatio<br>nt time so that imm<br>wn and the valve r<br>; 3) and therefore ( | system and<br>n remotely<br>nediate<br>noves to its<br>excluded from |     |          |
| IA-V8031                                                                                                                                                                                                                                                         | 3*                                                                                  |                                                                                      | 1.0                                                                                                            | Self                                                                 | 0   | С        |

Check

(B-11) 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,

| IA-V8032 | 3*     | 1.0   | Self | 0 |
|----------|--------|-------|------|---|
|          | (D-11) | Check |      |   |

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,

С

FAL

С

С

SITR Rev. 23 2-F6.74

SYSTEM: **IA** P&ID No.: **B20647** 

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| Valve Number<br>Remarks | Class<br>and<br>Coord | Valve<br>(CAT) | Size (in.)<br>and<br>Type | Actuator<br>Type | F<br>NRM | Position<br>SAF | s<br>FAL |
|-------------------------|-----------------------|----------------|---------------------------|------------------|----------|-----------------|----------|
| IA-V8033                | 3*<br>(D-10)          |                | 1.0<br>Check              | Self             | 0        | С               | -        |

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.

FAL

SYSTEM: **MS** P&ID No.: **D20582** 

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | 5   | Position | s |
|--------------|--------------|-------|-------------------|----------|-----|----------|---|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF      | F |
| MS-V129      | 3*<br>(E-6)  |       | 4.0<br>Globe      | Manual   | 0   | 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.

2-F6.76 SITR Rev. 23

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P&ID No.: **D20135** 

NG

SYSTEM:

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| Valve Number<br>Remarks                                                                                                                                                                                                               | Class<br>and<br>Coord | Valve<br>(CAT) | Size (in.)<br>and<br>Type | Actuator<br>Type | I<br>NRM | Position<br>SAF | s<br>FAL |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|---------------------------|------------------|----------|-----------------|----------|
| NG-V47                                                                                                                                                                                                                                | 2<br>(C-5)            |                | 1.0<br>Check              | Self             | DE       | С               | -        |
| 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. |                       |                |                           |                  |          |                 |          |
| NG-V187                                                                                                                                                                                                                               | 2<br>(C-6)            |                | 1.0<br>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.

2-F6.77 SITR Rev. 23

## SYSTEM: NG P&ID No.: D20136

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

С

С

| NG-V18                                                                                                                                                                                                                                   | 2<br>(G-6)              | 1.0<br>Check                  | Self |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------|------|--|--|--|--|
| Nitrogen supply to SI Accum A<br>described in ISTA-1100. Any<br>upstream of this check valve.                                                                                                                                            | Accum gas leakage is co | ontained by the normally clos |      |  |  |  |  |
| NG-V20                                                                                                                                                                                                                                   | 2<br>(G-6)              | 1.0<br>Check                  | Self |  |  |  |  |
| 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<br>(G-6)              | 1.0<br>Check                  | Self |  |  |  |  |
| 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<br>(F-6)              | 1.0<br>Check                  | Self |  |  |  |  |
| 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 |                         |                               |      |  |  |  |  |

2-F6.78 SITR Rev. 23

Valve Number Class Size (in.) and Valve and Actuator Positions NRM SAF FAL Remarks Coord (CAT) Type Type **RC-V147** 2 0.38 Air/Piston 0 0 (H-8) Gate

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**

SYSTEM:

P&ID No.:

RC

D20218

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**

| RC-V81                                                 | 1<br>(B-8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3.0<br>Gate                                     | Motor         | ο | - | - |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------|---|---|---|
| letdown is isolated by dow<br>Class 1 boundary. Letdow | 9.3. This valve has no safety finite stream valves RC-LCV459 and is not used during DBA conduction either. Maintenance values of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream of the stream | nd RC-LCV460 to prov<br>itions nor for safe shu | vide the RCS  |   |   |   |
| RC-PCV455B                                             | 1<br>(G-5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4.0<br>Ball                                     | Air/Diaphragm | С | - | С |
|                                                        | valve from Loop 1. This valve shutdown. Excluded per ISTC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                 |               |   |   |   |
| P&ID No.: <b>D20846</b>                                | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                 |               |   |   |   |
| RC-PCV455A                                             | 1<br>(F-5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4.0<br>Bail                                     | Air/Diaphragm | С | - | С |

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.

