Progress Energy

Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50.55a

October 31, 2007
3F1007-12

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

Subject: Crystal River Unit 3 –Inservice Testing Program, Ten-Year Update

Dear Sir:

In accordance with the provisions of 10 CFR 50.55a(f)(4)(ii), Florida Power Corporation (FPC), doing business as Progress Energy Florida, Inc., is hereby submitting the fourth ten year update of the Crystal River Unit 3 (CR-3) Inservice Testing (IST) Program.

The third ten year interval will end on August 13, 2008 and the fourth ten year interval will begin on August 14, 2008. This IST Program is developed in accordance with the 2001 Edition through 2003 Addenda of the American Society of Mechanical Engineers Code for Operation and Maintenance of Nuclear Power Plants.

No regulatory commitments are being made in this submittal.

If you should have any questions regarding this submittal, please contact Mr. Dennis Herrin, Acting Supervisor, Licensing & Regulatory Programs, at (352) 563-4633.

Sincerely,

Stephen J. Cahill
Engineering Manager

SJC/seb

Attachment: Crystal River Unit 3 Inservice Testing Program Plan – Fourth Ten Year Interval

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector

A047

NRR

Progress Energy Florida, Inc.
Crystal River Nuclear Plant
15760 W. Powerline Street
Crystal River, FL 34428

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER - UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT

CRYSTAL RIVER UNIT 3 INSERVICE TESTING PROGRAM PLAN FOURTH TEN YEAR INTERVAL

CRYSTAL RIVER UNIT 3

IST PROGRAM PLAN
FOURTH TEN-YEAR INTERVAL

Commercial Service Date:

03/13/77

Crystal River Unit 3
15760 West Power Line Street
Crystal River, FL 34428-6708

Progress Energy Services Company, LLC
410 South Wilmington Street
Raleigh, NC 27601-1748

Prepared By:
Alion Science and Technology Corporation
Engineering and Technical Programs Division
Warrenville, Illinois

REVISION CONTROL SHEET

Major changes should be outlined within the table below. Minor editorial and formatting revisions are not required to be logged.

REVISION	DATE	REVISION SUMMARY
0		**Initial issuance. (This IST Program Plan was developed by Alion Science and Technology Corporation as part of the Fourth Interval IST Program update.)** Prepared: C. Sellers Reviewed: M. Stackowiak Approved: D. Lamond

Note: 1. This IST Program Plan (Sections 1 - 8 inclusive) is controlled by the Crystal River Unit 3 Programs Engineering Group.

2. Revision 0 of this document was issued as the Fourth Interval IST Program Plan and was submitted to the USNRC for review, including approval of the initial Fourth IST Interval Relief Requests. Future revisions of this document made within the Fourth IST Interval will be maintained and controlled at the station; however, they are not required to be and will not be submitted to the USNRC for approval. The exception to this is that new or revised Relief Requests shall be submitted to the USNRC for safety evaluation and approval.

REVISION SUMMARY

SECTION	EFFECTIVE PAGES	REVISION	DATE
Preface	i to iv	0	10/05/07
1.0	1-1 to 1-19	0	10/05/07
2.0	2-1 to 2-12	0	10/05/07
3.0	3-1 to 3-10	0	10/05/07
4.0	4-1 to 4-16	0	10/05/07
5.0	5-1 to 5-153	0	10/05/07
6.0	6-1 to 6-4	0	10/05/07
7.0	7-1 to 7-22	0	10/05/07
8.0	8-1 to 8-2	0	10/05/07

TABLE OF CONTENTS

1.0 INTRODUCTION

This Inservice Testing Pump and Valve Program Manual, referenced elsewhere as the "Manual" details the technical basis and provides the overall description of the Inservice Pump and Valve Testing Program (IST Program) for the Crystal River Unit 3 fourth ten-year interval. The fourth ten-year interval for Crystal River Unit 3 starts on August 14, 2008 and runs through August 13, 2018. This program has been updated to the latest edition and addenda of ASME Code for Operation and Maintenance of Nuclear Power Plants (referred in this Manual as simply the "Code") approved by the Nuclear Regulatory Commission by incorporation into the Code of Federal Regulation (10CFR50.55a) 12 months prior to the start of the fourth 120 month inspection interval. The 2001 Edition through the 2003 Addenda of the Code were incorporated by reference in Paragraph 50.55a(b)(3) by rulemaking effective November 1, 2004. This edition of the Code was still referenced in Paragraph 50.55a(b)(3) on August 13, 2007, 12 months prior to the start of the Crystal River Unit 3 fourth ten-year interval.

1.1 Purpose

The purpose of this IST Program is to verify operational readiness of those pumps and valves that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident; and pressure relief devices that protect systems or portions of systems that perform one or more of these three functions, as identified within various plant safety analyses.

This Manual describes the IST Program which is implemented by referenced procedures. This Manual is not an implementing document for performing inservice testing of components. It is intended to provide guidance and reference to those implementing procedures and is intended for use in maintaining the program status, providing reference to Maintenance Planning and Inservice Testing personnel, and to provide a description of the content of the program and established technical positions to regulatory authorities.

The controlling reference for this Manual is Nuclear Engineering Procedure, NEP-301, Control of ASME Section XI Examination Program Plans, Manuals, and Reports.

1.2 Program Description

This Program Manual specifies the components included in the Inservice Testing Program, the applicable surveillance/testing procedures, and associated testing requirements and frequencies. Relief Requests are provided for those components where; 1) the proposed alternative inspection/test provides an acceptable level of quality and safety, 2) compliance with the Code requirements would result in a hardship without a corresponding increase in safety, 3) complying with the Code requirements is impractical. Cold Shutdown and Refueling Outage Justifications are also included to justify the extended testing frequency

for those components that can only be tested at either Cold Shutdown or Refueling Outage plant conditions.

Inservice pump and valve testing shall be performed in accordance with ASME OMb Code-2003 Addenda to ASME OM Code-2001 Code for Operation and Maintenance of Nuclear Power Plants, to the extent practicable within limits of design, geometry and materials of construction of the components. The guidance of Nuclear Regulatory Commission NUREG-1482 Rev. 1, Guidelines for Inservice Testing at Nuclear Power Plants, has been used in the development of this program.

In addition to those pumps and valves required to be tested by the Code, other components may be included in the program from a good engineering and management practice standpoint. These components need not be tested to specific Code criteria and are identified as "Augmented" requirements.

The interpretation of the IST Program is the responsibility of Supervisor, Equipment Performance.

This Manual is divided into additional sections, as follows:

- **Section 2.0, Pump Testing** - Provides a general discussion of the Crystal River Unit 3 inservice pump testing program and implementation of Code requirements. Technical positions for the Crystal River Unit 3 pump testing program are also provided in this section.

- **Section 3.0, Pump Tables** - Provides a listing of the pumps included in the Crystal River Unit 3 IST Program. These tables include information on component data, required test methods, parameters monitored, implementing surveillance procedures, surveillance frequency and applicable Relief Requests and/or applicable Cold Shutdown or Refueling Outage Justifications.

- **Section 4.0, Valve Testing** - Provides a general discussion of the Crystal River Unit 3 inservice valve testing program and implementation of Code requirements. Technical positions for the Crystal River Unit 3 valve testing program are also provided in this section.

- **Section 5.0, Valve Tables** - Provides a listing of the valves included in the Crystal River Unit 3 IST Program. These tables include information on component data, required test methods, implementing surveillance procedures, surveillance frequency and applicable Relief Requests and/or applicable Cold Shutdown or Refueling Outage Justifications.

- **Section 6.0, Relief Requests** - Provides a listing and includes Relief Requests for those pumps and valves which cannot be tested in accordance with specific Code requirements. It states why the test cannot be performed and provides a description and schedule for alternative testing.

- **Section 7.0, Cold Shutdown Justifications** - Provides the listing and includes Cold Shutdown Justifications for the components that cannot be tested during normal operation and can only be tested during cold shutdown periods. It also provides the basis for not testing these valves during operation and describes the alternate testing being performed.

- **Section 8.0, Refueling Outage Justifications** - Provides the listing and includes Refueling Outage Justifications for the valves that cannot be tested during normal operation or cold shutdown conditions. It also provides the basis for not testing these valves during operation and describes the alternate testing being performed.

1.3 Definitions

Acceptance Criteria: measurable values that define the acceptability of specific performance parameters for the associated component.

Cold Shutdown Justification (CSJ): document providing adequate technical justification for testing specific valves at cold shutdown frequency instead of at quarterly frequency. This frequency is allowed by ISTC-3520.

Examination: observing, visual monitoring, or measuring to determine conformance to specified requirements.

Exercising: demonstration based on direct visual or indirect positive indications that the moving parts of a component function.

Inservice Test: a special test for obtaining, through measurement or observation, information to determine the operational readiness of a pump or valve. (These tests are not designed to establish complete component performance. They are to determine the general condition of a component such as the performance of a pump at one operating point from test to test.)

IST Basis Document: document consisting of the specific Inservice Testing Program information necessary to determine the components that require testing and justifications for those that are excluded from the Inservice Testing Program (NUREG-1482 Rev. 1, Paragraph 2.4.4.)

Maintenance: routine servicing or work that does not change the design of the item undertaken to correct or prevent an abnormal or unsatisfactory condition.

Monitoring: continuous or periodic observation or measurement to ascertain the performance or obtain characteristics of a pump or valve.

Nonintrusive testing: testing performed on a pump or valve without disassembly or disturbing the boundary of the component.

Obturator: valve closure member (disk, gate, plug, etc.).

Operational Readiness: the capability of a pump or valve to fulfill its specified functions.

Overpressure protection: the means by which components are protected from overpressure by the use of pressure-relieving devices or other design provisions as required by the ASME Boiler & Pressure Vessel Code, Section III, or other applicable construction codes.

Preservice Test: test performed before the component is initially placed in service.

Preservice Test Period: the period of time prior to the component being initially placed in service.

Reference Point: a point of operation at which reference values are established and inservice test parameters are measured for comparison with applicable acceptance criteria.

Reference Values: one or more values of parameters as measured or determined when the equipment is known to be operating acceptably.

Refueling Outage Justification (ROJ): document providing adequate technical justification for testing specific valves at a refueling outage frequency instead of at quarterly or cold shutdown frequency. This frequency is allowed by ISTC-3520.

Relief Requests: documents submitted to the Nuclear Regulatory Commission requesting permission to deviate from the testing requirements stipulated in the ASME Code. Relief Requests must provide adequate justification and require approval prior to implementing in the Inservice Testing Program. These requests can also be pre-approved by the Nuclear Regulatory Commission, in which case they can be adopted without express permission being granted.

Required Action Range: range of test values indicating that the associated component is not in a state of operational readiness. Corrective action shall be initiated immediately for components with test results that fall in this range.

Safe Shutdown: Crystal River Unit 3 is licensed with Hot Shutdown as the Safe shutdown condition.

Skid-Mounted Pumps and Valves: pumps and valves integral to or that support operation of major components, even though these pumps and valves may not be located directly on the skid.

Trending: a comparison of current data to previous data obtained under similar conditions for the same equipment.

Valves, Active: valves that are required to change obturator position to accomplish a specific function in shutting down a reactor to the safe shutdown condition, maintaining the safe shutdown condition, or mitigating the consequences of an accident.

Valves, Passive: valves that maintain obturator position and are not required to change obturator position to accomplish the required function(s) in shutting down a reactor to the safe shutdown

condition, maintaining the safe shutdown condition, or mitigating the consequences of an accident.

1.4 Background - Program Development

Each pump and valve installed in ASME Class 1, 2 and 3 systems was evaluated to determine the applicability of the requirements of 10CFR50.55a(f) and Plant Technical Specifications.

In accordance with ASME OM CODE-2001 with ASME OMb-2003 Addenda, the following are required to be included in the testing program in accordance with Subsection ISTA:

(a) pumps and valves that are required to perform a specific function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident;
(b) pressure relief devices that protect systems or portions of systems that perform one or more of these three functions; and
(c) dynamic restraints (snubbers) used in systems that perform one or more of these three functions, or to ensure the integrity of the reactor coolant pressure boundary.

Subsection ISTB, "Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants" applies to certain centrifugal and positive displacement pumps that have an emergency power source. The application of these requirements and the pump to which these requirements apply are described in Section 2.0 and 3.0 of this Plan.

Subsection ISTC, "Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants" applies to certain valves and pressure relief devices (and their actuating and position-indicating systems). Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants" augments the rules of Subsection ISTC for certain pressure relief devices included in Section III of the ASME Boiler and Pressure Vessel Code and Mandatory Appendix II, "Check Valve Condition Monitoring Program" augments the rules of Subsection ISTC and establishes the requirements for implementing and maintaining a check valve condition monitoring program. The application of these requirements and the valves and pressure relief devices to which these requirements apply are described in Section 4.0 and 5.0 of this Plan.

Subsection ISTD, "Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Nuclear Power Plants" applies to certain dynamic restraints (snubbers). The application of these requirements is addressed in the Crystal River Unit 3 Fourth Interval Inservice Inspection (ISI) Program Plan.

Pump and valves installed in ASME Safety Class 1, 2 and 3 systems were first evaluated to determine if any of the exclusion criteria of ISTB-1200 or exemption criteria of ISTC-1200 were applicable. A standardized, step-by-step approach was then used to determine the applicability of the requirements of the Code to each remaining pump and valve which was not clearly exempt. First, a determination was made as to whether the component was located in a system or portion of a system (i.e., a flowpath) which is required to be operable in order to shutdown the

reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. Those which did not perform a specific function were identified as being outside the scope of the Code as defined in ISTA-1100. These components are identified and documented in the Crystal River Unit 3 Inservice Testing Basis Document and are not included in this Program Manual.

If a valve was determined to be in a safety-related flowpath, or in a branch line coming off a safety related flowpath, a determination was made to determine what function or functions the valve was required to perform for safe shutdown, accident mitigation, or overpressure protection. The valve was then categorized according to its type and function (Category A, AC, B, C, D) and as to whether it had to change position in order to accomplish any of the safety functions identified (Active vs. Passive). Table ISTC-3500-1, then prescribes which testing requirements should be applied to each specific valve.

1.5 Technical Positions - General

1.5.1 Basis for Program Scope

The Crystal River Unit 3 Final Safety Analysis Report, related design basis documents, and other relevant published accident analyses will be the primary references for determining which components are subject to the requirements of ASME OM Code, Inservice Testing requirements. Although several other plant source documents (e.g., Emergency Operating Procedures, vendor's information) identify various components that may be important to plant safety or may be operated in conjunction with recovery from an accident, unless specific credit is taken or assumed in the plant safety analyses for a pump or valve, the component need not be included in the Inservice Testing Program (NUREG-1482 Rev. 1, Paragraph 2.2).

1.5.2 Check Valve Condition Monitoring Program

As an alternative to the testing or examination requirements of ISTC-3510, ISTC-3520, ISTC-3550, and ISTC-5221, Crystal River 3 will establish a check valve condition monitoring program per ISTC-5222 and implement the program in accordance with OMb Code-2003 Appendix II "Check Valve Condition Monitoring Program." The purpose of this program is to both (a) improve check valve performance and to (b) optimize testing, examination, and preventive maintenance activities in order to maintain the continued acceptable performance of a select group of check valves.

Valves included in the Check Valve Condition Monitoring (CVCM) Program will be identified in the "Comments" column of the Valve Tables. The Code testing specified in the Tables is replaced by the activities/tests identified in the specific CVCM Plan.

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

1.5.3 Redundant Components

When multiple components are capable of performing the same specified function (e.g., multiple check valves closing in series) only one need be included in the Program. This technical position only applies where licensing documents do not specifically take credit for the designed redundancy. (NUREG-1482 Rev. 1, Paragraph 4.1.1)

1.5.4 Passive Failure Protection

In cases where protection of critical systems from passive failures is a commitment as discussed in the Final Safety Analysis Report or other licensing documents, components providing redundancy or isolation of failed components shall be included in the testing program. Valve operation in the case of passive failures will be to isolate the break or condition for inventory retention and as well as flooding prevention (where safety related equipment is in jeopardy) or to provide alternate means of performing the safety function of the affected system (if rendered inoperable).

1.5.5 Accident

For the purpose of this program, an accident is defined as a series of events that could occur in the reactor plant with the ultimate possibility of causing undue risk to the general public as established by 10CFR100. These accidents are typically discussed and analyzed in Chapter 14 of the Crystal River Unit 3 Final Safety Analysis Report. Other accident analyses described elsewhere in the Final Safety Analysis Report are also considered. Specifically, system and component response to fires (10CFR50 Appendix R), and Station Blackout events were not included for inservice testing requirements. 10CFR50 Appendix R was excluded due to the defense in depth philosophy used in establishing required component response and Station Blackout was excluded based on exceeding single failure scenarios to enter this condition. Both scenarios were considered as outside the scope of Code inservice testing requirements.

1.5.6 Records and Reports

1.5.6.1 Component Records

This Code requirement is satisfied by the IST Program Basis Document and other plant design documents.

1.5.6.2 Test Plans and Record of Tests

This Code requirement is satisfied by the components applicable surveillance procedures and Engineering Data Sheets.

1.5.6.3 Record of Corrective Action

This Code requirement is satisfied by CP-102, "IST Pump and Valve Data Review" evaluations and CAP-NGGC-0200 "Corrective Action Program" evaluations.

1.5.7 Preconditioning

NRC Information Notice 97-16 "Preconditioning of Plant Structures, Systems, and Components" stressed the importance of obtaining meaningful results during IST in order to determine the degree to which a component has degraded, if at all, and to determine the component's ability to perform its intended function when required. To obtain meaningful results, it is important to test the components in the as-found condition and to avoid unacceptable preconditioning.

Unacceptable preconditioning is defined as any activity that:

- Is performed to ensure the pump or valve will meet the test acceptance criteria,
- Is performed to prevent the pump or valve from failing the test,
- Will bypass or mask the as-found condition of the pump or valve,
- Is preventive maintenance that is routinely performed on the pump or valve just before testing, or
- Is preventive maintenance on a pump or valve performed only for scheduling convenience.

Acceptable preconditioning includes such activities as:

- periodic venting of pumps, which is not routinely scheduled directly prior to testing but may occasionally be performed before testing;
- pump venting directly prior to testing, provided that the venting operation has proper controls with a technical evaluation to establish that the amount of gas vented would not adversely affect pump operation;
- occasional lubrication of a valve stem prior to testing of the valve, where stem lubrication is not typically performed prior to testing; and
- unavoidable movement attributable to the setup and connection of test equipment.

1.5.8 Basis of Inservice Testing System Requirements

This Section identifies the primary function or functions of each system at Crystal River Unit 3 which bring some or all of its components within the Scope of the Inservice Testing Program. Specific functions for each component can be found in the Inservice Testing Program Basis Document.

1.5.8.1 AH: AIR HANDLING SYSTEM

Components of the Air Handling System are illustrated on Flow Diagram FD-302-751. Functional requirements are identified in Enhanced Design Basis Document 8/11. Four valves

provide the function of Containment Isolation during normal operation and, if required, during shutdown and refueling operations.

1.5.8.2 AS: AUXILIARY STEAM SYSTEM

Components of the Auxiliary Steam System are shown on Flow Diagram FD-302-051. Functional requirements are identified in Section 1.2 of Enhanced Design Basis Document 6/16.

The Auxiliary Steam System provides a flow path for steam to the turbine of the turbine-driven Emergency Feedwater Pump.

1.5.8.3 BS: REACTOR BUILDING SPRAY SYSTEM

Components of the Reactor Building Spray System are shown on Flow Diagram FD-302-711. Functional requirements of the Reactor Building Spray System are identified in the Enhanced Design Basis Document 6/4. The following functions comprise the basis for its inclusion in the Inservice Testing Program:

The Reactor Building Spray System provides a means of reducing the pressure and temperature inside Containment following a large break Loss of Coolant Accident or a Main Steam or Feedwater line break in order to prevent pressure from exceeding Reactor Building Design pressure.

The Reactor Building Spray System provides a means of reducing the concentration of airborne radioactive iodine in the Containment atmosphere following a Loss of Coolant Accident in order to prevent exceeding legal thyroid dose limits.

Valves within the Reactor Building Spray System provide a Containment Isolation function.

1.5.8.4 CA: CHEMICAL ADDITION, LIQUID SAMPLING, AND POST ACCIDENT SAMPLING SYSTEMS

Safety-related valves in these systems are shown on Flow Diagrams FD-302-671, FD-302-672, and FD-302-700. Their only safety-related function is Containment Isolation.

1.5.8.5 CD: CONDENSATE SYSTEM

Condensate System components are illustrated on Flow Diagram FD-302-101. Functional requirements are stated in Enhanced Design Basis Document 6/23.

The Condensate System is included in the Inservice Testing Program due to the existence of a small number of ASME Safety Class valves in the vicinity of the Condensate Storage Tank, CDT-1. The Condensate Storage Tank was formerly the safety-related source of supply to the Emergency Feedwater pumps until the addition of the dedicated Emergency Feedwater Tank, EFT-2

1.5.8.6 CF: CORE FLOOD SYSTEM

Components of the Core Flood System are shown on Flow Diagram FD-302-702. Functional requirements of the Core Flood System are identified in the Enhanced Design Basis Document 6/5. The following primary functions comprise the basis for its inclusion in the Inservice Testing Program:

- The Core Flood System provides a rapid injection of a large volume of borated water into the Reactor Vessel for core cooling and Reactor shutdown during loss of coolant accidents.

- The Core Flood System provides Reactor Building isolation associated with Core flood pipes penetrating containment. This function is accomplished by several check valves and automatically operated valves in the vent, drain, and nitrogen and makeup water supply lines to the Core Flood Tanks. The automatically actuated valves are provided with an Engineered Safeguards Signal for containment isolation.

- Maintains the Reactor Coolant pressure boundary associated with Core Flood piping connected to the Reactor Coolant System. Valves CFV-1 and CFV-3 are specifically credited with the accomplishment of this function.

- Provides redundant flow paths to the Reactor Vessel for the Decay Heat System.

- Provides isolation of the Decay Heat System from the Reactor Coolant System to prevent Decay Heat over-pressurization. Valves CFV-1 and CFV-3 operate in conjunction with DHV-1 and DHV-2 to accomplish this function.

1.5.8.7 CH: CHILLED WATER SYSTEM

Components of the Chilled Water System are illustrated on Flow Diagrams FD-302-756, FD-302-765, and FD-302-769. Functional requirements are identified in the Enhanced Design Basis Document 8/15. The primary functions of the Chilled Water System which comprise the basis for its inclusion in the Inservice Testing Program are:

- The Chilled Water System provides convectional cooling for essential Control Room ventilation equipment in order to maintain operability of Control Room equipment and habitability of the Control Room when required to safely shutdown the Plant or for mitigation of an accident.

- The Chilled Water System provides convectional cooling for the Emergency Feedwater Initiation and Control Rooms Heating Ventilating and Air Conditioning System during all plant modes of operation excluding certain fires.

1.5.8.8 CI: INDUSTRIAL COOLING WATER SYSTEM

The Industrial Cooling Water System is illustrated on Flow Diagram FD-302-762. Containment Isolation is the only safety-related function of the System. Functional requirements are identified in Enhanced Design Basis Document 6/29.

1.5.8.9 DC: DECAY HEAT CLOSED CYCLE COOLING SYSTEM

Components of the Decay Heat Closed Cycle Cooling System are illustrated on Flow Diagram FD-302-631. Functional requirements are identified in the Enhanced Design Basis Document 6/6.

The primary function of the Decay Heat Closed Cycle Cooling System which comprises the basis for its inclusion in the Inservice Testing Program is that it removes decay heat from the reactor core via the Decay Heat System as well as cooling various pumps and motors while placing the plant in the Cold Shutdown condition or following a Loss of Coolant Accident.

1.5.8.10 DF: FUEL OIL TRANSFER SYSTEM

The Emergency Diesel Generator Fuel Oil Transfer System is illustrated on Flow Diagram FD-302-281. The System provides the safety function of ensuring operability of the Emergency Diesel Generators in the event that offsite power is unavailable for the safe shutdown of the Reactor or the mitigation of accident conditions. Functional requirements are identified in Enhanced Design Basis Document 6/15.

1.5.8.11 DH: DECAY HEAT REMOVAL SYSTEM

The Decay Heat Removal System is illustrated on Flow Diagram FD-302-641. Functional requirements of the Decay Heat Removal System are identified in Enhanced Design Basis Document 6/3. The following post-accident functions comprise the primary basis for its inclusion in the Inservice Testing Program:

- The Decay Heat Removal System automatically provides borated water to the core for short term cooling and reactivity control. This refers to the post-Loss of Coolant Accident injection phase and involves taking suction on the Borated Water Storage Tank with the Decay Heat Removal Pumps and discharging through the Low Pressure injection lines into the Reactor Vessel via the Core Flood nozzles.

- The Decay Heat System provides long term core cooling and reactivity control following a Loss of Coolant Accident by recirculation of borated water from the Reactor Building Sump. This involves shifting the suction from the Borated Water Storage Tank to the Reactor Building Sump; the remainder of the lineup remains the same as for the injection phase described above.

- For a small break Loss of Coolant Accident, the Decay Heat System may be required to provide suction for the Make-up Pumps for high pressure injection/recirculation (i.e., piggyback mode).

- The Decay Heat System functions to prevent boron stratification/precipitation in the core. The Decay Heat System ensures cross flow through the core by establishing gravity flow in the drop line.

- The Decay Heat System provides containment heat removal during the performance of the above functions via the Decay Heat System Heat Exchangers.

1.5.8.12 DJ: JACKET COOLANT/AIR COOLER COOLANT SYSTEM

The Emergency Diesel Generator Jacket Cooling and Air Coolant Cooling Systems are illustrated on Flow Diagram FD-302-283 and FD-302-284. The System provides the safety function of ensuring operability of the Emergency Diesel Generators in the event that offsite power is unavailable for the safe shutdown of the Reactor or the mitigation of accident conditions. Functional requirements are identified in Enhanced Design Basis Document 6/15.

Many of the pumps and valves in this system are considered skid-mounted components. Testing of the Emergency Diesel Generator on a monthly interval in accordance with SP-354A and SP-354B is an acceptable means of verifying the operational readiness of these skid-mounted components.

1.5.8.13 DL: LUBE OIL PIPING SYSTEM

The Emergency Diesel Generator Lube Oil System is illustrated on Flow Diagram FD-302-285. This System also provides the safety function of ensuring operability of the Emergency Diesel Generators in the event that offsite power is unavailable for the safe shutdown of the Reactor or the mitigation of accident conditions. Functional requirements are identified in Enhanced Design Basis Document 6/15.

Many of the pumps and valves in this system are considered skid-mounted components. Testing of the Emergency Diesel Generator on a monthly interval in accordance with SP-354A and SP-354B is an acceptable means of verifying the operational readiness of these skid-mounted components.

1.5.8.14 DO: DOMESTIC WATER SYSTEM

Domestic Water System components are shown on FD-302-211. Functional requirements are identified in Enhanced Design Basis Documents 6/31. A small portion of Domestic Water System piping is used as a flowpath for emergency bearing flushing and cooling water for the Nuclear Services and Decay Heat Sea Water System Pumps in the event that the non-safety related Domestic Water System is not available post-accident.

1.5.8.15 DW: CONDENSATE AND DEMINERALIZED WATER SUPPLY SYSTEM

DW System components are shown on FD-302-182. Functional requirements are identified in Enhanced Design Basis Document 6/30. The only safety function of this system is for Containment Isolation.

1.5.8.16 EF: EMERGENCY FEEDWATER SYSTEM

Components of the Emergency Feedwater System are illustrated on Flow Diagram FD-302-082. Functional requirements are identified in Enhanced Design Basis Document 6/13.

The following primary functions of the Emergency Feedwater System comprise the basis for its inclusion in the Inservice Testing Program:

- The Emergency Feedwater System automatically or manually provides water to the Once Through Steam Generator's at a rate sufficient to remove decay heat for a Loss of Main Feedwater (with or without a loss of all alternating current Power), or for a Main Feedwater Line Break upstream of the last check valve.

- The Emergency Feedwater System automatically or manually provides water to the appropriate Once Through Steam Generator for pipe breaks which de-pressurize the steam generator such as a Main Steam Line Break or a Main Feedwater Line Break downstream of the last check valve.

- The Emergency Feedwater System provides water to the Once-Through Steam Generator's to satisfy small break Loss of Coolant Accident requirements.

- The Emergency Feedwater System provides water to the Once-Through Steam Generator's sufficient to maintain Reactor Coolant System flow in the transition from forced to natural circulation when the Reactor Coolant Pumps are tripped.

1.5.8.17 EG: COMPRESSED STARTING AIR AND ENGINE EXHAUST SYSTEM

Compressed Starting Air and Engine Exhaust System components are illustrated on Flow Diagram FD-302-282. The system is required to support starting of the Emergency Diesel Generators in the event that offsite power is unavailable when required to shutdown the reactor or to mitigate the consequences of an accident. Functional requirements are identified in Enhanced Design Basis Document 6/15.

Many of the pumps and valves in this system are considered skid-mounted components. Testing of the Emergency Diesel Generator on a monthly interval in accordance with SP-354A and SP-354B is an acceptable means of verifying the operational readiness of these skid-mounted components.

1.5.8.18 FS: FIRE SERVICE WATER SYSTEM

The only safety function of the Fire Service Water System, as shown on Flow Diagram FD-302-231, is Containment Isolation. Functional requirements are identified in Enhanced Design Basis Document 6/28.

1.5.8.19 FW: MAIN FEEDWATER SYSTEM

Components of the Main Feedwater System are illustrated on Flow Diagram FD-302-081. Functional requirements of the Main Feedwater System are identified in Enhanced Design Basis Document 6/18. The following functions of the Main Feedwater System comprise the primary basis for its inclusion in the Inservice Testing Program:

- The Feedwater System provides isolation capability for the feedwater side of the Once-Through Steam Generator's for a Main Steam Line Break Accident.

- The Feedwater System provides a flowpath for Emergency Feedwater to the Once-Through Steam Generator's when required for safe shutdown of the Reactor or mitigation of an accident.

1.5.8.20 IA: INSTRUMENT AIR

The primary function of the Instrument Air System which serves as the basis for inclusion is for providing Containment Isolation. Components are shown on Flow Diagram FD-302-271. Functional requirements are identified in Enhanced Design Basis Document 6/27.

1.5.8.21 LR: POST ACCIDENT VENTING SYSTEM

Components of the Post Accident Venting System are shown on FD-302-722. The primary safety-related function of the Post Accident Venting System is Containment Isolation and Hydrogen control.

1.5.8.22 MS: MAIN STEAM SYSTEM

Components of the Main Steam System are illustrated on Flow Diagram FD-302-011. Functional requirements are identified in Enhanced Design Basis Document 6/10. The following functions comprise the primary basis for its inclusion in the Inservice Testing Program:

The Main Steam System provides automatic isolation of the Once-Through Steam Generator's for a Main Steam Line Failure.

- The Main Steam System provides adequate relief capacity to protect the Once-Through Steam Generator's from over-pressurization for a Loss of Electric Power event.

- The Main Steam System controls Once-Through Steam Generator pressure and thereby provides a mechanism for controlled decay heat removal as required to place the Plant in a safe shutdown condition or to mitigate the consequences of an accident.

- The Main Steam System provides steam to the Emergency Feedwater System turbine-driven pump when Emergency Feedwater initiation is required. The Main Steam System provides the capability for Reactor Coolant System cool-down and effluent release control for a Steam Generator Tube Failure event.

1.5.8.23 MU: MAKE-UP & PURIFICATION SYSTEM

Components of the Make-up & Purification System are illustrated on Flow Diagram FD-302-661. Functional requirements of the Make-up & Purification System are identified in Enhanced Design Basis Document 6/2. The following primary functions comprise the basis for its inclusion in the Inservice Testing Program:

- The Make-up System automatically provides high pressure injection of borated water to the Reactor Coolant System for emergency core cooling during the following conditions:

    a. Small Break Loss of Coolant Accident
    b. Piggyback Mode
    c. Steam Line Break
    d. Steam Generator Tube Rupture

- The Make-up System provides an additional method of core cooling via the High Pressure Injection flow path and the Power Operated Relief Valve in the event that steam generator heat transfer is inadequate.

- The Make-up System provides a means of reactor shutdown, supplemental to the Control Rods, and of maintaining the shutdown margin by the addition of boric acid to the Reactor Coolant System.

1.5.8.24 NG: NITROGEN SYSTEM

Nitrogen System components are illustrated on Flow Diagram FD-302-673. The Containment Isolation requirement is the primary basis for inclusion Nitrogen System components. Functional requirements are identified in Enhanced Design Basis Document 6/20.

1.5.8.25 RC: REACTOR COOLANT SYSTEM

Components of the Reactor Coolant System are illustrated on Flow Diagram FD-302-651. Functional requirements of the Reactor Coolant System are identified in Enhanced Design Basis Document 6/1. The following functions comprise the basis for its inclusion in the Inservice Testing Program:

- The Reactor Coolant System circulates reactor coolant and transfers sufficient heat from the reactor core to the secondary fluid in the steam generator during anticipated operational occurrences (e.g., plant transients), assuming proper functioning of plant safety systems occurs, so that fuel thermal limits are not exceeded. This function is accomplished either by forced circulation of reactor coolant with the Reactor Coolant pumps or by natural circulation cooling. The Reactor Coolant System transfers post accident decay heat from the core to redundant interfacing components and systems.

- The Reactor Coolant System forms a barrier against the release of reactor coolant and radioactive material to the reactor building or the main steam system.

- The Reactor Coolant System allows for High Pressure Injection core cooling via the Power Operated Relief Valve should the heat transfer capability in both steam generators be lost.

1.5.8.26 RW: NUCLEAR SERVICES AND DECAY HEAT SEA WATER SYSTEM

Components of the Nuclear Services and Decay Heat Sea Water System are illustrated on Flow Diagram FD-302-611. Functional requirements are identified in of Enhanced Design Basis Documents 6/12. The following functions of the Nuclear Services and Decay Heat Sea Water System comprise the basis for its inclusion in the Inservice Testing Program:

- The Nuclear Services and Decay Heat Sea Water System provides cooling water to the Nuclear Services Closed Cycle Cooling system for heat removal in order to safely shutdown the Reactor or to mitigate the consequences of a design basis accident.

- The Nuclear Services and Decay Heat Sea Water System provides cooling water to the Decay Heat Closed Cycle Cooling system for removal of decay heat when placing the Plant in the Cold Shutdown condition.

- The Nuclear Services and Decay Heat Sea Water System provides cooling water to the Decay Heat Closed Cycle Cooling system for heat removal from various components required to mitigate the consequences of a design basis accident.

- The Nuclear Services and Decay Heat Sea Water System supplies safety grade bearing flush water to the Nuclear Services and Decay Heat Sea Water pumps for cooling and lubrication in the event the Domestic Water System is unavailable.

1.5.8.27 SA: SERVICE AIR SYSTEM

The safety-related components of the Service Air System serve the function of maintaining Containment Isolation. Components are shown on Flow Diagram FD-302-271. Functional requirements are identified in Enhanced Design Basis Document 6/27.

1.5.8.28 SF: SPENT FUEL COOLING SYSTEM

The components of the Spent Fuel Cooling System are illustrated on Flow Diagram FD-302-621. Functional requirements are identified Enhanced Design Basis Document 6/7. The functions of the Spent Fuel Cooling System which comprise the basis for its inclusion in the Inservice Testing Program are:

- The Spent Fuel Cooling System provides decay heat removal of irradiated fuel located in the Spent Fuel pools. This is accomplished by the Spent Fuel Cooling Pumps and Heat Exchangers via associated valves and piping.

- The Spent Fuel Cooling System limits radioactive fission products from entering the outside environment following a fuel assembly rupture in the Spent Fuel storage pools. As a safety function, this is accomplished by maintaining the temperature of the pools within the required limits to prevent excessive evaporation which would result in increased airborne activity.

- The Spent Fuel Cooling System also has a safety related function for Containment Isolation.

1.5.8.29 SW: NUCLEAR SERVICES CLOSED CYCLE COOLING SYSTEM

Functional requirements for the Nuclear Services Closed Cycle Cooling System are identified in Enhanced Design Basis Document 6/11. The components are illustrated on Flow Diagram FD-302-601. Those functions of the Nuclear Services Closed Cycle Cooling System which comprise the basis for its inclusion in the Inservice Testing Program are:

- The Nuclear Services Closed Cycle Cooling System removes heat from safety-related equipment which is required to safely shutdown the Reactor or to mitigate the consequences of an accident.

- The Nuclear Services Closed Cycle Cooling System prevents pressure and temperature conditions inside the Reactor Building from exceeding design limits following a Loss of Coolant Accident by providing cooling of the Containment atmosphere.

1.5.8.30 WD: LIQUID WASTE DISPOSAL, GAS WASTE DISPOSAL & WASTE GAS SAMPLING SYSTEMS

Rad Waste Systems are illustrated on Flow Diagrams FD-302-681, FD-302-691, and FD-302-692. Containment Isolation is the primary safety-related function of these systems.

1.5.8.31 WS: CONTAINMENT MONITORING SYSTEM

Containment Monitoring System components are shown on FD-302-693. Containment Isolation is the primary safety-related function of the System.

1.5.9 Manual Revision

The guidance provided in NUREG 1482 Rev. 1, Guidelines for Inservice Testing at Nuclear Power Plants, Paragraph 3.3.3 will be followed for determination of Program changes.

The Manual and/or implementing procedures shall be revised as necessary following applicable changes to Technical Specifications, or plant modifications. Revisions shall be in accordance with Nuclear Engineering Procedure NEP-301, Control of ASME Section XI Examination Program Plans, Manuals, and Reports. It is not necessary that the Manual be revised prior to the implementing procedures.

If the revised program conflicts with Technical Specifications, an amendment of Technical Specifications shall be submitted to eliminate the conflict. If a proposed change to the Manual involves a Technical Specification change, then the Manual shall not be revised to include the proposed change until the Technical Specification amendment has been approved.

The Inservice Testing Pump and Valve Manual will be maintained and controlled per RDC-NGGC-0001, NGG Standard Records Management Program as a QA Document".

Preparation and revision to Relief Requests shall be performed in accordance with Crystal River Unit 3 Nuclear Engineering Procedure, NEP-305, Control of Relief Requests.

1.6 References

Those Codes, Standards, regulatory documents and correspondence that were instrumental in the development of the current program definition and requirements are as follows:

- Code of Federal Regulations, Title 10, Part 50 Paragraph 55a, Codes and Standards
- American Society of Mechanical Engineers, Code for Operation and Maintenance of Nuclear Power Plants, ASME OMb Code-2003 Addenda to ASME OM Code-2001
- NUREG-1482 Rev. 1, Guidelines for Inservice Testing at Nuclear Power Plants, dated April 2004.
- Crystal River Unit 3 Improved Technical Specifications.
- Crystal River Unit 3 Final Safety Analysis Report.
- Crystal River Unit 3 Enhanced Design Basis Documents.
- Crystal River Unit 3 Inservice Testing Basis Document.
- Crystal River Unit 3 Nuclear Engineering Procedure, NEP-301, Control of ASME Section XI Examination Program Plans, Manuals, and Reports.

- Crystal River Unit 3 Nuclear Engineering Procedure, NEP-305, Control of Relief Requests.

- Crystal River Unit 3 Nuclear Compliance Procedure, CP-102, "IST Pump and Valve Data Review"

- Progress Energy Corrective Action Program, CAP-NGGC-0200, "Corrective Action Program"

2.0 PUMP TESTING

2.1 Scope

The Inservice Pump Testing Program includes all centrifugal and positive displacement type pumps installed in ASME Class 1, 2 and 3 systems that are provided with an emergency power source, that are not exempt by Paragraph 2.2 of this section, and which function to:

a) mitigate the consequences of an accident or,

b) place the reactor in a safe shutdown condition and/or maintain the plant in a safe shutdown condition. (Crystal River Unit 3's license defines safe shutdown as hot standby)

2.2 Exemptions

The following are exempt from requirements of this program:

a) pumps that are supplied with emergency power solely for operating convenience.

b) drivers of pumps, except where the pump and driver form an integral unit and the pump bearings are in the driver.

2.3 Definitions

The following definitions are provided to ensure a uniform understanding of select terms associated with pump testing:

Alert Range: range of test results indicating that the associated component, although in a state of operational readiness, is exhibiting degraded performance. Testing of pumps with test results that fall in this range shall be doubled until the cause of the deviation is determined and the condition is corrected. Reference ISTB-6200(a).

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.

Instrument Loop: two or more instruments or components working together to provide a single output.

Instrument Loop Accuracy: accuracy of an instrument loop based on the square root of the sum of the squares of the inaccuracies of each instrument or component in the loop when considered separately. Alternatively, the allowable inaccuracy of the instrument loop may be based on the output for a known input into the instrument loop.

Pump: a mechanical device used to move fluid.

Pump Design Flow: a point on the pump curve, at substantial flow, where detecting degradation is effective and that is greater than or equal to design basis accident flow.

System Resistance: hydraulic resistance to flow.

2.3 General Program Requirements

Inservice pump tests shall be conducted in accordance with ASME OMb Code-2003 Addenda to ASME OM Code-2001 Code for Operation and Maintenance of Nuclear Power Plants, Subsections ISTA and ISTB, unless specific relief is granted by the Nuclear Regulatory Commission. This Fourth Interval Code of Record has incorporated significant changes to those requirements of the Third Interval Code of Record OMa-1988, Part 6. The Code requires the grouping of pumps as either Group A or Group B with different quarterly test requirements imposed on each Group. Group A pumps are defined as pumps that operate continuously or routinely during normal operation, cold shutdown, or refueling operations. Group B pumps are defined as pumps in standby systems that are not operated routinely except for testing. The Code has also adopted the biennial Comprehensive pump test which has more stringent acceptance criteria for the hydraulic parameters as well as more stringent accuracy requirements for pressure instrumentation.

Inservice pump tests shall be conducted nominally every three months during normal plant operation, with comprehensive pump tests performed biennially, except as provided below:

- Group A pumps that are operated more frequently than every three months need not be run or stopped for a special test provided the plant records show the pump was operated at least once every 3 months at reference conditions, and the quantities specified were determined , recorded, and analyzed per ISTB-6000.

- The Code requires performing pump tests throughout extended shutdown periods for operable equipment. For a pump in a system declared inoperable or not required to be operable, the test schedule need not be followed. Within 3 months prior to placing the system into an operable status, the pump shall be tested and the test schedule resumed. For pumps which can only be tested during plant startup or operation, the pump shall be tested within one week following plant startup unless more restrictive Technical Specification provisions apply.

Crystal River Unit 3 Improved Technical Specifications, Surveillance Requirement 3.0.2, specifies the frequency for each surveillance requirement is met if the surveillance is performed within 1.25 times the interval specified as measured from the previous surveillance performance. This 25% extension will not be used to permanently extend specified test intervals.

2.4 Specific Testing Requirements

This Section defines requirements for Group A, Group B, and Comprehensive inservice tests, and preservice tests. When a Group A test is required, a Comprehensive test may be substituted. When a Group B test is required a Group A or Comprehensive test may be substituted. A preservice test may be substituted for any inservice test. The parameters to be measured are specified in Table ISTB-3000-1.

2.4.1 Test Duration

For the Group A and the Comprehensive test, after pump conditions are as stable as the system permits, each pump shall be run for at least 2 minutes. At the end of this time at least one measurement or determination of each of the quantities required shall be made and recorded.

For the Group B test, after pump conditions are stable, at least one measurement or determination of each of the quantities required shall be made and recorded.