SITR Rev. 23

P&ID No.: **D20662** 

RH

SYSTEM:

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| Valve Number                                                                                                                                                                                                                                                                                                 | Class                                                                                             | ) (-h.e                                                                                                  | Size (in.)                                                                                                 | Actuator                                                               | r   | Position | e   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----|----------|-----|
| Remarks                                                                                                                                                                                                                                                                                                      | and<br>Coord                                                                                      | Valve<br>(CAT)                                                                                           | and<br>Type                                                                                                | Туре                                                                   | NRM | SAF      | FAL |
| <b>RH-V8</b><br>RH-P-8A discharge local grab sam<br>'equipment required for safe shutdo                                                                                                                                                                                                                      | 2<br>(E-9)<br>ple valve. Alt                                                                      | hough listed in                                                                                          | 0.75<br>Globe<br>n UFSAR Table 7.<br>ance this valve is i                                                  | Manuai<br>4-1 as<br>not                                                | С   | -        | -   |
| considered active since it is reposit<br>controlled and is for the sole purpo<br>from IST requirements.                                                                                                                                                                                                      | ioned for a sh                                                                                    | ort period of t                                                                                          | ime, administrative                                                                                        | ely                                                                    |     |          |     |
| RH-V18                                                                                                                                                                                                                                                                                                       | 2                                                                                                 |                                                                                                          | 2.0<br>Claba                                                                                               | Manual                                                                 | С   | -        | -   |
| RHR Train A to CVCS Purification<br>opened to initiate Train A RHR slip<br>NNS piping break downstream to p<br>therefore is considered active per f<br>during shutdown cooling only and o<br>basis for Seabrook Station, this val<br>perform a safety function as descri<br>App. B program commensurate with | ostream flow.<br>preserve RHR<br>EWR 97-095.<br>do not occur v<br>ve will not be<br>bed in ISTA-1 | It is required<br>inventory whi<br>But, since slip<br>vhile in Hot St<br>tested under<br>100 for this st | to be closed in the<br>le in slipstream op<br>stream operations<br>andby, which is th<br>the IST program a | event of a<br>peration and<br>are used<br>e licensing<br>s it does not |     |          |     |

2-f6.80 SITR Rev. 23

SYSTEM: RH

P&ID No.: D20663

| Valve Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Class<br>and  | Valve         | Size (in.)<br>and   | Actuator       | г   | Position | -   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------------|----------------|-----|----------|-----|
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Coord         | (CAT)         | Туре                | Туре           | NRM | SAF      | FAL |
| RH-V19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2<br>(G-12)   |               | 2.0<br>Globe        | Manual         | С   | -        | -   |
| 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<br>(G-9)    | ×             | 8.0<br>Gate         | Manual         | С   | С        | -   |
| RHR to CBS-P-9B suction. This va restricted from operation in Modes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ive is normal | y locked clos |                     | ratively       |     |          |     |
| RH-V44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2<br>(E-9)    |               | 0.75<br>Globe       | Manual         | С   | -        | -   |
| RH-P-8B discharge local grab sam<br>'equipment required for safe shutdo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | wn', per EWF  | R 97-095 gui  | dance 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.