2.4.2 Preservice Testing (Centrifugal and Vertical Line Shaft)

In systems where resistance can be varied, flow rate and differential pressure shall be measured at a minimum of five points. If practicable, these points shall be from pump minimum flow to at least pump design flow. A pump curve shall be established based on the measured points. At least one point shall be designated as the reference point(s). Data taken at the reference point will be used to compare the results of inservice tests. A pump curve need not be established for pumps in systems where resistance cannot be varied. Vibration measurements are only required to be taken at the reference point(s).

2.4.3 Preservice Testing (Positive Displacement)

For positive displacement pumps, reference values shall be taken at or near pump design pressure for the required parameters. Vibration measurements are only required to be taken at the reference point(s).

2.4.4 Group A Inservice Test and Comprehensive Test

Group A and comprehensive tests shall be conducted with the pump operating at a specified reference point. The test parameters shall be determined or measured as follows:

The pump shall be operated at nominal motor speed for constant speed drives or at speed adjusted to the reference point (± 1%) for variable speed drives.

> Note: For positive displacement pumps discharge pressure shall be substituted for differential pressure.

The resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow rate value.

Where it is not practical to vary system resistance, flow rate and pressure shall be determined and compared to their respective reference values.

Vibration (displacement or velocity) shall be determined and compared to the reference value. Vibration measurements shall be broad band (unfiltered). If velocity measurements are used, they shall be peak. If displacements amplitudes are used, they shall be peak-to-peak.

All deviations from the reference values shall be compared with the ranges of Tables ISTB-5100-1, ISTB-5200-1, or ISTB-5300-1, as applicable and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of Tables ISTB-5100-1, ISTB-5200-1, or ISTB-5300-1, as applicable. For example, if vibration exceeds either 6Vr or 0.7 in/sec the pump is in the required action range.

2.4.5 Group B Inservice Test

Group B tests shall be conducted with the pump operating at a specified reference point. The test parameters shall be determined or measured as follows:

The pump shall be operated at nominal motor speed for constant speed drives or at speed adjusted to the reference point (± 1 %) for variable speed drives.

> Note: For positive displacement pumps discharge pressure shall be substituted for differential pressure.

The differential pressure or flow rate shall be determined and compared to its reference value. System resistance may be varied as necessary to achieve the reference point.

All deviations from the reference values shall be compared with the ranges of Tables ISTB-5100-1, ISTB-5200-1, or ISTB-5300-1, as applicable and corrective action taken as specified in ISTB-6200.

2.5 Allowable Ranges of Test Parameters

The allowable ranges, specified in the OM Code, used for pressure, flow, and vibration measurements except as provided in relief requests are identified in the following Tables:

Table ISTB-5100-1 - Centrifugal Pump Test Acceptance Criteria
Table ISTB-5200-1 - Vertical Line Shaft and Centrifugal Pump Test Acceptance Criteria

Table ISTB-5300-1 - Positive Displacement Pump (Except Reciprocating) Test Acceptance Criteria
Table ISTB-5300-2 - Reciprocating Positive Displacement Pump Test Acceptance Criteria

In some cases, the performance of a pump may be adequate to fulfill its safety function even though there may be a measurement that falls outside the allowable range. Should this situation occur, an operability determination may be performed, in accordance with Generic Letter 91-18, NUREG-1482 Rev. 1, Section 5.6, and Crystal River 3 administrative procedures.

2.6 Testing of Non-Code Components

Emergency Feedwater Pump 3A (EFP-1) and the Diesel Fuel Oil Transfer Pumps (DFP-1A, 1B) are non-Code class augmented components. These pumps are tested to the same OM Code requirements as Code class components to the extent practicable. EFP-1 is classified as a Group B pump and will receive a group 'B' and comprehensive test. The DFP pumps are classified as Group A pumps and will receive a group 'A' and comprehensive test. This is noted in the Pump tables. (NUREG 1482 Rev. 1, section 2.2.3)

2.7 Instrumentation

Instrumentation used in the IST Program will conform to the requirements of the Code except where specific relief is requested. Two or more instruments or components working together to provide a single output are considered an instrument loop. The allowable inaccuracy of an instrument loop is based on the square root of the sum of the squares of the inaccuracies of each instrument in the loop. The instrument accuracy requirements refer to the calibration of the instrument. The Code does not require consideration of other factors which could contribute to measurement error such as orifice wear, instrument location, etc. (Ref. Code Interpretation 95-7) However, excessive measurement error would be detected by erratic or unacceptable test results which would require corrective action. If test results are due to out of calibration instruments, the instruments may be recalibrated and the test rerun. If it is determined that unacceptable test results are due to other instrument problems, corrective action shall be by repair or replacement of the instrument system.

The Code requires that flow rate be measured using a rate or quantity meter installed in or on the pump test circuit. Differential pressure may be measured using a dP gauge or transmitter, or may be determined by the difference between the pressure at the inlet and outlet of the pump. Per NUREG-1482 Rev. 1, Section 5.5.3, suction pressure may be calculated based on inlet tank or bay level.

Vibration instrumentation shall be calibrated over the required frequency response range of one third minimum pump speed to at least 1000 HZ, except where specific relief is requested.

2.8 Reference Values

Reference values are determined from the results of the preservice or first inservice test. Reference values will only be established when the pump is known to be operating properly.

When any reference value may have been affected by repair, replacement, or routine servicing of a pump, a new reference value or set of reference values shall be determined, or the previous values(s) reconfirmed by a comprehensive or Group A test run prior to declaring the pump operable. Deviations between the previous and new reference value(s) shall be evaluated and verification that the new reference values represent acceptable pump operation shall be documented by a completed CP-102, IST Pump and Valve Data Review. This review shall consider the minimum design basis performance criteria as established by Design Engineering for the affected pump.

Pumps may be tested at more than one point of pump operation. Additional reference values must be established for these points in accordance with ISTB-3310, ISTB-3320, or ISTB-6200(c). Whenever an additional set of reference values is established, the reasons for doing so shall be documented in the record of tests.

Reference values shall be established in a region(s) of relatively stable pump flow. Reference values shall be established within ± 20% of pump design flow rate for the Comprehensive pump test. Reference values shall be established within ± 20% of pump design flow rate for the Group A and Group B pump tests, if practicable. If not practicable, the reference point flow rate shall be established at the highest practical flow rate.

The Code requires that reference values be established at points of pump operation that can be readily duplicated during subsequent tests. It may not be possible, or it may be extremely difficult, to vary system resistance such that the reference conditions are duplicated exactly. NUREG-1482 Rev. 1, Section 5.3, allows variation in the setting of a fixed reference value of either differential pressure or flow rate, provided the combination of this variation and the associated instrument error does not exceed ± 2 percent for Group A and Group B tests. For Preservice and Comprehensive tests, the allowable total tolerance is ± 1/2 percent for pressure and differential pressure, ± 2 percent for flow. For a tolerance greater than previously stated (which may be necessary depending on the precision of the instrument), a corresponding adjustment to acceptance criteria may be made to compensate for the uncertainty, or an evaluation would be performed and documented justifying a greater tolerance. For tolerances greater than those previously discussed, a relief request may be required. In using this guidance, the variance and the method for establishing the variance must be documented in the IST program documents or implementing procedures.

2.9 Pump Design Flow

The definition of pump design flow is the subject of a significant difference of opinion between the ASME OM committee and the NRC. ASME intended design flow to mean a point on the pump curve, at substantial flow, where detecting degradation is effective. NRC has made a clear interpretation that design flow was intended to mean design basis accident flow.

Pump design flow is defined at Crystal River Unit 3 as a point on the pump curve, at substantial flow, where detecting degradation is effective and that is greater than or equal to design basis accident flow.

2.10 Pump Testing with Unmeasured External Flow

ISTB-3550 allows flow in lines other than the primary flow-rate instrumented line to be unmeasured if it is impractical to isolate the lines, the lines are of fixed resistance, and the situation has been evaluated by the owner to not have a substantial effect on the test results. The previous IST Code of Record, OM Part 6 did not include this allowance. Crystal River Unit 3 previously requested relief from the OM-6 requirement to measure all flow. Because the current Code allows external flow to be unmeasured relief is not required.

The pumps listed below will be tested with a portion of their discharge flow that is unmeasured during testing. This flow is through recirculation lines in the test flow path. The flow is held constant in the lines. The flow is normally inservice and is held constant.

BSP-1A	Reactor Building Spray Pump 3A
BSP-1B	Reactor Building Spray Pump 3B
DCP-1A	Decay Heat Closed Cycle Cooling Water Pump 3A
DCP-1B	Decay Heat Closed Cycle Cooling Water Pump 3B
DHP-1A	Decay Heat Removal Pump 3A
DHP-1B	Decay Heat Removal Pump 3B
RWP-2A	Emergency Nuclear Services Sea Water Pump 3A
RWP-2B	Emergency Nuclear Services Sea Water Pump 3B
RWP-3A	Decay Heat Service Sea Water Pump 3A
RWP-3B	Decay Heat Service Sea Water Pump 3B
SWP-1A	Nuclear Services Closed Cycle Cooling Pump 3A
SWP-1B	Nuclear Services Closed Cycle Cooling Pump 3B

2.11 Pump Testing Using Minimum Flow Line

Crystal River Unit 3 has five (5) pumps in the IST Program that have at least a portion of their test loop flowing through minimum flow recirculation lines that have no installed flow instrumentation. Two of these pumps are Emergency Feedwater Pumps EFP-1 and EFP-2. The remaining pumps are the three Make-up Pumps, MUP-1A, MUP-1B, and MUP-1C.

EFP-1 is a non-Code component included in the augmented IST Program. Code requirements for instrument accuracy do not apply to this pump. EFP-2 will continue to be tested through the minimum flow recirculation line for the Group B test. EFP-2 will be full flow tested for the Preservice and Comprehensive pump tests. Flow instrumentation meeting the requirements of ISTB-3500 was installed in accordance with NUREG-1482 Rev. 1, paragraph 5.9.

The Make-up Pumps are full-flow tested during refueling outages with flow rate and instrumentation meeting the requirements of ISTB for the Preservice, Group A and Comprehensive Pump tests. The quarterly test for these pumps is performed through the recirculation flow, Reactor Coolant System makeup flow, and Reactor Coolant Pump seal injection flow paths. Flow instrumentation meeting the requirements of ISTB-3500 was installed in accordance with NUREG-1482 Rev. 1, paragraph 5.9.

2.12 Skid-Mounted Pumps

ISTB-1200(c) allows skid-mounted pumps that are tested as part of the major component to be excluded from the Code IST requirements provided the pumps are justified to be adequately tested. The following skid-mounted pumps are adequately tested as part of a major component at Crystal River 3 as discussed below:

PUMP ID	PUMP DESCRIPTION	ASME CLASS
DFP-2A	Emerg. Diesel Gen. Engine Driven Fuel Pump 2A	3
DFP-2B	Emerg. Diesel Gen. Engine Driven Fuel Pump 2B	3
DFP-3A	Emerg. Diesel Gen. Aux. Motor Driven Fuel Pump 3A	3
DFP-3B	Emerg. Diesel Gen. Aux. Motor Driven Fuel Pump 3B	3
DFP-5	EFP-3 Engine Driven Fuel Pump	3
DJP-1	Emerg. Diesel Gen. Engine Driven Water Pump	3
DJP-2	Emerg. Diesel Gen. Engine Driven Water Pump	3
DJP-3	Emerg. Diesel Gen. Standby Coolant Pump	3
DJP-4	Emerg. Diesel Gen. Standby Coolant Pump	3
DJP-5	Emerg. Diesel Gen. Engine Driven Air Coolant Pump	3
DJP-6	Emerg. Diesel Gen.. Engine Driven Air Coolant Pump	3
DJP-7	Engine Driven Cooling Water Pump (Right Side)	3
DJP-8	Engine Driven Cooling Water Pump (Left Side)	3
DLP-3	Emerg. Diesel Gen. Engine Driven Main Lube Oil Pump	3
DLP-4	Emerg. Diesel Gen. Engine Driven Main Lube Oil Pump	3
DLP-5	Emerg. Diesel Gen. Standby Oil Circ. Pump with Rel. Valve	3
DLP-6	Emerg. Diesel Gen. Standby Oil Circ. Pump with Rel. Valve	3
DLP-11	Engine Driven Piston Cooling Pump	3
DLP-12	Engine Driven Main Pressure Pump	3
DLP-13	AC Power Soakback Oil Pump	3
DLP-14	AC Power Circulating Oil Pump	3
DLP-15	Engine Driven Scavenging Pump	3
DLP-16	Gearbox Oil Pump	3
MUP-2A	MUP-1A Lube Oil Pump	2
MUP-2B	MUP-1B Lube Oil Pump	2
MUP-2C	MUP-1C Lube Oil Pump	2
MUP-3B	MUP-1B Lube Oil Pump	2
MUP-4A	MUP-1A Lube Oil Pump	2
MUP-4B	MUP-1B Lube Oil Pump	2
MUP-4C	MUP-1C Lube Oil Pump	2
MUP-5A	MUP-1A Lube Oil Pump	2

PUMP ID	PUMP DESCRIPTION	ASME CLASS
MUP-5B	MUP-1B Lube Oil Pump	2
MUP-5C	MUP-1C Lube Oil Pump	2

The operational readiness of the skid mounted pumps associated with the Emergency Diesel Generators is verified by the performance of one or more of the following surveillances:

- SP-300 Operating Daily Surveillance Log
- SP-349C EFP-3 and Valve Surveillance
- SP-354A Monthly Functional Test of the Emergency Diesel Generator EGDG-1A
- SP-354B Monthly Functional Test of the Emergency Diesel Generator EGDG-1B
- SP-457 Refueling Interval ECCS Response to a Safety Injection Test Signal

The operational readiness of the skid mounted pumps associated with the Make-up Pumps is verified by the performance of the following quarterly surveillances:

- SP-340C MUP-1A, MUP-1B, and Valve Surveillance
- SP-340F MUP-1C and Valve Surveillance

Additionally, operational readiness of these Make-up skid mounted pumps is verified on a refueling outage basis by the performance of SP-630, MUP/HPI Check Valves Full Flow Test.

The above skid mounted pumps are not included in the Crystal River 3 IST Program.

2.13 Maintenance Requiring/Not Requiring Surveillance Test

1) A pump may or may not require the surveillance procedures referenced in this manual as the required post-maintenance testing prior to being returned to service. Each instance will be evaluated separately to determine if surveillance procedure performance is required as the post-maintenance test. Typical maintenance activities that may require surveillance procedure performance as the post-maintenance test include the following:

    - Partial or complete disassembly of pump.
    - Disconnection of coupling.
    - Disassembly of pump suction or discharge piping
    - Disassembly of pump bearing housing and/or removal of bearing.
    - Replacement or readjustment of pump packing/seal.

    NOTE: Request for Engineering Assistance 93-1330 provides justification for not performing full hydraulic testing for RWP-2A/B or RWP-3A/B after replacement or adjustment of packing. Refer to Request for Engineering Assistance 93-1330 for required post maintenance testing. This is only applicable to the Vertical Wet Pit Nuclear Services and Decay Heat Sea Water System Pumps.

- Realignment.
- Balancing of pump.
- Replacement of pump.
- Changing of oil viscosity.

2) Typical activities not requiring post-maintenance pump testing include the following.

- Maintenance limited to the driver unless the coupling has been disconnected or the pump's bearings are located in the driver.
- Maintenance limited to any gear box, unless couplings have been disconnected or gears have been adjusted or replaced.
- Maintenance limited to support systems (lube oil coolers, cyclone separators, etc.).

2.14 Pump Fixed Reference Variance

NUREG-1482 Rev. 1, Section 5.3 recognizes that certain plant designs are not conducive to adjusting system resistance to obtain an exact fixed reference value. The staff has determined that, if establishing and maintaining flow at an exact value is not possible, achieving a steady flow rate or differential pressure at approximately the set value does not require relief for establishing pump curves.

When system design does not support setting flow rate at a specific reference value, an allowable tolerance shall be determined based on the applicable instrument precision. The allowable variance from the reference value will not exceed ± 2% without a corresponding adjustment to acceptance criteria or evaluation being performed to justify the greater variance.

Any adjustments to acceptance criteria or evaluations to increase the allowable tolerance must be documented in the inservice testing program documents.

2.15 Pump Speed

EFP-2, Turbine-Driven Emergency Feedwater Pump, is a variable speed turbine driven pump. During applicable surveillances, the pump speed will be adjusted to the reference speed.

Except for EFP-2, Turbine-Driven Emergency Feedwater Pump, the pumps tested by the Crystal River Unit 3 IST Program are directly coupled to a constant speed diesel or electric induction-type driver, and measurement of pump speed is not required by the Code.

2.16 Vibration Data for Chiller Water Pumps

There are no bearings physically in the pump, the bearings for these pumps are contained in the motor. Therefore the vibration data collected for the Chilled Water Pumps (CHP-1A and CHP-1B) will be obtained from the motor.

2.17 Minimum Design Basis Verification

Inservice Testing is intended to monitor degradation of components. The Code does not require that pumps be tested at design-basis conditions. The Code allows a specific percentage of degradation of pump hydraulic performance from an established reference value before action must be taken. At Crystal River Unit 3, if the minimum design performance as specified in the plant design documentation is more stringent than the Code acceptance criteria, then the test acceptance criteria shall be adjusted to avoid the actual pump performance being allowed to degrade below the minimum acceptable design performance. Reference calculation M-02-0002 "Minimum Allowable dP for ES Pump Performance".

2.18 Test Deviations Within the Required Action Range

Code, Paragraph ISTB 6200(b) allows that "if the measured test parameter values fall within the required action range of Table ISTB 5100-1, Table ISTB 5200-1, Table ISTB 5300-1 or Table ISTB 5300-2, as applicable, 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 in accordance with paragraph ISTB 6200(c)." This paragraph allows that: "In cases where the pump's test parameters are within either the alert or required action ranges of Table ISTB 5100-1, Table ISTB 15200-1, Table ISTB 5300-1 or Table ISTB 5300-2, as applicable, and the pump's continued use at the changed values is supported by an analysis, a new set of reference values may be established. This analysis shall include verification of the pump's operational readiness. The analysis shall include both a pump level and system level evaluation of operational readiness, the cause of the change in pump performance, and an evaluation of all trends indicated by available data. The results of this analysis shall be documented in the record of tests."

To use an analysis as described above, one must know the cause of the degradation, the rate of degradation, and the minimum allowed pump performance that will still satisfy the safety function of the pump in question.

Returning a pump to service by analysis should be done cautiously, rather than regularly, when evaluating pumps in the Required Action range. Repeated application of analysis could lead to "stair stepping" the Code action range limit downward to the safety limit of the pump. The available margin of pumps will be the determining factor in whether or not continued operation is acceptable. The analysis, which should include detailed justification and discussion of changes in the pump reference values, must be documented in accordance with Code requirements. If this provision is used for vibration, the absolute limits continue to apply, as these are not dependent on reference values. Additionally, caution must be taken when using the alternative for vibration, as there are no defined safety margins related to pump vibration.