2-F6.81 SITR Rev. 23

#### **EXCLUSION JUSTIFICATION DOCUMENT** RMW **TABLES** P&ID No.: D20360 Class Size (in.)

FIGURE F6

FAL

|          | and   | Valve | and           | Actuator | 1   | Position | s |
|----------|-------|-------|---------------|----------|-----|----------|---|
| Remarks  | Coord | (CAT) | Туре          | Туре     | NRM | SAF      | F |
| RMW-V107 | NNS   |       | 1.5           | Self     | С   | 0        |   |
|          | (H-5) |       | Relief/Safety |          |     |          |   |

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

SYSTEM:

Valve Number

| RMW-V36                                             | 2<br>(E-5)                                                                                                                                        | 2.0<br>Globe                                             | Manual              | С  | С |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------|----|---|
| remains closed for SSD an<br>Upstream valves RMW-V3 | ation to the CCP suction. This<br>d accident mitigation. This va<br>1 & V34 are active and closed<br>rrier for dilution potential and<br>osition. | lve is verified closed in 0<br>d/verified closed in OS12 | DS1200.01.<br>00.01 |    |   |
| RMW-V37                                             | 2<br>(E-5)                                                                                                                                        | 2.0<br>Check                                             | Self                | DE | - |
| 0 01 1                                              | ction isolation check valve. H<br>les instructions for closing RN                                                                                 | -                                                        |                     |    |   |

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.

# EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: SB P&ID No.: D20841

> Size (in.) Valve Number Class Valve and Actuator and NRM SAF FAL Type (CAT) Туре Remarks Coord 2.0 Manual SB-V2 2 Gate (C-11) 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. Manual 3.0 SB-V189 2 (C-11) Globe 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 2.0 Manual 2 (C-5) Gate 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. 3.0 Manual SB-V191 2 (C-5) Globe

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.

> SITR Rev. 23 2-F6.83

0

# **FIGURE F6**

С

0

С

Positions

#### ~~~.

## SYSTEM: SB

P&ID No.: D20843

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

FAL.

| SB-V6           |                                                                                                                                                                      | 2<br>(E-6)                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                              | 2.0<br>Gate                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | С                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| safety functior | as described in IST.                                                                                                                                                 | . This valve a<br>A-1100. Only                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                              | of the SB system                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| SB-V193         |                                                                                                                                                                      | 2<br>(E-6)                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                              | 3.0<br>Globe                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| function as de  | scribed in ISTA-1100                                                                                                                                                 |                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| dD No.:         | D20844                                                                                                                                                               |                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| alve Number     | Class                                                                                                                                                                |                                                                                                                                                                                                                                                                                                         | Mahar                                                                                                                                                                                                                                                                                                                                                                                                        | ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | • •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | D #1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Remarks         |                                                                                                                                                                      | Coord                                                                                                                                                                                                                                                                                                   | (CAT)                                                                                                                                                                                                                                                                                                                                                                                                        | апо<br>Туре                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Астиатог<br>Туре                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | NRM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Positions<br>SAF F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| SB-V8           |                                                                                                                                                                      | 2<br>(E-10)                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                              | 2.0<br>Gate                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | С                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                 | SG C alternati<br>safety functior<br>provide a safe<br>SB-V193<br>SG C blowdov<br>function as de<br>a safety function<br>(ID NO.:<br>alve Number<br>Remarks<br>SB-V8 | SG C alternate blowdown isolation<br>safety function as described in IST<br>provide a safety function for this sy<br>SB-V193<br>SG C blowdown isolation. This va<br>function as described in ISTA-1100<br>a safety function for this system.<br>AD No.: D20844<br>alve Number Class<br>Remarks<br>SB-V8 | (E-6)<br>SG C alternate blowdown isolation. This valve a<br>safety function as described in ISTA-1100. Only<br>provide a safety function for this system.<br>SB-V193 2<br>(E-6)<br>SG C blowdown isolation. This valve and this por<br>function as described in ISTA-1100. Only the cord<br>a safety function for this system.<br>AID No.: D20844<br>alve Number Class<br>Remarks Coord<br>SB-V8 2<br>(E-10) | (E-6)<br>SG C alternate blowdown isolation. This valve and this portion<br>safety function as described in ISTA-1100. Only the containment<br>provide a safety function for this system.<br>SB-V193 2<br>(E-6)<br>SG C blowdown isolation. This valve and this portion of the SE<br>function as described in ISTA-1100. Only the containment isola<br>a safety function for this system.<br>AID No.: D20844<br>alve Number Class<br>Remarks Coord (CAT)<br>SB-V8 2<br>(E-10) | (E-6)       Gate         SG C alternate blowdown isolation. This valve and this portion of the SB system safety function as described in ISTA-1100. Only the containment isolation valve provide a safety function for this system.       3.0         SB-V193       2       3.0         (E-6)       Globe         SG C blowdown isolation. This valve and this portion of the SB system have no function as described in ISTA-1100. Only the containment isolation valves down a safety function for this system.         AID No.:       D208444         alve Number       Class         and       Valve       and         Remarks       2       2.0         GE-V8       2       2.0         (E-10)       Gate | (E-6)       Gate         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       3.0       Manual (E-6)         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.       Manual (E-6)         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.         AID No.:       D208444         alve Number       Class         and       Valve       and       Actuator         Remarks       2       2.0       Manual         SB-V8       2       2.0       Manual | (E-6)       Gate         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.       0         SB-V193       2       3.0       Manual       0         (E-6)       Globe       0       0       0         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.       0         AID No.:       D208444       0       0       0         Alve Number       Class       0       0       0         Remarks       Coord       (CAT)       Type       1       0         SB-V8       2       2.0       Manual       0 |

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      | 3.0   | Manual | 0 | - |
|---------|--------|-------|--------|---|---|
|         | (E-10) | Globe |        |   |   |

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.

2-F6.84 SITR Rev. 23

| ,              |                                                    |                               |                                |                   |                  | ,      |                  |      |     |      |  |
|----------------|----------------------------------------------------|-------------------------------|--------------------------------|-------------------|------------------|--------|------------------|------|-----|------|--|
|                |                                                    |                               |                                |                   | FIGU             |        | -0               |      |     |      |  |
|                |                                                    |                               |                                |                   |                  |        |                  |      |     |      |  |
| SYSTEM:        | SF                                                 |                               | EX                             | CLUSIO            | N JUSTIFI        | CA     | ΓΙΟΝ             | I DO | CUN | IENT |  |
| P&ID No.:      | D20482                                             |                               |                                |                   | TAE              |        | 2                |      |     |      |  |
| FOID NO        | D20402                                             |                               |                                |                   |                  |        |                  |      |     |      |  |
|                |                                                    |                               |                                |                   |                  |        |                  |      |     |      |  |
| Valve Number   |                                                    | Class                         |                                | Size (in.)        |                  |        |                  |      |     |      |  |
| Remarks        |                                                    | and<br>Coord                  | Valve<br>(CAT)                 | and<br>Type       | Actuator<br>Type |        | Positions<br>SAF | FAL  |     |      |  |
| Remarks        |                                                    | Coold                         |                                | туре              | туре             | INFXIV | JAF              | FAL  |     |      |  |
| SF-P10A        |                                                    | 3                             |                                |                   |                  |        |                  | -    |     |      |  |
|                |                                                    | (D-7)                         |                                |                   |                  |        |                  |      |     |      |  |
| The spent fuel | cooling pump operates<br>ad in the spent fuel pool | s continuousl                 | y to remove d                  | ecay heat from s  | pent fuel        |        |                  |      |     |      |  |
|                | escribed in ISTA-1100.                             |                               |                                |                   |                  |        |                  |      |     |      |  |
|                | &ID D20482, DCR 00-(                               |                               |                                |                   |                  |        |                  |      |     |      |  |
| SF-P10B        |                                                    | 3                             |                                |                   |                  |        |                  |      |     |      |  |
|                |                                                    | (D-4)                         |                                |                   |                  |        | -                | -    |     |      |  |
| The spent fuel | cooling pump operates                              | s continuous!                 | y to remove d                  | lecay heat from s | pent fuel        |        |                  |      |     |      |  |
| elements store | ed in the spent fuel poo                           | I. The Spent                  | Fuel Pumps                     | do not meet the o | criteria for the |        |                  |      |     | *    |  |
|                | escribed in ISTA-1100.<br>&ID D20482, DCR 00-0     |                               |                                |                   |                  |        |                  |      |     |      |  |
|                | ,                                                  |                               |                                |                   |                  |        |                  |      |     |      |  |
| SF-P10C        |                                                    | 2                             |                                |                   |                  |        |                  |      |     |      |  |
| 3F-F 100       |                                                    | 3<br>(B-5)                    |                                |                   |                  |        | -                | -    |     |      |  |
| The spent fuel | cooling pump operates                              | s continuousl                 | y to remove d                  | lecay heat from s | pent fuel        |        |                  |      |     |      |  |
| elements store | ed in the spent fuel poo                           | <ol> <li>The Spent</li> </ol> | Fuel Pumps                     | do not meet the c | criteria for the |        |                  |      |     |      |  |
| References: P  | escribed in ISTA-1100.<br>&ID D20482, DCR 00-0     | Ineretore, t<br>001. and FSA  | ney are exclu<br>R Table 9.1-1 | ded from IST      |                  |        |                  |      |     |      |  |
|                |                                                    | , und 1 0/                    |                                | -1                |                  |        |                  |      |     |      |  |
| 05 1/2         |                                                    | _                             |                                |                   | o .v             | 5-     |                  |      |     |      |  |
| SF-V3          |                                                    | 3<br>(D-4)                    |                                | 6.0<br>Check      | Self             | DE     | O/C              | -    |     |      |  |
| Spent fuel poo | l cooling pump P-10B o                             | • •                           | eck valve. Thi                 |                   | nen the SFPC     |        |                  | • .  |     |      |  |
| pump is runni  | ng and closes when the                             | e pump is sea                 | cured to preve                 | ent reverse bypas | ss flow from     |        |                  |      |     |      |  |
|                | parallel pumps. Since this valve is not active     |                               |                                |                   |                  |        |                  |      |     |      |  |
| References: P  |                                                    |                               | is callery fullor              |                   |                  |        |                  |      |     |      |  |
| 65 V7          |                                                    |                               |                                |                   | 0.17             | 55     | 010              |      |     |      |  |
| SF-V7          |                                                    | 3<br>(D-7)                    |                                | 6.0<br>Check      | Self             | DE     | O/C              | -    |     |      |  |
| 0 11 1         |                                                    |                               |                                |                   |                  |        |                  |      |     |      |  |