2.19 Pump Table Information

The Pump Table contains the following information:

- Pump - pump identification number.
- Flow Diagram Coord - This identifies the flow diagram number, sheet, and coordinates to locate the pump.
- Pump Type - pump design type as identified by the following:
    - Centrifugal
    - Positive Displacement
    - Horizontal, Centrifugal, Single Stage
    - Horizontal, Centrifugal
    - Horizontal, Multistage, Centrifugal
    - Vertical Line Shaft
- Code Class - ASME Class 1, 2, or 3
- Pump Group – Group A, Group B, or AUG (Augmented)
- Test - Parameter required to be measured:
    - FL - Flow
    - Differential Pressure
    - Discharge Pressure
    - Vibration
    - Speed
- Freq - Frequency of test performance as identified by the following abbreviations:
    - Q Quarterly
    - RF Refueling
    - 2Y Biennial
- Procedure - Procedure in which test is performed.
- CSJ/ROJ/Notes - Cold Shutdown Justification/Refuel Outage Justification/Notes

IST Pump Table

System: Reactor Building Spray **System ID:** BS

Pump ID	Flow Diagram	Coord	Type	Class	Group	Test	Frequency	Procedure	RR/CSJ/ROJ/Notes
BSP-1A	711 sht 1	H-5	Centrifugal	2	B	CPT	2Y	TBD	
						DP	Q	SP-340B	
						FL	Q	SP-340B	
BSP-1B	711 sht 1	E-5	Centrifugal	2	B	CPT	2Y	TBD	
						DP	Q	SP-340E	RR 01
						FL	Q	SP-340E	

IST Pump Table

System: Chilled Water **System ID:** CH

Pump ID	Flow Diagram	Coord	Type	Class	Group	Test	Frequency	Procedure	RR/CSJ/ROJ/Notes
CHP-1A	756 sht 01	C-7	Centrifugal	3	A	CPT	2Y	TBD	
						DP	Q	SP-375A	RR 01
						FL	Q	SP-375A	
						V	Q	SP-375A	
CHP-1B	756 sht 01	E-7	Centrifugal	3	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-375B	RR 01
						FL	Q	SP-375B	
						V	Q	SP-375B	

IST Pump Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Pump ID	Flow Diagram	Coord	Type	Class	Group	Test	Frequency	Procedure	RR/CSJ/ROJ/Notes
DCP-1A	631 sht 1	D-3	Centrifugal	3	A	CPT	2Y	TBD	
						DP	Q	SP-340A	RR 01
						FL	Q	SP-340A	
						V	Q	SP-340A	
DCP-1B	631 sht 2	D-3	Centrifugal	3	A	CPT	2Y	TBD	
						DP	Q	SP-340D	RR 01
						FL	Q	SP-340D	
						V	Q	SP-340D	

IST Pump Table

System: Diesel Fuel Oil Transfer **System ID:** DF

Pump ID	Flow Diagram	Coord	Type	Class	Group				
DFP-1A	281 sht 1	E-3	Positive Displacement	3	AUG (B)	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						FL	Q	SP-311	
						S	Q	SP-311	
DFP-1B	281 sht 1	E-5	Positive Displacement	3	AUG (B)	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						FL	Q	SP-311	
						S	Q	SP-311	

IST Pump Table

System: Decay Heat Removal **System ID:** DH

Pump ID	Flow Diagram	Coord	Type	Class	Group				
DHP-1A	641 sht 01	G-4	Horizontal, Centrifugal	2	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-340B	
						FL	Q	SP-340B	
						V	Q	SP-340B	
DHP-1B	641 sht 01	G-6	Horizontal, Centrifugal	2	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-340B	
						FL	Q	SP-340B	
						V	Q	SP-340B	

IST Pump Table

System: Emergency Feedwater **System ID:** EF

Pump ID	Flow Diagram	Coord	Type	Class	Group				
EFP-1	082 sht 01	F-6	Centrifugal	3	AUG (B)	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-349A	
						FL	Q	SP-349A	
						V	Q	SP-349A	
EFP-2	082 sht 01	D-6	Centrifugal	3	B	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-349B	
						FL	Q	SP-640B	
						S	Q	SP-640B	
						V	Q	SP-349B	
EFP-3	082 sht 01	G-2	Centrifugal	3	B	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-349C	
						FL	Q	SP-349C	
						V	Q	SP-349C	

IST Pump Table

System: Make-up and Purification **System ID:** MU

Pump ID	Flow Diagram	Coord	Type	Class	Group				
MUP-1A	661 sht 4	F-6	Horizontal, Multi-Stage	2	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	SP-630	
						DP	Q	SP-430C	RR 01
						FL	Q	SP-430C	
						V	Q	SP-430C	
MUP-1B	661 sht 4	F-4	Horizontal, Multi-Stage	2	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	SP-630	
						DP	Q	SP-430C	RR 01
						FL	Q	SP-430C	
						V	Q	SP-430C	
MUP-1C	661 sht 4	F-1	Horizontal, Multi-Stage	2	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	SP-630	
						DP	Q	SP-430F	RR 01
						FL	Q	SP-430F	
						V	Q	SP-430F	

IST Pump Table

System: Nuclear Services and Decay Heat Sea Water **System ID:** RW

Pump ID	Flow Diagram	Coord	Type	Class	Group				
RWP-2A	611 sht 02	G-4	Vertical Line Shaft	3	B	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-344A	
						FL	Q	SP-344A	
RWP-2B	611 sht 02	G-6	Vertical Line Shaft	3	B	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-344B	
						FL	Q	SP-344B	
RWP-3A	611 sht 02	G-3	Vertical Line Shaft	3	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-340A	
						FL	Q	SP-340A	
						V	Q	SP-340A	
RWP-3B	611 sht 02	G-7	Vertical Line Shaft	3	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-340D	
						FL	Q	SP-340D	
						V	Q	SP-340D	

IST Pump Table

System: Spent Fuel Cooling **System ID:** SF

Pump ID	Flow Diagram	Coord	Type	Class	Group				
SFP-1A	621 sht 1	D-4	Centrifugal	3	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-334A	
						FL	Q	SP-334A	
						V	Q	SP-344A	
SFP-1B	621 sht 1	F-4	Centrifugal	3	A	**Test**	**Frequency**	**Procedure**	**RR/CSJ/ROJ/Notes**
						CPT	2Y	TBD	
						DP	Q	SP-344B	
						FL	Q	SP-344B	
						V	Q	SP-344B	

IST Pump Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Pump ID	Flow Diagram	Coord	Type	Class	Group	Test	Frequency	Procedure	RR/CSJ/ROJ/Notes
SWP-1A	601 sht 03	B-3	Centrifugal	3	B	CPT	2Y	TBD	
						DP	Q	SP-344A	
						FL	Q	SP-344A	
SWP-1B	601 sht 03	C-3	Centrifugal	3	B	Test	Frequency	Procedure	RR/CSJ/ROJ/Notes
						CPT	2Y	TBD	
						DP	Q	SP-344B	
						FL	Q	SP-344B	

4.0 VALVE TESTING

4.1 Scope

The Inservice Valve Testing Program includes valves, pressure relief devices, and their actuating and position indicating systems installed in ASME Class 1, 2 or 3 systems that are not exempt by Paragraph 4.2 below. The active and passive valves included are those which are required to perform a specific function to:

a) mitigate the consequences of an accident or,

b) place the reactor in a safe shutdown condition and/or in maintaining the safe shutdown condition. (Crystal River Unit 3's license defines safe shutdown as hot standby)

The pressure relief devices included are those required for protecting systems or portions of systems which perform a required function to:

a) mitigate the consequences of an accident or,

b) place the reactor in a safe shutdown condition and/or in maintaining the safe shutdown condition.

4.2 Exemptions

The following are exempt from requirements of this program provided that the valves are not required to perform a specific function as specified above:

a) Maintenance Valves - valves that are used only for system or component maintenance.

b) Operating Convenience Valves - valves used only for operating convenience, such as vent, drain, instrument, and test valves.

c) System Control Valves - valves used only for system control, such as pressure regulating, flow control, etc.

d) External Control and Protection Systems - valves in systems responsible for sensing plant conditions and providing signals for valve operation.

e) Relief Valves located in portions of safety related systems that are isolated or not required to function in mitigating the consequences of an accident or placing the plant in a safe shutdown condition.

4.3 Definitions

The following definitions are provided to ensure a uniform understanding of select terms associated with valve testing:

Exercising: the demonstration, based on direct visual or indirect positive indication, that the moving parts of a valve function.

Full-Stroke Time: the time interval from the initiation of the actuating signal to the indication of the end of the operating stroke (switch to light).

Power-Operated Relief Valve (PORV): a power-operated valve that can perform a pressure-relieving function and is remotely actuated by either a signal from a pressure-sensing device or a control switch. A power-operated relief valve is not capacity certified under ASME Section III overpressure protection requirements.

Rapid Acting: Valves with a stroke time of 2 seconds or less.

Reactor Coolant System Pressure Isolation: that function that prevents intersystem overpressurization between the reactor coolant system and connected low pressure systems.

Remote Position Indication Verification: verification that position indication devices, remote from the valve, indicate proper valve position.

Valve, Category A: valves for which seat leakage, in the closed position, is limited to a specific maximum amount for fulfillment of their required safety function(s).

Valve, Category B: valves for which seat leakage, in the closed position, is inconsequential for fulfillment of their required safety function(s).

Valve, Category C: valves which are self-actuating in response to some system characteristic such as pressure (relief valves) or flow direction (check valves) for fulfillment of their required safety function(s).

Valve, Category D: valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosively actuated valves.

4.4 General Program Requirements

Preservice and inservice valve tests shall be conducted in accordance with ASME OMb Code-2003 Addenda to ASME OM Code-2001 Code for Operation and Maintenance of Nuclear Power Plants, Subsections ISTA, ISTC, Mandatory Appendix I, and Mandatory Appendix II unless specific relief is granted by the Nuclear Regulatory Commission.

4.4.1 Preservice Testing

Each new valve shall be tested during the preservice test period as required by the provisions of ISTC (see Table 1, Section 4.4.2). These tests shall be conducted under conditions as near as practicable to those expected during subsequent inservice testing.

4.4.2 Inservice Testing

Inservice testing of active and passive valves shall be performed in accordance with ISTC as specified in Table 1 below:

TABLE 1
INSERVICE TEST REQUIREMENTS

Category	Valve Function	Leakage Test Procedure and Frequency.	Exercise Test Procedure and Frequency.	Special Test Procedure [Note 1]	Position Indication Verification and Frequency.
A	Active	ISTC-3600	ISTC-3510	None	ISTC-3700
A	Passive	ISTC-3600	None	None	ISTC-3700
B	Active	None	ISTC-3510	None	ISTC-3700
B	Passive	None	None	None	ISTC-3700
C (Safety and Relief) [Note 3]	Active	None [Notes 2&3]	ISTC-5230, ISTC-5240	None	ISTC-3700
C (Check) [Note 4]	Active	None [Note 3]	Appendix II	None	Appendix II
D	Active	None [Note 3]	None	ISTC-5250, ISTC-5260	None

NOTES:
(1) Note additional requirement for fail-safe valves, ISTC-3500.
(2) Leak test as required for Appendix I (OM-1)
(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.

Inservice valve exercise tests shall be conducted nominally every three months during normal plant operation except as provided below:

a) If practicable, active Category A and B valves shall be full-stroke exercised during plant operation to the position(s) required to fulfill their safety function(s).

b) 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 shutdowns.

c) If exercising is not practicable during plant operation, it may be limited to full-stroke exercising at cold shutdowns

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

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

f) Valves full-stroke exercised at cold shutdowns shall be exercised during each cold shutdown, except as specified in (g) below. Such exercise is not required if the time period since the previous full-stroke exercise is less than 3 months.

g) Valve exercising 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. If an outage is planed for a duration sufficient to allow testing of all valves required to be tested during cold shutdown, then the 48 hour requirement need not apply, provided all valves are tested prior to plant startup.

h) All valve testing required to be performed during a refueling outage shall be completed prior to returning the plant to operation.

i) Valves which operate in the course of operation at a frequency which would satisfy the exercising requirements of this Section need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during such operation and are recorded at intervals as specified in this Section.

j) For a valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed. Within 3 months prior to placing the system in an operable status, the valves shall be exercised and the schedule resumed in accordance with the requirements of this Section.

k) Manual valves shall be full-stroke exercised at least once every 2 years, except where adverse conditions (e.g. harsh service environment, lubricant hardening, corrosive or sediment-laden process fluid, or degraded valve components) may require the valve to be tested more frequently to ensure operational readiness. Any increased testing frequency shall be specified in the Valve Tables. The manual valves shall exhibit the required change of obturator position.

Crystal River Unit 3 Improved Technical Specifications, Surveillance Requirement 3.0.2, specifies the frequency for each surveillance is met if the surveillance is performed within 1.25

times the interval specified as measured from the previous surveillance performance. This 25% extension will not be used to permanently extend specified test intervals.

4.5 Specific Testing Requirements

The IST Plan Valve Tables identify the valves included in the Crystal River 3 IST Program, the inservice test parameters to be measured, the test requirements, the test frequencies, references to cold shutdown justifications, refueling outage justifications, valve relief requests, and other pertinent information. Specific test requirements and technical positions are presented in this section of the Manual

4.5.1 Cold Shutdown Testing

For those valves designated to be tested at cold shutdown, testing will commence as soon as practicable after the plant reaches a stable cold shutdown condition as defined in Technical Specifications, but no later than 48 hours after reaching cold shutdown. Valves tested at a cold shutdown frequency may also include valves tested while decreasing power to cold shutdown or while increasing power to steady state power operation. If an outage is planed for a duration sufficient to allow testing of all valves required to be tested during cold shutdown, then the 48 hour requirement need not apply, provided all valves are tested prior to plant startup. Valve testing will not necessarily be performed more often than once every three months; however, during extended periods of cold shutdown, testing will be performed quarterly. Completion of all valve testing during a cold shutdown outage will not be required if plant conditions preclude testing of specific valves or if the cold shutdown duration is insufficient to complete all testing provided testing commenced within 48 hours of reaching cold shutdown. Testing not completed before startup will be completed during subsequent cold shutdown outages in sequence such that scheduled testing does not omit or favor certain valves or groups of valves. All valves tested during cold shutdown shall also be tested before startup from refueling outages, unless testing has been completed within the previous 92 days. If an outage lasts beyond 92 days, all cold shutdown testing shall be completed within the last 92 days of the shutdown. The deferral of quarterly valve testing to a cold shutdown frequency shall be documented in a cold shutdown justification (CSJ). Additional restrictions may be applied as stated in specific cold shutdown justifications or relief requests. (NUREG-1482 Rev. 1, 3.1.1)

4.5.2 Refueling Outage Testing

Refueling Outage refers to a scheduled refueling outage at the end of an operating cycle. This definition should not be confused with the Technical Specification definition of "Refuel" (Mode 6). During a mid-cycle outage the plant may be placed in Mode 6, however this does not constitute a refueling outage for the purpose of inservice testing. The deferral of quarterly valve testing to a refueling outage frequency shall be documented in a refueling outage justification (ROJ). Additional restrictions may be applied as stated in specific refueling outage justifications or relief requests (NUREG-1482 Rev. 1, section 3.1.1). Pursuant to ISTC-3510, power-operated relief valves shall be exercise tested once per fuel cycle. No deferred testing justification is included in the program for this testing frequency.

4.5.3 Reference Values

Stroke time reference values are determined from the results of preservice or inservice tests. Reference values will be reestablished following valve replacement. Reference values will only be established when the valve is known to be operating properly.

When any reference value may have been affected by repair or routine servicing of a valve or its control system, a new reference value shall be determined, or the previous values(s) reconfirmed by an inservice test run prior to declaring the valve operable.

Reference values are required for each direction of valve travel requiring stroke time testing as listed in the IST Plan Valve Tables (i.e., STO and/or STC).

Valves may be tested at more than one mode of plant operation or system operating conditions (i.e., static or dynamic). Additional reference values must be established for these points in accordance with Code requirements. Whenever an additional reference value is established, the reasons for doing so shall be documented in the record of tests.

4.5.4 Stroke Time Acceptance Criteria

The following criteria have been used in developing reference values of full-stroke time for power operated valves (POVs):

- Review of valve design specification and/or manufacturers test stroke times.
- Review of system response time requirements (Improved Technical Specification, UFSAR, etc.)
- Valve historical stroke time values at various system conditions.

Code Paragraphs ISTC-5114, ISTC-5122, ISTC-5132, ISTC-5142 and ISTC-5152 are used for acceptability of stroke time test results. Should the plus or minus criteria be less restrictive than a required system or component response time from any source, the more restrictive time shall be used as the limiting value.

Any abnormality or erratic action shall be recorded, and an evaluation shall be made regarding need for corrective action.

4.5.5 Limiting Values of Full-Stroke Times

Where stroke time measurement of power-operated valves is required, the limiting values of full-stroke times are based on the valve's reference or average stroke time when it is known to be in good condition and operating properly. Crystal River Unit 3 Design Basis Document, Improved Technical Specifications, Final Safety Analysis Report or other applicable accident analyses

stroke time limits will be used in lieu of the calculated limiting values of full-stroke time if they are more restrictive.

The limiting value of full-stroke time will be established based upon the more limiting value of A) or B) as determined below: (RV = Reference Value)

A)	Actuator Type	Reference Value	Limiting Stroke Time
	Motor	RV > 10 seconds	RV ± 15%
		RV ≤ 10 seconds	RV ± max of 25% or 1 second
	Other	RV > 10 seconds	RV ± 25%
		RV ≤ 10 seconds	RV ± 50%
	All	RV < 2 seconds	2 seconds

B) The limiting value design basis stroke time as presented in the Crystal River Unit 3 Design Basis Document, Technical Specifications, Final Safety Analysis Report or other applicable accident analyses.

In addition, stroke time acceptance criteria are assigned to each valve in accordance with the Code based on valve actuator type and reference stroke times.

4.5.6 Valve Exercising Requirements

Power Operated valves within the scope of the IST Program will be stroke time tested in accordance with ISTC-5100. For these valves, the stroke timing also satisfies ISTC-3520 requirements for exercising the valve and additional testing need not be performed. Exercise testing is therefore not listed in the valve tables as a separate test.

4.5.7 Valve Fail-Safe Testing

Valves within the scope of the IST Program which are equipped with fail-safe actuators will be tested by observing that the valve goes to its fail-safe position upon loss of actuator power. Those valves which have the actuator power removed during exercising via a control switch need not be additionally tested. A satisfactory exercise of the valve obturator to its fail-safe position via the control switch satisfies the fail-safe test requirement.

4.5.8 Valve or Actuator Replacement, Repair, or Maintenance

When a valve or its control system has been replaced, repaired, or has undergone maintenance that could affect the valve's performance, a new reference value shall be determined or the previous reference value. This is accomplished by an inservice test or post maintenance test prior to the time it is returned to service or immediately if not removed from service. This test is to demonstrate the performance parameters that could have been affected by the replacement, repair, or maintenance are within acceptable limits. Deviations between the previous and new reference values shall be identified and analyzed. The difference between post maintenance

stroke time and the previous reference value will be evaluated to determine if the new stroke time is consistent with the maintenance activity performed. If the new stroke time is found to be consistent with the changes to the valve, a new reference value will be established. New reference values shall only be established following the installation and acceptable post-maintenance testing of the valve. Historical test results are not to be used to establish new reference values for valves that rotated in and out of the plant from cycle to cycle. If the changes in stroke times are inconsistent with the maintenance performed, the Inservice Testing Program Manager may elect to perform additional evaluations or testing prior to changing the reference value. Verification that new values represent acceptable operation shall be documented by Crystal River Unit 3 procedure CP-102, IST Pump and Valve Data Review.

- Maintenance performed on a valve that could affect the obturator's ability to move to the position required for fulfillment of the valves safety function require that an inservice test or post maintenance test be performed to demonstrate obturator movement capability has not been affected.

- Maintenance performed on a valve that could affect position indication of the valve obturator requires that an inservice or post maintenance test be performed to verify obturator position is accurately indicated.

- Maintenance performed on Category A valves that could affect seat leakage characteristics shall be followed by an inservice test or a post maintenance test to insure valve seat leakage is within acceptable limits. Category A valves which are also Containment Isolation Valves tested in accordance with the Crystal River Unit 3 10CFR50 Appendix J - Option B Program, shall have an "as-found" leakage test performed prior to any maintenance which could affect the valve's seat leakage characteristics.

- Refurbishment of safety and relief valves shall be followed by tests as delineated in Code Appendix I, Paragraph I-3400. During scheduled surveillance testing of safety and relief valves included in this program, an "as found" test must be performed prior to any maintenance, adjustment, disassembly, or other activity which could affect "as found" set pressure or seat tightness. If the extent of disassembly of the valve includes main disk components, then valve disk stroke capability shall be verified by mechanical inspection or tests.

4.5.9 Maintenance Requiring/Not Requiring Surveillance Test

A valve may or may not require the referenced surveillance procedure to be performed as the required post-maintenance test prior to being returned to normal service following maintenance. The Equipment Performance, Inservice Testing Engineer should be contacted if assistance is needed in making a determination.

1) Typical maintenance activities requiring the surveillance procedure (or equivalent post maintenance test) performance as post-maintenance testing include:

- Removal/replacement;
- Disassembly/rebuild (e.g., removal of bonnet assembly, stem, etc.);
- Disconnection/removal of power operator (air or electric);
- Limit switch or torque switch adjustment;
- Packing adjustment/replacement.
- Adjustment, replacement, or repair of control system components;
- In general, any maintenance activity that could affect valve operating, leakage or position indication functions.

2) Typical activities not requiring performance of the surveillance procedure as a post-maintenance valve test include the following:

- Removal/replacement of valve handwheel;
- Those minor maintenance activities, such as fuse replacement or tightening an air line fitting, or when adequate post-maintenance test requirements are included in the work package instructions to verify proper valve operation;
- In general, any maintenance activity that will not affect valve operating, leakage, set point, or position indication functions.

4.5.10 Containment Isolation Valves

Category A Valves, which are containment isolation valves, shall have seat leakage testing performed in accordance with 10CFR50, Appendix J per ISTC-3620. Crystal River Unit 3 has amended the Crystal River Unit 3 Technical Specifications on containment isolation valve testing so that Crystal River Unit 3 can implement Option B of 10CFR50 Appendix J.

The valves that close to isolate Containment, but are exempt from leak rate testing per the 10CFR50 Appendix J guidance, still have a safety function to close. Although there is no specific leak rate criteria applied, these valves still have to functionally close. In general, a system which penetrates containment has an important role to play in the overall operation of the plant. Some perform a safety function in a pre/post loss of coolant accident manner while others are important to the overall operation of the plant. In either case, however, the requirement to perform a containment isolation function is the same. Containment isolation is always considered to be a safety function; it is just a matter of when the isolation function needs to be performed.

In general, the Crystal River Unit 3 Containment Leakage Rate Testing Program verifies the Containment structure is isolated following a loss of coolant accident. In the Crystal River Unit 3 Containment Leakage Rate Testing Program, this is referred to as Containment Isolation.

A valve in a system with an open safety function during a loss of coolant accident is exempted from leak rate testing in accordance with the Crystal River Unit 3 Containment Leakage Rate Testing Program. The open safety function has a higher priority than the containment isolation function. As long as the system is able to provide its safety function, it should not be closed for containment isolation. However, if the system is not able to perform its safety function, then containment isolation becomes the priority. This containment isolation is beyond the scope of the Crystal River Unit 3 Containment Leakage Rate Testing Program. This is considered a closed safety function for the valve in the Crystal River Unit 3 Inservice Testing Program. In the Crystal River Unit 3 Inservice Testing Program, this is also referred to as Containment Isolation. These valves have no specified leak rate, so they are not categorized as A or AC valves, but they are tested in the closed position as category B or C valves.

4.5.11 Pressure Isolation Valves

The only pressure isolation valves included in this program for seat leakage testing are those identified under an Event-V evaluation required by the Reactor Safety Study, WASH-1400. These valves are listed along with their allowable leakage criteria in Crystal River Unit 3 Improved Technical Specification Limiting Condition for Operation 3.4.13 and associated Bases and are tested in accordance with Surveillance Requirement 3.4.13.1. These Pressure Isolation Valves are individually leak rate tested, leakage rates adjusted to "function maximum pressure differential" and corrective actions taken as required by ISTC-3630(f).

4.5.12 Valve Position Indication Verification

Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated. If it is determined that 90 to 95% of valve travel is the position required for the valve to perform its function, indication of this range of travel is acceptable. Where practicable, this local observation should be supplemented by other indications such as leakage, pressure, and flow or other suitable instrumentation to verify obturator position. These observations need not be concurrent. Where local observation is not possible, other indications shall be used for verification of valve operation. Position indication verification is only required by the Code for those indicator(s) used during the exercise test and stroke timing. The Code requires valve position indication verification for all Category A and B passive valves. The valve position indication verification requirements must be met, even for valves in systems out of service.

4.5.13 Instrumentation Requirements

Instrumentation accuracy shall be considered when establishing valve test acceptance criteria per ISTC-3800.