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.

2-F6.85 SITR Rev. 23

SYSTEM: SF

P&ID No.: **D20482** 

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| alve Number                                                                                                                                                                                                                       | Class<br>and                                                                                                                              | Valve                                         | Size (in.)<br>and                                                     | Actuator                                         | r   | Position | <b>.</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------|-----|----------|----------|
| Remarks                                                                                                                                                                                                                           | Coord                                                                                                                                     | (CAT)                                         | Туре                                                                  | Туре                                             | NRM | SAF      | FAL      |
| PE 1/407                                                                                                                                                                                                                          | â                                                                                                                                         |                                               |                                                                       | Calif                                            | 55  | 0/0      |          |
| SF-V197                                                                                                                                                                                                                           | 3<br>(B-5)                                                                                                                                |                                               | 8.0<br>Check                                                          | Self                                             | DE  | O/C      | -        |
| Spent fuel pool cooling pu<br>pump is running and clos<br>he redundant parallel pu<br>n ISTA-1100, this valve is<br>References: P&ID D2048                                                                                        | ses when the pump is s<br>mps. Since the SF Pum<br>s not active and serves                                                                | ecured to pre                                 | event reverse bypas<br>safety function as d                           | s flow from<br>escribed                          |     |          |          |
| F-V45                                                                                                                                                                                                                             | 3<br>(G-11)                                                                                                                               |                                               | 0.75<br>Relief/Safety                                                 | Self                                             | с   | о        | -        |
| SME OM Code and this<br>ISTA-1100                                                                                                                                                                                                 | valve is not active and                                                                                                                   |                                               |                                                                       |                                                  |     |          |          |
| ME OM Code and this<br>STA-1100<br>ferences: P&ID D2048                                                                                                                                                                           | valve is not active and                                                                                                                   |                                               |                                                                       | in the                                           | С   | 0        | -        |
| SME OM Code and this<br>I ISTA-1100<br>eferences: P&ID D2048<br>S <b>F-V74</b>                                                                                                                                                    | valve is not active and<br>2.<br>3<br>(G-9)                                                                                               | serves no sa                                  | afety function as des<br>0.75<br>Relief/Safety                        | in the<br>scribed<br>Self                        | С   | 0        | -        |
| ASME OM Code and this<br>in ISTA-1100<br>References: P&ID D2048<br><b>SF-V74</b><br>SF-E-15A thermal relief v<br>in ISTA-1100, the system<br>ASME OM Code and this                                                                | valve is not active and<br>2.<br>(G-9)<br>valve - Since the SF Pu<br>heat exchanger serves                                                | serves no sa<br>mps serve n<br>s no safety fu | 0.75<br>Relief/Safety<br>o safety function as<br>unction as described | in the<br>scribed<br>Self<br>described<br>in the | С   | 0        | -        |
| in ISTA-1100, the system<br>ASME OM Code and this<br>in ISTA-1100<br>References: P&ID D2048<br>SF-V74<br>SF-E-15A thermal relief v<br>in ISTA-1100, the system<br>ASME OM Code and this<br>in ISTA-1100 Referenc<br>!D No.: D2048 | valve is not active and<br>2.<br>(G-9)<br>valve - Since the SF Pu<br>heat exchanger serves<br>valve is not active and<br>es: P&ID D20482. | serves no sa<br>mps serve n<br>s no safety fu | 0.75<br>Relief/Safety<br>o safety function as<br>unction as described | in the<br>scribed<br>Self<br>described<br>in the | С   | 0        | -        |

SYSTEM: SF P&ID No.: D20796

> Size (in.) Class Valve Number Actuator Positions and Valve and NRM SAF FAL (CAT) Туре Туре Remarks Coord Self С 0 SF-V183 3 0.75 Relief/Safety (F-5)

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.

#### SITR Rev. 23 2-F6.87

Class Size (in.) Valve Number Positions and Valve and Actuator NRM SAF FAL (CAT) Туре Туре Coord Remarks SI-V297 0 2 4.0 Self Check (H-6)

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

D20447

SYSTEM:

P&ID No.:

| SI-V314 | NNS<br>(G-12) | 0.75<br>Relief/Safety | Self | С | 0 | - |  |
|---------|---------------|-----------------------|------|---|---|---|--|
|         |               |                       |      |   |   |   |  |

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.

#### 2F6.88 SITR Rev. 23

Positions

SAF

Ο

0

O/C

O/C

FAL

Valve Number Class Size (in.) and Valve and Actuator Remarks Coord NRM (CAT) Type Type SW-V63 NNS 38.0 0 Motor (F-4) Butterfly 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 38.0 Motor 0 (G-4) Butterfly 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\* 1.0 Self С (B-8) Check 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\* 1.0 Self С (B-7) Check 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.

2-F6.89 SITR Rev. 23

SYSTEM: **SW** P&ID No.: **D20794** 

SW SYSTEM: P&ID No.: D20795

> Size (in.) Class Valve Number Positions Actuator and · Valve and NRM SAF Туре (CAT) Type Coord Remarks 24.0 Manual С SW-V66 3 Butterfly (C-12)

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      | 24.0      | Manual |
|--------|--------|-----------|--------|
|        | (A-11) | Butterfly |        |