4.5.14 Active/Passive Valves

The determination of whether a valve has an active or passive safety function is based upon the normal valve position as specified in the related operating instructions or procedures under normal plant (power) operational modes as compared with the required post-accident valve positions. For the purpose of IST, active valves are defined as those which may be required to change obturator position to accomplish their required safety function(s). There is no account for inadvertent valve mispositioning.

Passive valves are defined as those which are not required to change obturator position to accomplish any required safety function(s). Valves that are locked, sealed, or de-energized in their required position are passive. Valves that are not periodically repositioned and whose normal position is the required safety position are considered passive. Valves that are only occasionally repositioned from their safety position to support the performance of surveillance procedures or infrequent operations, and are administratively controlled while out of their safety position, are also considered passive.

A valve may be classified as having both a passive and active function if repositioning of the valve to its normal position would not be required after the valve has traveled to its active safety position. The valve would be considered as performing a passive safety function in it's normal position.

4.5.15 Power Operated Relief Valve (PORV) Testing

Crystal River 3 has one PORV, the Pressurizer PORV, included within the scope of the IST Program. Historically, the Pressurizer PORV was tested on a cold shutdown frequency. Pursuant to ISTC-3510, "Exercise Test Frequency," power operated relief valves shall be exercise tested once per fuel cycle. The current fuel cycles at Crystal River 3 are of twenty-four (24) month duration. In addition to the frequency requirements specified in ISTC-3510, the specific testing requirements stated in ISTC-5100 must also be considered.

ISTC-5100 contains six subparagraphs ISTC-5110, 5111, 5112, 5113, 5114 and 5115.

ISTC-5110, "Power Operated Relief Valves," specifies that power operated relief valves shall meet the requirements of ISTC-5100 for the specific Category B valve type and ISTC-5240 for Category C valves. ISTC-5240 specifies that safety and relief valves shall meet the inservice test requirements of Mandatory Appendix I.

ISTC-5111, 'Valve Testing Requirements," states:

a) testing shall be performed in the following sequence or concurrently. If testing in the following sequence is impractical, it may be performed out of sequence, and a justification shall be documented in the record of tests for each test or test plan:
    1) leakage testing;
    2) stroke testing;
    3) position indication testing

b) The pressure sensing device shall be calibrated in accordance with the Owner's quality assurance program.

ISTC-5112, "Leak Testing," states that seat tightness of the PORV shall be verified by leak testing in accordance with the requirements of Mandatory Appendix I.

ISTC-5113, 'Valve Stroke Testing," provides the guidelines for stroke testing power operated relief valves and is considered applicable to the Category B valve type.

ISTC-5114, "Stroke Time Acceptance Criteria," provides acceptance criteria to be applied when stroke timing power operated relief valves. The criteria are based on the valve's reference stroke time. These criteria are applicable to the Category B valve type.

ISTC-5115, "Corrective Action," provided the guidelines to be applied when a power operated relief valve fails to meet the applicable acceptance criteria. The corrective action guidelines are applicable to both seat leakage testing and stroke testing.

It is the position of Crystal River 3 that the leakage testing requirements as well as the sequential test requirements imposed on power operated relief valves, by ISTC-5111 and ISTC-5112, are applicable only if the valves are of the Category C type. These requirements are consistent with those presented in Mandatory Appendix I, which provides the guidelines for testing pressure relief devices. The Crystal River Pressurizer PORV is of the Category B valve type where seat leakage in the closed position is inconsequential for fulfillment of the required function(s). Furthermore, this is consistent with the NRC recommendations provided in NUREG-1482 Rev. 1, Section 4.2.10, "Pressurizer Power Operated Relief Valve Inservice Testing." Additionally, the NRC recommendations provided in NUREG-1482 Rev. 1 are consistent with earlier guidelines provided in NRC Generic Letter 90-06, "Resolution of Generic Issue 70, Power Operated Relief Valve and Block Valve Reliability," and Generic Safety Issue 94, "Additional Low-Temperature Overpressure Protection for Light Water Reactors."

The Crystal River 3 IST Program will follow all the test requirements for Category B valves set forth In ISTC-5100. The seat leakage and sequential test requirements specified in ISTC-5111 and ISTC-5112 are considered not applicable to Category B valves. Testing shall be performed at the frequency specified in ISTC-3510.

4.5.16 Check Valve Condition Monitoring Program

As an alternative to the testing or examination requirements of ISTC-3510, ISTC-3520, ISTC-3550, and ISTC-5221, Crystal River 3 shall establish a check valve condition monitoring program per ISTC-5222 and implement the program in accordance with OMb Code-2003 Appendix II "Check Valve Condition Monitoring Program."

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

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

Valves included in the Check Valve Condition Monitoring Program (CVCM) will be identified in the "Comments" column of the Valve Tables. The Code testing specified in the Tables is replaced by the activities/tests identified in the specific CVCM Plan.

4.5.17 Manual Valves

Manual valves within the scope of IST that perform an active safety function shall be exercised at least once every 2 years as required by 10 CFR 50.55a(b)(3)(vi).

4.5.18 Control Valves

Control valves are specifically excluded from testing per ISTC-1200(b) provided they are used only for system control (e.g. pressure regulating valves). If a valve must change position to perform a safety function and is operated by an external power source (air, hydraulic, electric, etc.), or has a required safety related fail safe position, then it is designated as Category A or B and stroke tested accordingly.

4.5.19 Skid-Mounted Valves

ISTC-1200 allows skid-mounted valves that are tested as part of the major component to be excluded from the Code IST requirements provided the valves are justified to be adequately tested. An example of skid-mounted valves tested as part of a major component and exempted from the IST Program are the Emergency Diesel Generator support systems where testing of the Emergency Diesel Generator provides adequate assurance of the valves proper operation. Documentation of this position is provided in Section 1.5.8 and the Section 5 Valve Tables of this Program Manual as recommended by NUREG 1482 Rev. 1, Section 3.4.

4.5.20 Valves with Both Open and Closed Safety Functions

Where a valve performs a safety function in both directions (open and closed) exercising in both directions is required. If the valve is a power-operated valve, stroke time measurements in both directions are also required.

4.5.21 Relief Valve Testing

The pressure relief devices addressed in this program are those for protecting systems or portions of systems which perform a required function in shutting down a reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident.

ISTC-5240 requires safety and relief valves to be tested in accordance with Mandatory Appendix I. If the "as found" lift set point of a valve is out-of-tolerance, then two additional valves from the same sample group shall be tested. If any of these additional valves fail to meet the set point acceptance criteria, then all valves in that sample group shall be tested. Relief valve sample groups shall contain only valves of the same manufacturer, type, system application, and service media. All test failures shall be evaluated for generic concerns; however, additional testing of valves outside the sample group shall not be required unless the evaluation determines that the operability of other valves may be in question.

Tests shall be performed on all Class 2 and 3 relief devices used in a thermal relief application every 10 years, unless performance data indicate more frequent testing is necessary. In lieu of tests the thermal relief devices may be replaced at a frequency of every 10 years, unless performance data indicate more frequent replacements are necessary. Thermal relief devices are exempt from the grouping and sample testing requirements of Appendix I.

If a check valve used as 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.

4.5.22 Vacuum Breaker Testing

Vacuum breakers shall meet the applicable inservice test requirements of Appendix I and Appendix II, as applicable.

4.6 Valve Table Information

The Valve Table contains the following information:

- Valve - valve identification number
- Flow Diagram Coord - This identifies the flow diagram number, sheet, and coordinates to locate the valve.
- Size - size of the valve in inches
- Type - valve design type as identified by the following abbreviations:

ANG	Angle	PORV	Power operated relief
BF	Butterfly	RD	Rupture disc
BL	Ball	REL	Relief
CK	Check	SCK	Stop check
DA	Diaphragm	SPC	Special design
GA	Gate	3-Way	3-Way
GL	Globe		

- Actuator - Type of actuator as identified by the following abbreviations:

A	Air	SA	Self-Actuated
M	Manual	SO	Solenoid Operator
MO	Motor Operator	SP	Special
PV	Pilot Valve		

- Class - ASME Class 1, 2, 3, or 4

- Cat - ASME Category A, B, C, D, AC, or AUG (Augmented)

- Active – Yes or No

- Normal Position - Position of valve during normal operation as identified by the following abbreviations:

C	Closed
O	Open
T	Throttled
L	Locked
S	Sealed

- Safety Position - Valve position required to satisfy a safety function.

O	Open
C	Closed
O/C	Open and Closed

- Test - Required test as identified by the following abbreviations:

CVCM	Check valve Condition Monitoring Program	PIT	Position indication test
		RV	Relief valve setpoint test
EXO	Exercise test open	LJ	10CFR50 Appendix J leak test
EXC	Exercise test closed	LT	Category A seat leakage test
STO	Stroke time open	PS	Partial stroke test
STC	Stroke time closed	RD	Rupture disc test
FSTO	Failsafe test open	RV	Relief valve test
FSTC	Failsafe test closed	TR	Thermal relief valve test

- Freq - Frequency of test performance as identified by the following abbreviations:

B	10CFR50 Appendix J Option B frequency	2Y	2 Year
Q	Quarterly	5Y	5 Year
QR	Quarterly Rotating frequency	10Y	10 Year
CS	Cold Shutdown	SAM	Sample Plan
RF	Refueling		

- Procedure - Procedure in which test is performed.
- CSJ/ROJ/Notes - Cold Shutdown Justification/Refuel Outage Justification/Notes/Skid

IST Valve Table

System: Air Handling **System ID:** AH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
AHV-001A	751 sht 1	B-4	48	BF	A	2	A	Yes	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 01	
					LJ	B	SP-177			
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 01	
AHV-001B	751 sht 1	C-4	48	BF	MO	2	A	Yes	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-177			
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 01	
AHV-001C	751 sht 1	F-4	48	BF	MO	2	A	Yes	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-177			
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 01	
AHV-001D	751 sht 1	G-4	48	BF	A	2	A	Yes	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 01	
					LJ	B	SP-177			
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 01	

IST Valve Table

System: Auxiliary Steam **System ID:** AS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
ASV-005	051 sht 1	E-8	4	GA	MO	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-349B			
					STO	Q	SP-349B			
ASV-023	051 sht 1	D-8	5	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
ASV-050	051 sht 1	F-7	4	SPC	SP	3	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	Q	SP-349B			
					EXO	Q	SP-349B			
					FSTC	Q	SP-349B			
ASV-204	051 sht 1	E-8	4	GA	MO	3	B	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y				
					STO	Q				

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-001	711 sht 1	H-8	10	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
BSV-002	711 sht 1	G-4	6	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
BSV-003	711 sht 1	G-3	8	GL	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340B			
					STC	Q	SP-340B			
					STO	Q	SP-340B			
BSV-004	711 sht 1	E-3	8	GL	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340E			
					STC	Q	SP-340E			
					STO	Q	SP-340E			
BSV-005	711 sht 1	G-3	4	GA	M	2	B	No	SC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
BSV-006	711 sht 1	H-3	4	GA	M	2	B	No	SC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
BSV-007	711 sht 1	E-4	6	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-008	711 sht 1	F-8	10	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-011	711 sht 1	D-7	4	GA	MO	2	B	No	SC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-012	711 sht 1	D-7	4	GA	MO	2	B	No	SC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-016	711 sht 1	F-8	10	GA	MO	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-435			
BSV-017	711 sht 1	H-8	10	GA	MO	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-435			
BSV-026	711 sht 1	E-2	8	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-027	711 sht 1	G-2	8	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-036	711 sht 1	D-4	4	GA	MO	2	B	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-037	711 sht 1	D-5	4	GA	MO	2	B	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-105	712 sht 1	A-3	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-107	712 sht 1	B-3	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-109	712 sht 1	D-3	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-111	712 sht 1	F-3	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-113	712 sht 1	A-5	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-115	712 sht 1	B-5	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-117	712 sht 1	D-5	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-119	712 sht 1	F-5	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-121	712 sht 1	A-7	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-123	712 sht 1	B-7	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-125	712 sht 1	D-7	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-127	712 sht 1	F-7	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-130	712 sht 1	B-4	2	GA	M	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-131	712 sht 1	B-6	2	GA	M	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-132	712 sht 1	C-9	1	GA	M	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-136	712 sht 1	B-10	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-137	712 sht 1	A-3	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-138	712 sht 1	A-5	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-139	712 sht 1	A-7	0.5	CK	SA	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
BSV-147	712 sht 1	B-1	1	GA	M	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-181	712 sht 1	A-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-182	712 sht 1	A-3	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-184	712 sht 1	B-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-185	712 sht 1	B-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-187	712 sht 1	C-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-188	712 sht 1	C-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-190	712 sht 1	E-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-191	712 sht 1	E-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-193	712 sht 1	F-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-194	712 sht 1	F-2	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-196	712 sht 1	A-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-197	712 sht 1	A-5	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-199	712 sht 1	B-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-200	712 sht 1	B-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-202	712 sht 1	C-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-203	712 sht 1	C-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-205	712 sht 1	E-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-206	712 sht 1	E-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-208	712 sht 1	F-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-209	712 sht 1	F-4	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-211	712 sht 1	A-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-212	712 sht 1	A-7	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-214	712 sht 1	B-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-215	712 sht 1	B-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-217	712 sht 1	C-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-218	712 sht 1	C-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-220	712 sht 1	E-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-221	712 sht 1	E-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-223	712 sht 1	F-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-224	712 sht 1	F-6	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-226	712 sht 1	B-9	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-227	712 sht 1	B-9	0.25	GA	M	2	B	No	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-229	712 sht 1	C-2	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-230	712 sht 1	F-2	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-231	712 sht 1	C-4	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-232	712 sht 1	F-4	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-233	712 sht 1	C-6	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-234	712 sht 1	F-6	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-235	712 sht 1	B-9	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-242	712 sht 1	B-2	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-243	712 sht 1	A-2	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-244	712 sht 1	B-4	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-245	712 sht 1	A-4	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Reactor Building Spray **System ID:** BS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
BSV-246	712 sht 1	B-6	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-247	712 sht 1	A-6	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-248	712 sht 1	D-2	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-249	712 sht 1	D-4	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
BSV-250	712 sht 1	D-6	0.25	GA	M	2	B	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Chemical Addition, Liquid Sampling, and Post Accident Sampling **System ID:** CA

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CARS-1	700 sht 01	D-3	0.5	RD	SA	2	D	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RD	5Y	SP-602			
CARS-2	700 sht 01	D-3	0.5	RD	SA	2	D	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RD	5Y	SP-602			
CARS-3	672 sht 01	B-5	0.5	RD	SA	2	D	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RD	5Y	SP-602			
CAV-001	672 sht 01	B-3	1	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CAV-002	672 sht 01	A-4	1	GL	SO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
					STC	Q	SP-370			
CAV-003	672 sht 01	B-3	1	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Chemical Addition, Liquid Sampling, and Post Accident Sampling **System ID:** CA

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CAV-004	672 sht 01	C-3	1	GL	MO	2	A	Yes	T	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CAV-005	672 sht 01	D-3	1	GL	MO	2	A	Yes	T	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CAV-006	672 sht 01	C-4	1	GL	A	2	A	Yes	T	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CAV-007	672 sht 01	D-4	1	GL	A	2	A	Yes	T	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Chemical Addition, Liquid Sampling, and Post Accident Sampling **System ID:** CA

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CAV-126	672 sht 01	A-3	1	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CAV-429	700 sht 01	C-2	0.375	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
CAV-430	700 sht 01	C-2	0.375	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
CAV-431	700 sht 01	B-3	0.375	GL	SO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
					STC	Q	SP-370			
CAV-432	700 sht 01	C-3	0.375	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			

IST Valve Table

System: Chemical Addition, Liquid Sampling, and Post Accident Sampling **System ID:** CA

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CAV-433	700 sht 01	D-2	0.375	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
CAV-434	700 sht 01	E-2	0.375	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
CAV-435	700 sht 01	E-3	0.375	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
CAV-436	700 sht 01	E-3	0.375	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
CAV-752	672 sht 01	B-4	0.50 x	REL	SA	2	AC	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					RV	10Y	SP-602			
CAV-753	672 sht 01	D-4	0.50 x	REL	SA	2	AC	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					RV	10Y	SP-602			

IST Valve Table

System: Condensate **System ID:** CD

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CDV-257	082 sht 02	C-7	6	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Core Flood **System ID:** CF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CFV-001	702 sht 01	H-5	14	CK	SA	1	AC	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
CFV-002	702 sht 01	H-4	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
CFV-003	702 sht 01	H-6	14	CK	SA	1	AC	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
CFV-004	702 sht 01	H-7	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
CFV-005	702 sht 01	G-4	14	GA	MO	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-405/610			
CFV-006	702 sht 01	G-8	14	GA	MO	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-405/610			
CFV-011	702 sht 01	D-5	1	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Core Flood **System ID:** CF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CFV-012	702 sht 01	D-6	1	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CFV-015	702 sht 01	B-7	1	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CFV-016	702 sht 01	B-4	1	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CFV-017	702 sht 01	B-9	1	CK	SA	2	AC	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
CFV-018	702 sht 01	B-9	1	CK	SA	2	AC	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
CFV-019	702 sht 01	B-3	1	CK	SA	2	AC	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Core Flood **System ID:** CF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CFV-020	702 sht 01	B-2	1	CK	SA	2	AC	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
CFV-023	702 sht 01	B-8	1 x 2	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
CFV-024	702 sht 01	B-4	1 x 2	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
CFV-025	702 sht 01	A-2	1	GL	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CFV-026	702 sht 01	A-9	1	GL	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CFV-027	702 sht 01	B-10	1	GL	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Core Flood **System ID:** CF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CFV-028	702 sht 01	B-1	1	GL	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CFV-029	702 sht 01	A-6	1.5	GL	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CFV-042	702 sht 01	E-6	1	GL	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CFV-084	702 sht 01	E-5	0.50 x	REL	SA	2	AC	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					TR	10Y				

IST Valve Table

System: Chemical Cleaning Steam Generators **System ID:** CG

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CGV-001	192 sht 1	D-3	3	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CGV-017	192 sht 1	A-5	2.5	GA	M	2	B	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CGV-018	192 sht 1	F-5	2.5	GA	M	2	B	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CGV-035	011 sht 1	F-4	1.5	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CGV-036	011 sht 1	D-4	1.5	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CGV-037	011 sht 1	C-4	1.5	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CGV-038	011 sht 1	A-4	1.5	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Chilled Water **System ID:** CH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CHV-001	756 sht 01	D-2	6	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-002	756 sht 01	D-4	6	GA	M	3	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y				
					EXO	2Y				
CHV-003	756 sht 01	D-4	6	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-004	756 sht 01	D-3	6	GA	M	3	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y				
					EXO	2Y				
CHV-009	756 sht 01	C-6	1	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-010	756 sht 01	C-7	1	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-012	756 sht 01	C-6	6	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Chilled Water **System ID:** CH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CHV-013	756 sht 01	C-7	6	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-014	756 sht 01	D-6	6	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-019	756 sht 01	B-9	0.75	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-025	756 sht 01	E-6	6	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-026	756 sht 01	E-7	6	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-027	756 sht 01	E-6	6	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-056	756 sht 01	C-2	6	GA	A	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-057	756 sht 01	C-3	6	3-Way	A	3	B	No	LT	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Chilled Water **System ID:** CH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CHV-058	756 sht 01	C-4	6	GA	A	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-059	756 sht 01	C-4	6	3-Way	A	3	B	No	LT	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
CHV-064	756 sht 01	D-7	6	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
CHV-065	756 sht 01	E-7	6	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
CHV-066	756 sht 01	B-6	0.5 x 0	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			
CHV-068	756 sht 01	C-10	6	GA	A	3	B	Yes	T	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTO	Q	SP-375B			
					STO	Q	SP-375B			
CHV-069	756 sht 01	E-10	6	GA	A	3	B	Yes	T	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTO	Q	SP-375A			
					STO	Q	SP-375A			

IST Valve Table

System: Chilled Water **System ID:** CH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CHV-076	756 sht 01	E-4	3	GA	M	3	B	No	SC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
CHV-077	756 sht 01	E-5	3	GA	M	3	B	No	SC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
CHV-089	765 sht 01	C-8	2	GL	M	3	B	No	T	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
CHV-090	765 sht 01	D-8	2	GL	SO	3	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STO	Q	SP-375A			
CHV-091	765 sht 01	D-8	2	CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
CHV-095	765 sht 01	D-8	2	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
CHV-097	765 sht 01	E-8	2	GL	SO	3	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			

IST Valve Table

System: Chilled Water **System ID:** CH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CHV-100	765 sht 01	E-8	2	GL	A	3	B	Yes	T	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTO	Q	SP-375A			
					STO	Q	SP-375A			
CHV-101	765 sht 01	E-8	2	GL	SO	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
CHV-104	756 sht 01	E-2	2	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
CHV-105	756 sht 01	D-1	2	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
CHV-107	756 sht 01	E-1	2	GL	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
CHV-108	765 sht 01	D-1	2	GL	SO	3	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STO	Q	SP-375A			
CHV-113	765 sht 01	F-1	2	GL	A	3	B	Yes	T	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTO	Q	SP-375A			
					STO	Q	SP-375A			

IST Valve Table

System: Chilled Water **System ID:** CH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CHV-115	756 sht 01	E-2	2	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
CHV-200	756 sht 01	E-3	0.5 x 1	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
CHV-202	765 sht 01	F-8	2	CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
CHV-233	756 sht 01	F-2	2	GL	SO	3	B	Yes	O/C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-375A			
					RPI	2Y	SP-375A			
					STC	Q	SP-375A			
CHV-234	756 sht 01	F-2	2	GL	SO	3	B	Yes	O/C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-375A			
					RPI	2Y	SP-375A			
					STC	Q	SP-375A			
CHV-235	756 sht 01	G-2	2	GL	SO	3	B	Yes	O/C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-375A			
					RPI	2Y	SP-375A			
					STC	Q	SP-375A			