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

С  $\cap$ 

O

FAL

SITR Rev. 23 2-F6.90

SYSTEM: SW

P&ID No.: D20796

FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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| Valve Number                                                                                                                                                                                                                                                                          | Class<br>and                                                                       | Valve                                                                          | Size (in.)<br>and                                                                                                     | Actuator                                                            |     | Position | -   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----|----------|-----|
| Remarks                                                                                                                                                                                                                                                                               | Coord                                                                              | (CAT)                                                                          | Туре                                                                                                                  | Туре                                                                | NRM | SAF      | FAL |
| SW-V214                                                                                                                                                                                                                                                                               | 3<br>(D-6)                                                                         |                                                                                | 1.5<br>Relief/Safety                                                                                                  | Self                                                                | С   | 0        | -   |
| SW system Alternate SFP heat exch<br>no safety function as described in IS<br>function as described in the ASME O<br>safety function as described in ISTA-<br>References: P&ID D20796.                                                                                                | rA-1100, the<br>M Code and                                                         | system hea                                                                     | at exchanger serves                                                                                                   | no safety                                                           | re  |          |     |
| SW-V224                                                                                                                                                                                                                                                                               | 3*<br>(F-9)                                                                        |                                                                                | 1.0<br>Check                                                                                                          | Self                                                                | С   | O/C      | -   |
| SF HX 15C inlet Service water vacuu<br>opens when the SW pump trips to pri-<br>start, and closes to prevent water dis<br>under steady state conditions. The a<br>when both CC trains are out of servic<br>available SFC cooling path. However<br>excluded from IST. Will be tested un | eclude water<br>charge or air<br>Iternate SFC<br>ce for mainte<br>c, this valve is | hammer tra<br>introduction<br>heat excha<br>nance. Unde<br>non-ASME            | ansients on subseque<br>n when the system i<br>anger is placed into<br>er this condition, this<br>E (ANS Class 3) and | ient pump<br>s operating<br>service<br>s is the only<br>I therefore |     |          |     |
| SW-V225                                                                                                                                                                                                                                                                               | 3*<br>(D-9)                                                                        |                                                                                | 1.0<br>Check                                                                                                          | Self                                                                | С   | O/C      | -   |
| SF HX 15C outlet Service water vacu<br>opens when the SW pump trips to pro-<br>start, and closes to prevent water dis<br>under steady state conditions. The a<br>when both CC trains are out of servic<br>available SFC cooling path. However<br>excluded from IST. Will be tested un | eclude water<br>charge or air<br>lternate SFC<br>ce for mainte<br>, this valve is  | hammer tra<br>introduction<br>heat exchanance. Und<br>nance. Und<br>s non-ASME | ansients on subsequen<br>when the system i<br>anger is placed into<br>er this condition, this<br>E (ANS Class 3) and  | uent pump<br>s operating<br>service<br>s is the only<br>I therefore |     |          |     |

SITR Rev. 23 2-F6.91

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SYSTEM: WG

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P&ID No.: D20773

| Valve Number | Class<br>and | Valve | Size (in.)<br>and | Actuator | F   | Position | s   |  |
|--------------|--------------|-------|-------------------|----------|-----|----------|-----|--|
| Remarks      | Coord        | (CAT) | Туре              | Туре     | NRM | SAF      | FAL |  |
| WG-V53       | 2<br>(G-12)  |       | 1.0<br>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.

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SYSTEM: **WLD** P&ID No.: **D20218** 

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

| Valve Number                                                                                                            | Class<br>and                                | Valve                        | Size (in.)            | Actuator                | 1   | ositior | IS  |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------|-----------------------|-------------------------|-----|---------|-----|
| Remarks                                                                                                                 | Coord                                       | (CAT)                        | Туре                  | Туре                    | NRM | SAF     | FAL |
| WLD-V277                                                                                                                | NNS<br>(F-11)                               |                              | 0.75<br>Relief/Safety | Self                    | С   | 0       | -   |
| RCDT IRC WLD line relief va<br>piping caused by thermal exp<br>valve is non-ASME and there<br>program. References: P&ID | pansion of trapped f<br>efore excluded from | luid under a<br>IST. Will be | ccident conditions. H | lowever, this<br>App. B |     |         |     |

## P&ID No.: D20219

| WLD-V211 | NNS    | 0.75          | Self | С | 0 | - |
|----------|--------|---------------|------|---|---|---|
|          | (D-11) | Relief/Safety |      |   |   |   |

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

2-F6.93 SITR Rev. 23