IST Valve Table

System: Chilled Water **System ID:** CH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CHV-236	756 sht 01	G-2	2	GL	SO	3	B	Yes	O/C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-375A			
					RPI	2Y	SP-375A			
					STC	Q	SP-375A			

IST Valve Table

System: Industrial Cooling Water **System ID:** CI

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CIV-034	762 sht 01	F-5	2.5	GA	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CIV-035	762 sht 01	F-2	2.5	GA	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CIV-040	762 sht 01	G-2	2.5	GA	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
CIV-041	762 sht 01	G-5	2.5	GA	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Industrial Cooling Water **System ID:** CI

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
CIV-279	762 sht 01	F-4	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			
CIV-280	762 sht 01	G-4	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			

IST Valve Table

System: Diesel Air for EFP-3 **System ID:** DA

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DAV-003	778 sht 1	G-2	0.75	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DAV-006	778 sht 1	E-2	0.50 x	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			
DAV-007	778 sht 1	E-2	2.0		M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DAV-008	778 sht 1	E-3	2.0	BL	M	3	B	No	SC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DAV-009	778 sht 1	C-6	1.5		M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DAV-010	778 sht 1	B-6	1.5	3-Way	SA	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXO	Q	SP-349C			
DAV-011	778 sht 1	C-6	0.75	GA	SO	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXO	Q	SP-349C			
DAV-012	778 sht 1	C-7	0.25	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Diesel Air for EFP-3 **System ID:** DA

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DAV-016	778 sht 1	G-3	0.75	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DAV-019	778 sht 1	E-3	0.50 x	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			
DAV-020	778 sht 1	E-4	2.0		M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DAV-021	778 sht 1	E-6	1.5		M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DAV-022	778 sht 1	F-6	1.5	3-Way	SA	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXO	Q	SP-349C			
DAV-023	778 sht 1	E-6	0.75	GA	SO	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXO	Q	SP-349C			
DAV-024	778 sht 1	F-7	0.25	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-001	631 sht 1	D-2	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-002	631 sht 2	D-2	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-003	631 sht 1	D-4	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-004	631 sht 2	D-3	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-005	631 sht 1	B-9	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-006	631 sht 2	B-7	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-007	631 sht 1	C-9	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-008	631 sht 2	D-7	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-009	631 sht 1	G-2	0.75 x	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-011	631 sht 2	F-2	0.75 x	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-013	631 sht 1	H-1	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-014	631 sht 2	G-2	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-015	631 sht 1	F-1	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-016	631 sht 2	E-2	12	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-019	631 sht 1	C-3	4	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-020	631 sht 2	C-2	4	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-022	631 sht 2	C-5	3	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-026	631 sht 2	G-4	3	GL	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-027	631 sht 1	D-8	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-028	631 sht 2	F-6	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-029	631 sht 1	D-9	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-030	631 sht 2	D-7	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-031	631 sht 2	E-4	2.5	GA	M	3	N/A	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-032	631 sht 1	F-3	2.5	GA	M	3	N/A	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-033	631 sht 1	E-8	2.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-034	631 sht 2	G-7	2.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-035	631 sht 1	E-9	2.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-036	631 sht 2	E-7	2.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-037	631 sht 2	F-3	2.5	GL	M	3	N/A	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-038	631 sht 1	F-3	2.5	GL	M	3	N/A	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-039	631 sht 1	F-6	2	GA	M	3	N/A	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-040	631 sht 2	E-5	2	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-041	631 sht 1	F-5	2	GL	M	3	N/A	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-042	631 sht 2	E-4	2	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-043	631 sht 1	B-7	2	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-044	631 sht 2	B-5	2	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-045	631 sht 1	C-7	2	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-046	631 sht 2	C-6	2	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-047	631 sht 1	F-6	1.5	GA	M	3	N/A	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-048	631 sht 1	G-6	1	GA	M	3	N/A	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-049	631 sht 2	F-5	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-050	631 sht 2	F-5	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-051	631 sht 1	F-5	1.5	GL	M	3	N/A	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-052	631 sht 1	G-5	1	GL	M	3	N/A	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-053	631 sht 2	F-4	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-054	631 sht 2	F-4	1	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-055	631 sht 1	A-3	2 x 3	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			
DCV-056	631 sht 2	B-2	2 x 3	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-057	631 sht 1	D-9	0.5 X	REL	SA	3	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-058	631 sht 2	D-8	0.5 X	REL	SA	3	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-091	631 sht 1	E-2	0.5	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-092	631 sht 2	D-2	0.5	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-095	631 sht 1	D-8	1	GL	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-096	631 sht 1	E-8	1	GA	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-097	631 sht 1	A-6	0.5	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-098	631 sht 2	C-4		GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-103	631 sht 1	E-3	0.5 X	REL	SA	3	N/A	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-104	631 sht 2	E-3	0.5 X	REL	SA	3	N/A	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-105	631 sht 2	E-5	0.75 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-106	631 sht 2	E-5	0.5 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-107	631 sht 2	F-5	0.75 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-108	631 sht 1	F-6	0.5 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-109	631 sht 1	F-6	0.5 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-110	631 sht 1	F-6	0.75 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-111	631 sht 1	B-7	0.75 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-112	631 sht 2	C-6	0.75 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-113	631 sht 1	D-8	0.5 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-114	631 sht 2	F-7	0.5 X	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-115	631 sht 1	D-7	1	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-116	631 sht 1	E-7	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-117	631 sht 2	F-6	1	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-118	631 sht 2	G-6	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Decay Heat Closed Cycle Cooling **System ID:** DC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DCV-119	631 sht 2	E-7	1	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-120	631 sht 2	E-7	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DCV-216	631 sht 1	B-10	1.5" x	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DCV-217	631 sht 2	B-7	1.5" x	REL	SA	3	C	No	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				

IST Valve Table

System: Diesel Fuel Oil Transfer **System ID:** DF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DFV-002	281 sht 1	C-2	2	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-004	281 sht 1	E-3	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-005	281 sht 1	D-3	1	GA	M	3	N/A	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-006	281 sht 1	E-3	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-007	281 sht 1	D-3	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-008	281 sht 1	D-4	2.5	GA	M	3	N/A	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-009	281 sht 1	E-4	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-012	281 sht 1	E-5	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Diesel Fuel Oil Transfer **System ID:** DF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DFV-013	281 sht 1	D-5	2.5	GA	M	3	N/A	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-014	281 sht 1	E-6	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-015	281 sht 1	D-6	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-016	281 sht 1	E-6	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-017	281 sht 1	D-6	1	GA	M	3	N/A	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-018	281 sht 1	C-6	2	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-023	281 sht 1	C-1	1.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-024	281 sht 1	C-7	1.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Diesel Fuel Oil Transfer **System ID:** DF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DFV-025	281 sht 1	H-7	2.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-026	281 sht 1	H-2	2.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-027	281 sht 1	A-8	0.5 x 1	REL	SA	3	N/A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y				
DFV-029	281 sht 1	A-8	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-031	281 sht 1	A-9	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-035	281 sht 1	A-2	0.5 x 1	REL	SA	3	N/A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y				
DFV-037	281 sht 1	A-2	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DFV-039	281 sht 1	A-3	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Diesel Fuel Oil Transfer **System ID:** DF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DFV-045	281 sht 1	G-4	2.5	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DFV-046	281 sht 1	G-5	2.5	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DFV-047	281 sht 1	G-4	2.5	GA	M	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					EXC	Q	SP-370			
					EXO	Q	SP-370			
DFV-048	281 sht 1	G-5	2.5	GA	M	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					EXC	Q	SP-370			
					EXO	Q	SP-370			
DFV-056	281 sht 1	C-5	1	GA	M	3	B	Yes	SC	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					EXC	Q	SP-354A			
					EXO	Q	SP-354A			
DFV-058	281 sht 1	C-6	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DFV-059	281 sht 1	C-3	1	GA	M	3	B	Yes	SC	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					EXC	Q	SP-354A			
					EXO	Q	SP-354A			

IST Valve Table

System: Diesel Fuel Oil Transfer **System ID:** DF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DFV-060	281 sht 1	C-3	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-110	776 sht 1	D-1		GA	M	3	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y				
DFV-111	776 sht 1	D-1	1.5	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-112	776 sht 1	C-4		GA	M	3	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y				
DFV-113	776 sht 1	C-4		GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-119	776 sht 1	D-7		Plug	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-120	776 sht 1	D-6		Plug	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DFV-121	776 sht 1	E-6		SPG C	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Diesel Fuel Oil Transfer **System ID:** DF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DFV-134	776 sht 1	C-7		SPG	C SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					SKID					

IST Valve Table

System: Decay Heat Removal **System ID:** DH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DHV-001	641 sht 01	C-1	10	CK	SA	1	AC	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
DHV-002	641 sht 01	B-1	10	CK	SA	1	AC	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
DHV-003	641 sht 02	B-2	12	GA	MO	1	B	Yes	LC	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 02
					STO	CS	SP-435			CSJ 02
DHV-004	641 sht 02	B-2	12	GA	MO	1	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 02
					STO	CS	SP-435			CSJ 02
DHV-005	641 sht 01	C-3	10	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 03
					STO	CS	SP-435			CSJ 03

IST Valve Table

System: Decay Heat Removal **System ID:** DH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DHV-006	641 sht 01	B-3	10	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 03
					STO	CS	SP-435			CSJ 03
DHV-007	641 sht 01	B-3	8	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340E			
					STC	Q	SP-340E			
					STO	Q	SP-340E			
DHV-008	641 sht 01	C-3	8	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340B			
					STC	Q	SP-340B			
					STO	Q	SP-340B			
DHV-009	641 sht 01	C-4	8	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DHV-010	641 sht 01	B-4	3	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Decay Heat Removal **System ID:** DH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DHV-011	641 sht 01	C-5	4	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-340B			
					STC	Q	SP-340B			
					STO	Q	SP-340B			
DHV-012	641 sht 01	B-6	4	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-340E			
					STC	Q	SP-340E			
					STO	Q	SP-340E			
DHV-017	641 sht 01	F-4	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			
DHV-021	641 sht 01	H-4	14	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DHV-028	641 sht 01	F-7	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DHV-032	641 sht 01	H-6	14	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DHV-033	641 sht 02	D-6	14	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Decay Heat Removal **System ID:** DH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DHV-034	641 sht 02	D-6	14	GA	MO	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340B			
					STC	Q	SP-340B			
DHV-035	641 sht 02	E-6	14	GA	MO	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340E			
					STC	Q	SP-340E			
DHV-036	641 sht 02	E-6	14	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
DHV-037	641 sht 02	C-5	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
DHV-038	641 sht 02	C-7	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y				
DHV-039	641 sht 02	D-4	14	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340B			
					STO	Q	SP-340B			
DHV-040	641 sht 02	E-4	14	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340E			
					STO	Q	SP-340E			

IST Valve Table

System: Decay Heat Removal **System ID:** DH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DHV-041	641 sht 02	C-3	12	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-340B			
					STC	Q	SP-340B			
					STO	Q	SP-340B			
DHV-042	641 sht 02	D-3	14	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-340B			
					STC	Q	SP-340B			
					STO	Q	SP-340B			
DHV-043	641 sht 02	E-3	14	GA	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-340E			
					STC	Q	SP-340E			
					STO	Q	SP-340E			
DHV-044	641 sht 02	C-1	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
DHV-048	641 sht 01	C-3	8	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DHV-049	641 sht 01	C-4	2	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Decay Heat Removal **System ID:** DH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DHV-069	641 sht 01	A-8	6 x 8	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	2Y	SP-602			
DHV-070	641 sht 01	A-9	6 x 8	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	2Y	SP-602			
DHV-091	641 sht 01	D-3	2	GL	MO	2	A	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC		SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
					STO	Q	SP-370			
DHV-092	641 sht 01	D-4	2	GA	M	2	N/A	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DHV-093	641 sht 01	D-2	2	CK	SA	2	AC	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
DHV-095	641 sht 01	D-2	0.75	GL	M	2	A	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
DHV-114	641 sht 01	D-1	1	GL	M	1	B	No	LT	LT
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Decay Heat Removal **System ID:** DH

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DHV-116	641 sht 02	B-2	1	GL	M	1	B	No	LT	LT
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DHV-210	641 sht 01	D-4	10	GL	MO	2	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DHV-211	641 sht 01	D-6	10	GL	MO	2	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Diesel Jacket Coolant / Air Cooler Coolant **System ID:** DJ

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DJV-009	283 sht 1	F-5		GA	M	3	N/A	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DJV-010	283 sht 2	F-5		GA	M	3	N/A	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DJV-013	283 sht 1	F-5		GA	M	3	N/A	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DJV-014	283 sht 2	F-5		GA	M	3	N/A	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DJV-015	283 sht 1	E-5		REL	SA	3	N/A	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y				
DJV-016	283 sht 2	E-5		REL	SA	3	N/A	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y				
DJV-033	283 sht 1	D-3		GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
DJV-034	283 sht 2	D-3		GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Diesel Jacket Coolant / Air Cooler Coolant **System ID:** DJ

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DJV-061	283 sht 1	D-2		GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DJV-062	283 sht 1	D-2		GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DJV-063	283 sht 1	C-2		GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DJV-064	283 sht 2	D-2		GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DJV-065	283 sht 2	D-2		GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DJV-066	283 sht 2	C-2		GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Diesel Lube Oil **System ID:** DL

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DLV-013	285 sht 1	F-5		CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DLV-014	285 sht 2	F-5		CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DLV-017	285 sht 1	D-5		CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DLV-018	285 sht 2	D-5		CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DLV-031	285 sht 1	D-4		CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DLV-032	285 sht 2	D-4		CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DLV-051	775 sht 1	B-4		REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			

IST Valve Table

System: Domestic Water **System ID:** DO

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DOV-107	211 sht 01	B-6	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-109	211 sht 01	C-6	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-113	211 sht 01	E-6	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-115	211 sht 01	E-8	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-160	211 sht 01	B-6	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-161	211 sht 01	C-6	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-163	211 sht 01	E-6	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-164	211 sht 01	E-8	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Domestic Water **System ID:** DO

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DOV-175	211 sht 01	B-7	0.75	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-176	211 sht 01	B-7	0.75	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-177	211 sht 01	C-7	0.75	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-178	211 sht 01	C-7	0.75	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-181	211 sht 01	E-7	0.75	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-182	211 sht 01	E-7	0.75	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-183	211 sht 01	E-9	0.75	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
DOV-184	211 sht 01	E-9	0.75	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Domestic Water **System ID:** DO

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DOV-376	211 sht 01	C-6	1.5	CK	SA	3	C	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
DOV-377	211 sht 01	D-6	1.5	CK	SA	3	C	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Condensate and Demineralized Water Supply **System ID:** DW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
DWV-160	182 sht 2	E-6	3	GA	MO	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 04
DWV-162	182 sht 2	E-5	3	CK	SA	2	AC	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					

IST Valve Table

System: Emergency Feedwater **System ID:** EF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EFV-001	082 sht 01	E-7	8	GA	MO	3	B	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXO	CS	SP-435			
EFV-002	082 sht 01	G-7	8	GA	MO	3	B	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y				
EFV-004	082 sht 01	E-7	6	GA	MO	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-005	082 sht 01	C-6	6	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
EFV-007	082 sht 01	F-6	6	SCK	MO	3	C	Yes	LO	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
EFV-008	082 sht 01	C-6	6	SCK	MO	3	C	Yes	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
EFV-011	082 sht 01	B-7	6	GA	MO	3	B	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-349B			
					STC	Q	SP-349B			
					STO	Q	SP-349B			

IST Valve Table

System: Emergency Feedwater **System ID:** EF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EFV-012	082 sht 01	B-6	6	GA	MO	3	B	Yes	SC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-370			
					STO	Q	SP-370			
EFV-014	082 sht 01	B-7	6	GA	MO	3	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-349C			
					STC	Q	SP-349C			
					STO	Q	SP-349C			
EFV-015	082 sht 01	B-8	6	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EFV-016	082 sht 01	B-8	6	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EFV-017	082 sht 01	B-8	6	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EFV-018	082 sht 01	B-8	6	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EFV-023	082 sht 01	C-6	1	GA	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Emergency Feedwater **System ID:** EF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EFV-032	082 sht 01	B-7	6	GA	MO	3	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-349B			
					STC	Q	SP-349B			
					STO	Q	SP-349B			
EFV-033	082 sht 01	B-7	6	GA	MO	3	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-349C			
					STC	Q	SP-349C			
					STO	Q	SP-349C			
EFV-034	082 sht 01	C-6	1	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EFV-035	082 sht 01	F-6	1	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EFV-049	082 sht 01	D-6	0.75	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EFV-050	082 sht 01	D-6	0.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EFV-051	082 sht 01	D-6	0.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Emergency Feedwater **System ID:** EF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EFV-052	082 sht 01	E-6	0.75	GL	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-053	082 sht 01	E-6	0.5	GL	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-054	082 sht 01	E-6	0.5	GL	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-055	082 sht 01	D-10	4	GL	SO	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-349B			
					STC	Q	SP-349B			
					STO	Q	SP-349B			
EFV-056	082 sht 01	D-9	4	GL	SO	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-349B			
					STC	Q	SP-349B			
					STO	Q	SP-349B			
EFV-057	082 sht 01	D-10	4	GL	SO	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-349C			
					STC	Q	SP-349C			
					STO	Q	SP-349C			

IST Valve Table

System: Emergency Feedwater **System ID:** EF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EFV-058	082 sht 01	D-8	4	GL	SO	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-349C			
					STC	Q	SP-349C			
					STO	Q	SP-349C			
EFV-097	082 sht 02	B-4	6	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	2Y				
EFV-098	082 sht 02	B-5	6	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	2Y				
EFV-099	082 sht 02	B-4	6 x 8	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
EFV-100	082 sht 02	B-5	4 x 6	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
EFV-105	082 sht 02	C-7	1.5	GA	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EFV-107	082 sht 02	D-7	1.5	GA	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Emergency Feedwater **System ID:** EF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EFV-109	082 sht 02	D-7	8	GA	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-111	082 sht 02	E-7	8	GA	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-116	082 sht 01	H-3	8	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
EFV-142	082 sht 02	E-8	8	GA	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-143	082 sht 01	H-1	6	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
EFV-144	082 sht 01	G-1	10	GA	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-145	082 sht 01	G-3	6	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
EFV-146	082 sht 01	G-3	6	SCK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Emergency Feedwater **System ID:** EF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EFV-147	082 sht 01	A-5	6	GA	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-148	082 sht 01	F-3	6	GA	M	3	B	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-151	082 sht 01	G-1	4	GA	M	3	B	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-152	082 sht 01	F-3	3	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
EFV-153	082 sht 01	F-2	3	GL	M	3	B	No	LT	T
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
EFV-154	082 sht 01	E-1	4	GL	M	3	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Diesel Compressed Starting Air and Engine Exhaust **System ID:** EG

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EGV-005	282 sht 1	F-2	1 x 2	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
EGV-006	282 sht 1	F-3	1 x 2	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
EGV-007	282 sht 1	F-6	1 x 2	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
EGV-008	282 sht 1	F-8	1 x 2	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	10Y	SP-602			
EGV-009	282 sht 1	E-2	2.5	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EGV-010	282 sht 1	E-4	2.5	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EGV-011	282 sht 1	E-6	2.5	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EGV-012	282 sht 1	E-7	2.5	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Diesel Compressed Starting Air and Engine Exhaust **System ID:** EG

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EGV-021	282 sht 1	G-1	1	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EGV-022	282 sht 1	G-3	1	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EGV-023	282 sht 1	G-6	1	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EGV-024	282 sht 1	G-8	1	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
EGV-025	282 sht 1	E-4	2.5	GA	M	3	B	No	SC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EGV-026	282 sht 1	E-5	2.5	GA	M	3	B	No	SC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EGV-035	282 sht 1	E-1	1.5	BL	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-354A			

IST Valve Table

System: Diesel Compressed Starting Air and Engine Exhaust **System ID:** EG

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EGV-036	282 sht 0	D-2	0.25	3-Way	SO	3	B	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-354A			
					STC	Q	SP-354A			
EGV-037	282 sht 0	D-2	0.25	3-Way	SO	3	B	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-354A			
					STC	Q	SP-354A			
EGV-039	282 sht 1	E-8	1.5	BL	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-354B			
EGV-040	282 sht 0	D-8	0.25	3-Way	SO	3	B	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-354B			
					STC	Q	SP-354B			
EGV-041	282 sht 0	D-8	0.25	3-Way	SO	3	B	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-354B			
					STC	Q	SP-354B			
EGV-050	282 sht 1	B-3	1	GL	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
EGV-051	282 sht 1	B-6	1	GL	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Diesel Compressed Starting Air and Engine Exhaust **System ID:** EG

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
EGV-056	282 sht 1	D-2	1.5	GA	A	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTO	Q	SP-354A			
					STO	Q	SP-354A			
EGV-057	282 sht 1	D-2	1.5	GA	A	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTO	Q	SP-354A			
					STO	Q	SP-354A			
EGV-058	282 sht 1	D-8	1.5	GA	A	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTO	Q	SP-354B			
					STO	Q	SP-354B			
EGV-059	282 sht 1	D-8	1.5	GA	A	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTO	Q	SP-354B			
					STO	Q	SP-354B			

IST Valve Table

System: Fire Service Water **System ID:** FS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
FSV-261	231 sht 1	D-3	4	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
FSV-262	231 sht 1	E-3	4	CK	SA	2	AC	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Main Feedwater **System ID:** FW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
FWV-014	081 sht 02	F-3	18	GA	MO	3	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	CS	SP-435			
					STC	CS	SP-435		CSJ 05	
FWV-015	081 sht 02	F-1	18	GA	MO	3	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	CS	SP-435			
					STC	CS	SP-435		CSJ 05	
FWV-028	081 sht 02	A-2	18	GA	MO	3	B	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	CS	SP-435			
					STC	CS	SP-435		CSJ 05	
FWV-029	081 sht 01	C-7	18	GA	MO	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	CS	SP-435			
					STC	CS	SP-435		CSJ 05	
FWV-030	081 sht 01	C-3	18	GA	MO	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	CS	SP-435			
					STC	CS	SP-435		CSJ 05	
FWV-031	081 sht 01	C-3	10	GA	MO	2	B	Yes	O/C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	CS	SP-435			
					STC	CS	SP-435		CSJ 05	

IST Valve Table

System: Main Feedwater **System ID:** FW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
FWV-032	081 sht 01	C-7	10	GA	MO	2	B	Yes	O/C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	CS	SP-435			
					STC	CS	SP-435			CSJ 05
FWV-033	081 sht 01	D-6	6	GA	MO	2	B	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	CS	SP-435			
					STC	CS	SP-435			CSJ 05
FWV-034	081 sht 01	D-6	6	GA	MO	2	B	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
FWV-035	081 sht 01	D-2	6	GA	MO	2	B	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
FWV-036	081 sht 01	D-2	6	GA	MO	2	B	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	CS	SP-435			
					STC	CS	SP-435			CSJ 05
FWV-043	081 sht 01	E-6	6	CK	SA	2	AC	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
FWV-044	081 sht 01	E-2	6	CK	SA	2	AC	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					

IST Valve Table

System: Main Feedwater **System ID:** FW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
FWV-045	081 sht 01	F-3	18	CK	SA	2	C	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
FWV-046	081 sht 01	F-7	18	CK	SA	2	C	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
FWV-269	081 sht 04	D-8	4	CK	SA	2	AC	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
FWV-270	081 sht 04	C-8	4	CK	SA	2	AC	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Instrument Air **System ID:** IA

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
IAV-028	271 sht 4	C-7	2	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
IAV-029	271 sht 4	C-9	2	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
IAV-569	See Note		.375	CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
IAV-570	See Note		.375	CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
IAV-571	See Note		.375	CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
IAV-572	See Note		.375	CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
IAV-573	See Note		.375	CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
IAV-574	See Note		.375	CK	SA	3	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					

IST Valve Table

System: Reactor Building Leak Rate Testing and Post accident Hydrogen Purge **System ID:** LR

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
LRV-035	722 sht 1	F-1	8	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-036	722 sht 1	F-2	8	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-044	722 sht 1	G-4	2	GL	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-045	722 sht 1	G-5	2	GL	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-046	722 sht 1	G-5	1	GL	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-047	722 sht 1	G-2	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-050	722 sht 1	G-2	8	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			

IST Valve Table

System: Reactor Building Leak Rate Testing and Post accident Hydrogen Purge **System ID:** LR

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
LRV-070	723 sht 1	B-2	6	GL	SO	2	A	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
					STC	Q	SP-370			
					STO	Q	SP-370			
LRV-071	723 sht 1	B-2	6	GL	SO	2	A	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
					STC	Q	SP-370			
					STO	Q	SP-370			
LRV-072	723 sht 1	B-2	6	GL	SO	2	A	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
					STC	Q	SP-370			
					STO	Q	SP-370			

IST Valve Table

System: Reactor Building Leak Rate Testing and Post accident Hydrogen Purge **System ID:** LR

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
LRV-073	723 sht 1	B-2	6	GL	SO	2	A	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-179C			
					STC	Q	SP-370			
					STO	Q	SP-370			
LRV-087	722 sht 1	G-2	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-088	722 sht 1	G-2	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-089	722 sht 1	G-3	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-090	722 sht 1	G-3	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-091	722 sht 1	G-4	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-092	722 sht 1	G-4	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			

IST Valve Table

System: Reactor Building Leak Rate Testing and Post accident Hydrogen Purge **System ID:** LR

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
LRV-093	722 sht 1	G-3	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
LRV-094	722 sht 1	G-3	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			

IST Valve Table

System: Main Steam **System ID:** MS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MSV-009	011 sht 1	D-6	6	GL	A	4	AUG	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	RF	SP-435		ROJ 1	
					EXO	RF	SP-435		ROJ 1	
					FSTC	RF	PT-320		ROJ 1	
					STC	RF	PT-320		ROJ 1	
					STO	RF	PT-320		ROJ 1	
MSV-010	011 sht 1	C-6	6	GL	A	4	AUG	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	RF	SP-435		ROJ 1	
					EXO	RF	SP-435		ROJ 1	
					FSTC	RF	PT-320		ROJ 1	
					STC	RF	PT-320		ROJ 1	
					STO	RF	PT-320		ROJ 1	
MSV-011	011 sht 1	G-6	6	GL	A	4	AUG	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	RF	SP-435		ROJ 1	
					EXO	RF	SP-435		ROJ 1	
					FSTC	RF	PT-320		ROJ 1	
					STC	RF	PT-320		ROJ 1	
					STO	RF	PT-320		ROJ 1	

IST Valve Table

System: Main Steam **System ID:** MS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MSV-014	011 sht 1	H-6	6	GL	A	4	AUG	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	RF	SP-435		ROJ 1	
					EXO	RF	SP-435		ROJ 1	
					FSTC	RF	PT-320		ROJ 1	
					STC	RF	PT-320		ROJ 1	
					STO	RF	PT-320		ROJ 1	
MSV-025	011 sht 1	C-1	6	GA	A	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 06	
					STC	CS	SP-435		CSJ 06	
					STO	CS	SP-435		CSJ 06	
MSV-026	011 sht 1	F-1	6	GA	A	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 06	
					STC	CS	SP-435		CSJ 06	
					STO	CS	SP-435		CSJ 06	
MSV-027	011 sht 1	C-1	6	GA	M	2	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MSV-028	011 sht 1	F-1	6	GA	M	2	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Main Steam **System ID:** MS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MSV-033	011 sht 1	B-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
MSV-034	011 sht 1	C-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
MSV-035	011 sht 1	E-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
MSV-036	011 sht 1	F-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
MSV-037	011 sht 1	B-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
MSV-038	011 sht 1	C-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
MSV-039	011 sht 1	E-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
MSV-040	011 sht 1	C-2	6 x 8	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			

IST Valve Table

System: Main Steam **System ID:** MS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MSV-041	011 sht 1	F-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	5Y	SP-650			
MSV-042	011 sht 1	B-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	5Y	SP-650			
MSV-043	011 sht 1	C-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	5Y	SP-650			
MSV-044	011 sht 1	E-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	5Y	SP-650			
MSV-045	011 sht 1	F-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	5Y	SP-650			
MSV-046	011 sht 1	B-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	5Y	SP-650			
MSV-047	011 sht 1	E-2	6 x 10	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	5Y	SP-650			
MSV-048	011 sht 1	F-2	6 x 8	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	5Y	SP-650			

IST Valve Table

System: Main Steam **System ID:** MS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MSV-053	011 sht 1	B-5	10	GA	MO	4	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MSV-054	011 sht 1	E-5	10	GA	MO	4	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MSV-055	011 sht 1	D-3	3	SCK	MO	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
					PIT	2Y				
					STC	Q				
					STO	Q				
MSV-056	011 sht 1	F-3	3	SCK	MO	2	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
					PIT	2Y				
					STC	Q				
					STO	Q				
MSV-114	011 sht 2	A-3	1.5	GL	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
MSV-128	011 sht 2	H-2	4	GL	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			

IST Valve Table

System: Main Steam **System ID:** MS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MSV-130	011 sht 2	H-3	3	GL	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 08
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 08
MSV-132	011 sht 2	A-7	1.5	GL	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
MSV-146	011 sht 2	H-6	4	GL	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
MSV-148	011 sht 2	H-7	3	GL	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 08
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 08
MSV-186	051 sht 1	E-7	6	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MSV-187	051 sht 1	E-7	6	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					

IST Valve Table

System: Main Steam **System ID:** MS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MSV-411	011 sht 1	B-5	24	GL	A	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-255			CSJ 07
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 07
					STO	CS	SP-435			CSJ 07
MSV-412	011 sht 1	C-4	24	GL	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-255			CSJ 07
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 07
MSV-413	011 sht 1	E-4	24	GL	A	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-255			CSJ 07
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 07
					STO	CS	SP-435			CSJ 07
MSV-414	011 sht 1	F-4	24	GL	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-255			CSJ 07
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 07
MSV-560	011 sht 2	G-1	0.50 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y				

IST Valve Table

System: Main Steam **System ID:** MS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MSV-561	011 sht 2	G-4	0.50 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MURS-1	661 sht 1	C-5	0.5	RD	SA	2	D	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RD	5Y	SP-602			
MURS-2	661 sht 2	D-4		RD	SA	2	D	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RD	5Y	SP-602			
MUV-001	661 sht 4	E-1	3	CK	SA	2	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
MUV-002	661 sht 4	E-1	3	SCK	M	2	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
MUV-003	661 sht 4	D-2	4	GA	MO	2	B	No	LO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-340F			
MUV-004	661 sht 4	D-3	4	GA	M	2	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MUV-005	661 sht 4	E-4	1	GL	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MUV-006	661 sht 4	E-4	3	SCK	M	2	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-007	661 sht 4	E-4	3	CK	SA	2	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-008	661 sht 4	D-6	4	GA	M	2	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-009	661 sht 4	D-6	4	GA	MO	2	B	No	LO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340F			
MUV-010	661 sht 4	E-7	3	SCK	M	2	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-011	661 sht 4	E-7	3	CK	SA	2	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-012	661 sht 4	C-5	2.5	CK	SA	2	N/A	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-018	661 sht 3	F-4	4	GA	MO	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 10

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-023	661 sht 3	A-5	3	GL	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340F			
					STC	Q	SP-340F			
					STO	Q	SP-340F			
MUV-024	661 sht 3	C-5	3	GL	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340F			
					STC	Q	SP-340F			
					STO	Q	SP-340F			
MUV-025	661 sht 4	A-2	3	GL	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340F			
					STC	Q	SP-340F			
					STO	Q	SP-340F			
MUV-026	661 sht 4	C-2	3	GL	MO	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-340F			
					STC	Q	SP-340F			
					STO	Q	SP-340F			
MUV-027	661 sht 3	D-5	2.5	GA	MO	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 10

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-036	661 sht 4	A-4	2.5	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-037	661 sht 4	C-4	2.5	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-042	661 sht 3	A-2	2.5	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-043	661 sht 3	C-2	2.5	CK	SA	1	C	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-049	661 sht 1	B-5	2.5	GA	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC		SP-435			
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 09
MUV-053	661 sht 2	G-1	4	GL	MO	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 12
					STO	CS	SP-435			CSJ 12

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-058	661 sht 4	H-2	6	GA	MO	2	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-340F			
					STC	Q	SP-340F			
					STO	Q	SP-340F			
MUV-059	661 sht 4	G-1	6	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MUV-060	661 sht 4	H-2	6	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
MUV-061	661 sht 4	G-1	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
MUV-062	661 sht 4	G-2	6	GA	MO	2	B	No	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-435			
MUV-063	661 sht 4	G-3	6	GA	M	2	N/A	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MUV-065	661 sht 4	H-7	4	CK	SA	2	C	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-066	661 sht 4	G-4	6	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MUV-067	661 sht 4	G-4	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
MUV-068	661 sht 4	G-5	6	GA	M	2	N/A	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MUV-069	661 sht 4	G-6	6	GA	MO	2	B	No	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-435			
MUV-070	661 sht 4	G-6	6	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MUV-071	661 sht 4	G-7	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
MUV-072	661 sht 4	F-8	6	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-073	661 sht 4	F-8	6	GA	MO	2	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-340C			
					STC	Q	SP-340C			
					STO	Q	SP-340C			
MUV-147	661 sht 4	E-7	2	GL	M	2	N/A	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
MUV-153	661 sht 4	E-7	2	SCK	SA	2	C	Yes	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
MUV-160	661 sht 3	A-3	2.5	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
MUV-161	661 sht 3	C-3	2.5	CK	SA	1	C	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
MUV-162	661 sht 3	F-3	4	CK	SA	2	A/C	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
MUV-163	661 sht 4	A-3	2.5	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-164	661 sht 4	C-3	2.5	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-253	661 sht 2	C-4	1	GL	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 13
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 13
MUV-257	661 sht 2	H-1	4	GL	MO	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 12
					STO	CS	SP-435			CSJ 12
MUV-258	661 sht 2	D-2	1	GL	MO	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 13
MUV-259	661 sht 2	C-2	1	GL	MO	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 13

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-260	661 sht 2	C-2	1	GL	MO	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 13
MUV-261	661 sht 2	B-2	1	GL	MO	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179H			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 13
MUV-264	661 sht 4	E-2	2	GL	M	3	N/A	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-265	661 sht 4	E-2	2	SCK	SA	2	C	Yes	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-266	661 sht 4	E-4	2	GL	M	3	N/A	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-267	661 sht 4	E-5	2	SCK	SA	2	C	Yes	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-539	661 sht 4	B-8	3	GA	M	2	B	No	LO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-540	661 sht 4	B-9	3	GA	M	2	B	No	LO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-541	661 sht 2	B-7	2.5	GA	A	3	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 11
					LT	2Y	SP-173			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 11
					STO	CS	SP-435			
MUV-543	661 sht 4	B-9	3	GL	SO	2	A	Yes	LC	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					EXC	2Y	SP-435			
					EXO	2Y	SP-435			
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	Q	SP-370			
					STO	Q	SP-370			

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-544	661 sht 4	C-9	3	GL	SO	2	B	Yes	LC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y	SP-435			
					EXO	2Y	SP-435			
					FSTC	Q	SP-370			
					PIT	2Y	SP-435			
					STC	Q	SP-370			
					STO	Q	SP-370			
MUV-545	661 sht 4	B-8	3	GL	SO	2	A	Yes	LC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y	SP-435			
					EXO	2Y	SP-435			
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	Q	SP-370			
					STO	Q	SP-370			
MUV-546	661 sht 4	B-9	3	GL	SO	2	B	Yes	LC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y	SP-435			
					EXO	2Y	SP-435			
					FSTC	Q	SP-370			
					PIT	2Y	SP-435			
					STC	Q	SP-370			
					STO	Q	SP-370			

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-559	661 sht 4	B-7	3	CK	SA	2	A	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-567	661 sht 1	B-5	2.5	GA	MO	1	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 14
MUV-573	661 sht 3	A-4	3		M	2	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-574	661 sht 3	C-4	3		M	2	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-575	661 sht 4	A-2	3		M	2	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-576	661 sht 4	C-2	3		M	2	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-579	N/A	N/A	Tubin	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-586	661 sht 3	A-5	3	GA	A	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-370			
					STO	Q	SP-370			
MUV-587	661 sht 3	B-4	3	GA	A	2	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-370			
					STO	Q	SP-370			
MUV-590	661 sht 3	A-5	3		M	2	B	No	T	T
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-591	661 sht 3	C-4	3		M	2	B	No	T	T
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-592	661 sht 4	A-2	3		M	2	B	No	T	T
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-593	661 sht 4	C-2	3		M	2	B	No	T	T
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
MUV-594	661 sht 3	C-5	3	CK	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					

IST Valve Table

System: Make-up and Purification **System ID:** MU

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
MUV-595	661 sht 3	D-5	2.5	SCK	M	2	C	Yes	T	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
MUV-596	661 sht 3	E-9	4	GA	MO	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 10

IST Valve Table

System: Nitrogen **System ID:** NG

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
NGV-062	673 sht 2	E-4	1.5	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
NGV-081	673 sht 2	E-3	1.5	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
NGV-082	673 sht 2	E-2	1	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
NGV-249	082 sht 2	B-7	1.5	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Reactor Coolant **System ID:** RC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RCV-007	651 sht 01	A-2	1	GL	M	1	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
RCV-008	651 sht 01	A-3	2.5 x 6	REL	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
RCV-009	651 sht 01	A-3	2.5 x 6	REL	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RV	5Y	SP-650			
RCV-010	651 sht 01	B-4	2.5 x 4	PORV	PV	1	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					EXC	CS	SP-379			
					EXO	CS	SP-379			
					FSTC	CS	SP-379			
					PIT	2Y	SP-379			
					RV	RF				
					STC	CS	SP-379			
					STO	CS	SP-379			
RCV-011	651 sht 01	B-4	2.5	GA	MO	1	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-370			
					STC	Q	SP-370			
					STO	Q	SP-370			

IST Valve Table

System: Reactor Coolant **System ID:** RC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RCV-012	651 sht 01	B-4	2	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RCV-018	651 sht 01	D-2	1	GL	M	1	B	No	LT	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
RCV-041	651 sht 01	B-9	1	GL	M	1	B	No	LT	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
RCV-053	651 sht 01	C-4	2	GL	MO	1	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 20
					STO	CS	SP-435			CSJ 20
RCV-138	651 sht 01	A-6	1	GL	M	1	B	No	LT	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
RCV-157	651 sht 01	E-1	0.5	GA	SO	2	B	Yes	LC	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-410			CSJ 15
					PIT	2Y	SP-410			
					STC	CS	SP-410			CSJ 15
					STO	CS	SP-410			CSJ 15

IST Valve Table

System: Reactor Coolant **System ID:** RC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RCV-158	651 sht 01	F-1	0.5	GA	SO	2	B	Yes	LC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-410		CSJ 15	
					PIT	2Y	SP-410			
					STC	CS	SP-410		CSJ 15	
					STO	CS	SP-410		CSJ 15	
RCV-159	651 sht 01	A-6	0.5	GA	SO	2	B	Yes	LC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-410		CSJ 15	
					PIT	2Y	SP-410			
					STC	CS	SP-410		CSJ 15	
					STO	CS	SP-410		CSJ 15	
RCV-160	651 sht 01	A-6	0.5	GA	SO	2	B	Yes	LC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-410		CSJ 15	
					PIT	2Y	SP-410			
					STC	CS	SP-410		CSJ 15	
					STO	CS	SP-410		CSJ 15	
RCV-163	651 sht 01	C-10	0.5	GA	SO	2	B	Yes	LC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-410		CSJ 15	
					PIT	2Y	SP-410			
					STC	CS	SP-410		CSJ 15	
					STO	CS	SP-410		CSJ 15	

IST Valve Table

System: Reactor Coolant **System ID:** RC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RCV-164	651 sht 01	C-10	0.5	GA	SO	2	B	Yes	LC	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-410			CSJ 15
					PIT	2Y	SP-410			
					STC	CS	SP-410			CSJ 15
					STO	CS	SP-410			CSJ 15
RCV-168	N/A	N/A	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RCV-169	N/A	N/A	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RCV-170	N/A	N/A	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RCV-171	N/A	N/A	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RCV-172	N/A	N/A	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RCV-173	N/A	N/A	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					

IST Valve Table

System: Reactor Coolant **System ID:** RC

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RCV-174	N/A	N/A	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
RCV-175	N/A	N/A	14	CK	SA	1	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
RCV-211	651 sht 01	A-7	0.5	GL	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services and Decay Heat Sea Water **System ID:** RW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RWV-005	611 sht 01	F-10	14	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-006	611 sht 01	F-9	14	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-007	611 sht 01	F-8	14	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-008	611 sht 01	F-7	14	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-013	611 sht 01	C-9	14	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-014	611 sht 01	C-8	14	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-015	611 sht 01	C-7	14	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-016	611 sht 01	C-6	14	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services and Decay Heat Sea Water **System ID:** RW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RWV-017	611 sht 02	B-7	20	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-018	611 sht 02	B-4	20	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-021	611 sht 02	B-6	24	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-024	611 sht 01	F-4	24	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-032	611 sht 01	F-2	36	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-033	611 sht 01	F-2	36	BF	M	3	B	No	SO/SC	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-034	611 sht 02	B-7	20	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
RWV-035	611 sht 02	B-6	24	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Nuclear Services and Decay Heat Sea Water **System ID:** RW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RWV-036	611 sht 02	B-5	24	CK	SA	3	C	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
RWV-037	611 sht 02	B-4	20	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
RWV-038	611 sht 02	B-4	24	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
RWV-040	611 sht 01	F-3	36	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-041	611 sht 01	F-2	36	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-057	611 sht 01	E-10	1 x 1.5	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
RWV-058	611 sht 01	E-9	1 x 1.5	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
RWV-059	611 sht 01	E-8	1 x 1.5	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				

IST Valve Table

System: Nuclear Services and Decay Heat Sea Water **System ID:** RW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RWV-060	611 sht 01	E-7	1 x 1.5	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y				
RWV-061	611 sht 01	E-4	1 x 1.5	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y				
RWV-062	611 sht 01	E-5	1 x 1.5	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y				
RWV-128	611 sht 02	C-3	1.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RWV-129	611 sht 02	C-5	1.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RWV-130	611 sht 02	C-6	1.5	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RWV-131	611 sht 02	C-6	1.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
RWV-132	611 sht 02	C-7	1.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					

IST Valve Table

System: Nuclear Services and Decay Heat Sea Water **System ID:** RW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
RWV-133	611 sht 02	C-3	1.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
RWV-134	611 sht 02	C-7	1.5	CK	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
RWV-135	611 sht 02	C-3	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-136	611 sht 02	C-7	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-137	611 sht 02	B-5	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-142	611 sht 02	B-6	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-143	611 sht 02	C-7	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
RWV-145	611 sht 02	C-3	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Service Air **System ID:** SA

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SAV-024	271 sht 3	F-6	3	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			

IST Valve Table

System: Spent Fuel Cooling **System ID:** SF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SFRS-1	621 sht 1	G-2	0.5	RD	SA	2	D	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					RD	5Y	SP-602			
SFV-001	621 sht 1	A-6	8	GL	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-002	621 sht 1	A-6	8	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-003	621 sht 1	A-9	8	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-004	621 sht 1	A-9	8	GL	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-006	621 sht 1	E-2	1	GA	M	3	N/A	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-007	621 sht 1	E-3	10	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-008	621 sht 1	C-3	8	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Spent Fuel Cooling **System ID:** SF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SFV-009	621 sht 1	C-4	8	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-010	621 sht 1	D-3	8	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-011	621 sht 1	F-3	8	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-012	621 sht 1	F-3	10	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-013	621 sht 1	G-3	10	GA	M	2	N/A	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-018	621 sht 1	F-1	10	GL	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
SFV-019	621 sht 1	F-2	10	GA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
SFV-025	621 sht 1	D-5	10	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Spent Fuel Cooling **System ID:** SF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SFV-026	621 sht 1	D-5	10	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
SFV-027	621 sht 1	F-5	10	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
SFV-028	621 sht 1	F-5	10	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SFV-035	621 sht 1	F-5	10	GL	M	3	N/A	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SFV-036	621 sht 1	D-6	10	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SFV-037	621 sht 1	F-6	10	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SFV-043	631 sht 1	F-7	3	GL	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SFV-046	621 sht 1	E-8	8	GA	M	3	N/A	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Spent Fuel Cooling **System ID:** SF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SFV-049	621 sht 1	F-7	10	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-050	621 sht 1	E-7	10	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-051	621 sht 1	D-7	10	GA	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-053	621 sht 1	C-7	10	GL	M	3	B	No	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-055	621 sht 1	D-9			M	4	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-057	621 sht 1	D-5	0.75 x	REL	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	SP-602			
SFV-058	621 sht 1	E-5	0.75 x	REL	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	SP-602			
SFV-085	621 sht 1	D-9	3	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Spent Fuel Cooling **System ID:** SF

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SFV-087	621 sht 1	F-8	3	GA	M	3	N/A	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-089	621 sht 1	D-2	8	GA	M	2	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SFV-123	631 sht 1	E-6	0.5 x 0	REL	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	SP-602			
SFV-124	631 sht 1	D-6	0.5 x 0	REL	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	SP-602			

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-001	601 sht 03	D-7	6	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-002	601 sht 03	B-4	14	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-003	601 sht 03	C-4	14	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-005	601 sht 03	B-2	14	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-006	601 sht 03	C-2	14	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-008	601 sht 03	B-3	14	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
SWV-009	601 sht 03	C-3	14	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
SWV-010	601 sht 03	D-3	18	CK	SA	3	C	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-012	601 sht 04	B-7	12	BF	A	3	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 16	
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 16	
SWV-013	601 sht 03	F-5	10	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-014	601 sht 03	F-6	10	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-015	601 sht 03	F-7	10	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-016	601 sht 03	F-8	10	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-017	601 sht 03	F-5	10	BF	M	3	B	No	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-018	601 sht 03	F-5	10	BF	M	3	B	No	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-019	601 sht 03	F-7	10	BF	M	3	B	No	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-020	601 sht 03	F-8	10	BF	M	3	B	No	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-021	601 sht 04	F-1	10	BF	M	3	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y	SP-334B			
					EXO	2Y	SP-334A			
SWV-022	601 sht 04	F-2	10	BF	M	3	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					EXC	2Y	SP-334A			
					EXO	2Y	SP-334B			
SWV-023	601 sht 04	H-1	10	BF	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-024	601 sht 04	H-2	10	BF	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-029	601 sht 01	D-1	8	BF	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-030	601 sht 01	D-3	8	BF	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-031	601 sht 01	D-5	8	BF	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-032	601 sht 01	D-2	8	BF	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-033	601 sht 01	D-4	8	BF	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-034	601 sht 01	D-7	8	BF	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-035	601 sht 01	F-1	8	BF	A	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-344C			
					STC	Q	SP-344C			
					STO	Q	SP-344C			
SWV-036	601 sht 01	G-1	8	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-037	601 sht 01	F-3	8	BF	A	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-344C			
					STC	Q	SP-344C			
					STO	Q	SP-344C			
SWV-038	601 sht 01	G-3	8	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SWV-039	601 sht 01	F-5	8	BF	A	2	B	Yes	O	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-344C			
					STC	Q	SP-344C			
					STO	Q	SP-344C			
SWV-040	601 sht 04	A-2	8	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SWV-041	601 sht 01	F-2	8	BF	A	2	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					PIT	2Y	SP-344C			
					STC	Q	SP-344C			
					STO	Q	SP-344C			
SWV-042	601 sht 01	G-2	8	BF	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-043	601 sht 01	F-5	8	BF	A	2	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-344C			
					STC	Q	SP-344C			
					STO	Q	SP-344C			
SWV-044	601 sht 01	G-5	8	BF	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-045	601 sht 01	F-7	8	BF	A	2	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					PIT	2Y	SP-344C			
					STC	Q	SP-344C			
					STO	Q	SP-344C			
SWV-046	601 sht 04	F-4	8	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-047	601 sht 01	B-7	8	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 17	
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 17	

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-048	601 sht 01	B-6	8	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 17
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 17
SWV-049	601 sht 01	B-5	8	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 17
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 17
SWV-050	601 sht 01	B-4	8	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 17
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 17
SWV-059	601 sht 04	C-3	8	BF	M	3	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					EXC	Q	SP-370			
					EXO	Q	SP-370			
SWV-060	601 sht 04	B-3	8	BF	M	3	B	Yes	O/C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					EXC	Q	SP-370			
					EXO	Q	SP-370			

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-063	601 sht 04	H-4	8	BF	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SWV-064	601 sht 04	G-4	8	BF	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SWV-079	601 sht 02	E-10	6	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 18
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 18
SWV-080	601 sht 02	F-7	6	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 18
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 18
SWV-081	601 sht 02	F-5	6	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 18
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 18

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-082	601 sht 02	F-2	6	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 18	
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 18	
SWV-083	601 sht 02	E-9	6	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 18	
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 18	
SWV-084	601 sht 02	F-6	6	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 18	
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 18	
SWV-085	601 sht 02	E-4	6	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 18	
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 18	
SWV-086	601 sht 02	E-1	6	BF	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	CS	SP-435		CSJ 18	
					PIT	2Y	SP-435			
					STC	CS	SP-435		CSJ 18	

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-103	601 sht 04	H-8	4	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SWV-104	601 sht 04	A-8	4	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SWV-105	601 sht 01	G-5	8	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SWV-109	601 sht 01	C-7	3	GA	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 19
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 19
SWV-110	601 sht 01	A-9	3	GA	A	2	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	CS	SP-435			CSJ 19
					PIT	2Y	SP-435			
					STC	CS	SP-435			CSJ 19
SWV-119	601 sht 04	D-8	2	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					
SWV-120	601 sht 04	E-9	2.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-133	601 sht 04	E-8	2	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-134	601 sht 04	D-8	2	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-139	601 sht 03	E-1	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-140	601 sht 03	E-2	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-142	601 sht 03	E-3	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-144	601 sht 03	E-4	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-151	601 sht 01	H-7	10	BF	A	3	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-344A			
					PIT	2Y	SP-344A			
					STC	Q	SP-344A			

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-152	601 sht 01	H-6	10	BF	A	3	B	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-344A			
					PIT	2Y	SP-344A			
					STC	Q	SP-344A			
SWV-157	601 sht 01	E-7	2.5	GL	M	2	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-158	601 sht 01	E-5	2.5	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-159	601 sht 01	E-5	2.5	GL	M	2	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-160	601 sht 01	E-3	2.5	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-161	601 sht 01	E-2	2.5	GL	M	2	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-162	601 sht 01	E-1	2.5	GA	M	2	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-163	601 sht 03	F-1	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-164	601 sht 03	F-2	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-166	601 sht 03	F-3	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-168	601 sht 03	F-4	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-175	601 sht 03	F-5	0.5 x 1	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
SWV-176	601 sht 03	G-5	0.5 x 1	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
SWV-177	601 sht 03	F-7	0.5 x 1	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
SWV-178	601 sht 03	G-8	0.5 x 1	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-185	601 sht 04	E-8	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-186	601 sht 04	E-8	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-187	601 sht 04	D-9	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-188	601 sht 04	E-9	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-193	601 sht 04	F-2	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-194	601 sht 04	H-2	2.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-199	601 sht 03	B-7	1 x 2	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					RV	10Y	SP-602			
SWV-279	601 sht 04	E-9	2.5	GL	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-280	601 sht 04	F-9	2.5	GL	M	3	B	No	SC/SO	C/O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-284	601 sht 04	C-8	2.5	GA	M	3	B	No	SC/SO	C/O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-285	601 sht 04	D-8	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-291	601 sht 04	F-3	2.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-292	601 sht 04	H-3	2.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-300	601 sht 04	B-3	6	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-307	601 sht 04	G-4	6	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-308	601 sht 01	G-7	8	BF	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-353	601 sht 01	H-7	16	BF	A	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTO	Q	SP-344A			
					PIT	2Y	SP-344A			
					STC	Q	SP-344A			
					STO	Q	SP-344A			
SWV-354	601 sht 01	G-7	16	BF	A	3	B	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTO	Q	SP-344A			
					PIT	2Y	SP-344A			
					STC	Q	SP-344A			
					STO	Q	SP-344A			
SWV-355	601 sht 01	H-7	10	BF	A	3	B	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-344A			
					PIT	2Y	SP-344A			
					STC	Q	SP-344A			
SWV-356	601 sht 01	H-6	10	CK	SA	3	C	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					CVCM					
SWV-362	601 sht 01	B-2	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-364	601 sht 01	B-4	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-365	601 sht 01	B-3	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-367	601 sht 01	D-2	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
SWV-368	601 sht 01	D-4	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
SWV-369	601 sht 01	D-6	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y				
SWV-370	601 sht 02	A-2	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-371	601 sht 02	B-2	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-372	601 sht 02	D-2	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-373	601 sht 02	C-2	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-374	601 sht 02	A-5	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-375	601 sht 02	B-5	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-376	601 sht 02	C-5	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-377	601 sht 02	C-5	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-378	601 sht 02	A-7	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-379	601 sht 02	B-7	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-380	601 sht 02	C-7	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-381	601 sht 02	C-7	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-382	601 sht 02	A-10	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-383	601 sht 02	B-10	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-384	601 sht 02	C-10	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-385	601 sht 02	C-10	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-386	601 sht 01	B-7	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-387	601 sht 04	F-1	0.5 x .	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y	TBD			
SWV-388	601 sht 04	F-2	0.5 x .	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y	TBD			

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-389	601 sht 04	F-2	0.5 x .	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	TBD			
SWV-390	601 sht 04	F-3	0.5 x .	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	TBD			
SWV-391	601 sht 04	B-3	0.5 x .	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	TBD			
SWV-392	601 sht 04	B-3	0.5 x .	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	TBD			
SWV-398	601 sht 04	D-8	0.5 x .	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	TBD			
SWV-399	601 sht 04	D-8	0.5 x .	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	TBD			
SWV-400	601 sht 04	E-8	0.75 x	REL	SA	3	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	TBD			
SWV-403	601 sht 01	E-1	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					TR	10Y	TBD			

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-404	601 sht 01	E-3	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y	TBD			
SWV-405	601 sht 01	E-5	0.75 x	REL	SA	2	C	Yes	C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					TR	10Y	TBD			
SWV-408	601 sht 03	A-4	14	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-409	601 sht 03	C-4	14	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-410	601 sht 03	A-2	14	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-411	601 sht 03	C-2	14	BF	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-412	601 sht 03	A-3	14	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
SWV-413	601 sht 03	B-3	14	CK	SA	3	C	Yes	O/C	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-415	601 sht 03	D-7	0.5	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-420	601 sht 03	B-9	4	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					
SWV-424	601 sht 03	E-1	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-425	601 sht 03	E-2	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-426	601 sht 03	G-1	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-427	601 sht 03	G-2	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-507	601 sht 04	B-8	1.5	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-508	601 sht 04	B-8	1	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					

IST Valve Table

System: Nuclear Services Closed Cycle Cooling **System ID:** SW

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
SWV-509	601 sht 04	C-8	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-510	601 sht 04	C-8	1.5	GL	M	3	B	No	ST	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-579	601 sht 04	A-8	2	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-584	601 sht 03	B-5	1.5	GA	M	3	B	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-607	601 sht 04	E-9	2	GA	M	3	B	No	SO	O
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-695	601 sht 01	A-1	0.75 x	REL	SA	2	C	No	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					N/A					
SWV-730	601 sht 03	D-10	0.375	CK	SA	3	C	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					CVCM					

IST Valve Table

System: Liquid Waste Disposal, Gas Waste Disposal and Waste Gas Sampling **System ID:** WD

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
WDV-003	681 sht 1	B-3	4	GA	MO	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
WDV-004	681 sht 1	B-4	4	DA	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
WDV-060	681 sht 3	A-4	2	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
WDV-061	681 sht 1	A-4	2	DA	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Liquid Waste Disposal, Gas Waste Disposal and Waste Gas Sampling **System ID:** WD

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
WDV-062	681 sht 3	C-4	3	DA	A	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
WDV-094	681 sht 3	C-4	3	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
WDV-1436	681 sht 1	C-4	0.50 x	REL	SA	2	AC	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					TR	10Y				
WDV-1437	681 sht 3	D-4	0.50 x	REL	SA	2	AC	Yes	C	O
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					TR	10Y				
WDV-405	691 sht 1	A-3	1.5	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Liquid Waste Disposal, Gas Waste Disposal and Waste Gas Sampling **System ID:** WD

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
WDV-406	691 sht 1	A-2	1.5	GL	MO	2	A	Yes	C	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Containment Monitoring **System ID:** WS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
WSV-001	693 sht 1	D-3	1	DA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
WSV-002	693 sht 1	D-4	1	DA	M	2	A	No	LC	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					LJ	B	SP-179C			
WSV-003	693 sht 1	E-3	1	BL	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
WSV-004	693 sht 1	E-4	1	BL	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			
WSV-005	693 sht 1	F-3	1	BL	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**			**RR/CSJ/ROJ/Notes**
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	SP-370			
					STC	Q	SP-370			

IST Valve Table

System: Containment Monitoring **System ID:** WS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
WSV-006	693 sht 1	F-4	1	BL	A	2	A	Yes	O	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					FSTC	Q	SP-370			
					LJ	B	SP-179C			
					PIT	2Y	TBD			
					STC	Q	SP-370			
WSV-026	693 sht 1	B-5	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-027	693 sht 1	B-5	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-028	693 sht 1	B-4	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-029	693 sht 1	B-4	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			

IST Valve Table

System: Containment Monitoring **System ID:** WS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
WSV-030	693 sht 1	B-3	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-031	693 sht 1	B-3	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-032	693 sht 1	B-5	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-033	693 sht 1	B-5	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-034	693 sht 1	C-3	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-035	693 sht 1	C-4	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			

IST Valve Table

System: Containment Monitoring **System ID:** WS

Valve ID	Flow Diagram	Coordinate	Size	Type	Actuator	Class	Category	Active?	Normal Position	Safety Position
WSV-038	693 sht 1	B-4	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-039	693 sht 1	B-4	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-040	693 sht 1	G-2	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-041	693 sht 1	G-3	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-042	693 sht 1	G-3	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			
WSV-043	693 sht 1	G-2	0.5	GL	SO	2	A	No	LC	C
					Test	**Frequency**	**Procedure**		**RR/CSJ/ROJ/Notes**	
					LJ	B	SP-179C			
					PIT	2Y	TBD			

6.0 RELIEF REQUESTS

RELIEF REQUEST INDEX

08-001-IT	Pump Suction Pressure Instrument Accuracy

10 CFR 50.55a Relief Request Number 08-001-IT

Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(i)

- Alternative Provides Acceptable Level of Quality and Safety -

1. ASME Components Affected

CHP-1A, CHP-1B

DCP-1A, DCP-1B

MUP-1A, MUP-1B, MUP-1C

BSP-1B

2. Applicable Code Edition and Addenda

ASME OM Code, 2001 Edition through 2003 Addenda.

3. Applicable Code Requirement

ISTB-3510(b)(1) requires that the full-scale range of each analog instrument shall be not greater than three times the reference value.

4. Reason for Request

In accordance with 10 CFR 50.55(a)(3)(i), Florida Power Corporation (FPC), now doing business as Progress Energy Florida, Inc., is requesting a proposed alternative to the Code requirements provided above. The proposed alternative provides an acceptable level of quality and safety.

Contrary to this requirement, the installed suction pressure instruments for these pumps have a full scale range that exceeds the three times reference value criteria specified by ISTB. Although these instruments do not meet the Code requirements, they are able to provide the same or better indication accuracy than allowed by the Code, and ensure repeatability of test data.

For instruments to be in compliance with ISTB-3500, two requirements must be satisfied. The first requirement states that instrumentation must be accurate to within ±2% of the full scale value; the second requirement states that the full scale range of each instrument shall be three times the reference value or less (for analog instruments). Based on these requirements, a maximum indicated accuracy of ±6% can be calculated by comparing the actual tolerance of the instrument to the reference value being measured.

An example of calculating indicated instrument accuracy is as follows (from NUREG-1482 Rev. 1, Paragraph 5.5.1):

This example uses a reference pressure value of 20 psig and an analog pressure gauge with full scale range of 60 psig that is calibrated to ±2% of full scale.

Code requirement:

Reference value = 20 psig

3 x reference value = 60 psig

Instrument tolerance = 1.2 psig (±2% x 60 psig)

Indicated accuracy:

±1.2 psig / 20 psig x 100 = ±6%

Following the methodology used in NUREG-1482 Rev. 1 and the example above, the indicated instrument accuracy can be calculated for each suction pressure instrument used for the pumps. The following table provides the calculated indicated instrument accuracies:

Table 1: Calculated Instrument Accuracies for Suction Pressure Instruments

PUMP ID	INSTR NUMBER	REF VALUE	INSTR RANGE	INSTR ACCUR	INSTR TOL	IND ACCUR
CHP-1A	CH-646-PI	8 PSIG	0-60 PSIG	± 0.5 %	± 0.3 PSIG	± 3.75 %
CHP-1B	CH-651-PI	8 PSIG	0-60 PSIG	± 0.5 %	± 0.3 PSIG	± 3.75 %
DCP-1A	DC-1-PI	7 PSIG	0-30 PSIG	± 1 %	± 0.3 PSIG	± 4.29 %
DCP-1B	DC-2-PI	7 PSIG	0-30 PSIG	± 1 %	± 0.3 PSIG	± 4.29 %
MUP-1A	MU-9-PI1	15 PSIG	0-60 PSIG	± 0.5 %	± 0.3 PSIG	± 2.00 %
MUP-1B	MU-9-PI2	15 PSIG	0-60 PSIG	± 0.5 %	± 0.3 PSIG	± 2.00 %
MUP-1C	MU-9-PI3	15 PSIG	0-60 PSIG	± 0.5 %	± 0.3 PSIG	± 2.00 %
BSP-1B	BS-9-PI2	30 PSIG	0-100 PSIG	± 0.5 %	± 0.5 PSIG	± 1.67 %

Where:

REF VALUE = reference value established by the procedure.

INSTR ACCUR = accuracy to which instrument is calibrated.

INSTR TOL = maximum INSTR RANGE times INSTR ACCUR.

IND ACCUR = INSTR TOL divided by REF VALUE times 100.

As shown on Table 1, the indicated accuracy for the suction pressure instruments is less than ±6% of the reference value. These accuracies are the same or better than those allowed by the Code. Therefore, there is no overall impact on the capability to detect and monitor

degradation during pump tests based on use of these instruments. Continued use of the existing installed instruments is supported by NUREG-1482 Rev. 1, Paragraph 5.5.1 which states that when the range of an installed analog instrument is greater than 3 times the reference value but the accuracy of the instrument is more conservative than the Code, NRC staff will grant relief when the combination of the range and accuracy yields a reading at least equivalent to the reading achieved from instruments that meet the Code requirements (i.e. up to ± 6%).

5. Proposed Alternative and Basis for Use

Since the indicated accuracy of each permanently installed instrument is less than the ±6% allowed tolerance, Progress Energy requests approval for continued use of the existing suction pressure instruments for the pumps listed in this relief request.

6. Duration of the Proposed Alternative

The proposed alternative will be used for the entire fourth 10-year interval for CR-3.

7. Precedents

Progress Energy was granted relief during the Third IST Intervals. [Previous Relief Request 98-001-IT]

8. References

1. ASME OM Code, 2001 Edition through 2003 Addenda, Subsection ISTB
2. NUREG-1482 Rev. 1, "Guidelines for Inservice Testing at Nuclear Power Plants"

7.0 COLD SHUTDOWN JUSTIFICATIONS

COLD SHUTDOWN JUSTIFICATION (CSJ) INDEX

CSJ-01	AHV-1A, B, C, D - STC and FSTC (A, D).
CSJ-02	DHV-3, 4 STO, STC
CSJ-03	DHV-5, 6 STO, STC
CSJ-04	DWV-160 STC
CSJ-05	FWV-14, 15, 28, 29, 30, 31, 32, 33, 36 STC
CSJ-06	MSV-25, 26 STO, STC, FSTC
CSJ-07	MSV-411, 412, 413, 414 STC, FSTC and STO (411,413)
CSJ-08	MSV-130, 148 STC, FSTC
CSJ-09	MUV-49 STC
CSJ-10	MUV-18, 27, 596 STC
CSJ-11	MUV-541 STC, FSTC
CSJ-12	MUV-53, 257 STO, STC
CSJ-13	MUV-253, 258, 259, 260, 261 STC (253 FSTC)
CSJ-14	MUV-567 STC
CSJ-15	RCV-157, 158, 159, 160, 163, 164 STO, STC, FSTC
CSJ-16	SWV-12 STC, FSTC
CSJ-17	SWV-47, 48, 49, 50 STC, FSTC
CSJ-18	SWV-79, 80, 81, 82, 83, 84, 85, 86 STC, FSTC
CSJ-19	SWV-109, 110 STC, FSTC
CSJ-20	RCV-53 STO, STC

COLD SHUTDOWN JUSTIFICATION - CSJ - 01

COMPONENTS: AHV-1A, AHV-1B, AHV-1C, AHV-1D

FUNCTION:

These normally locked closed Reactor Building Purge Isolation valves perform a passive safety function in the closed position for containment isolation during modes 1 through 4. In modes 5 and 6, they receive an automatic close signal due to high radiation.

CATEGORY: A CLASS: 2

DEFERRED TEST JUSTIFICATION:

Exercising of these valves during operation is not possible because they are required to be locked closed in modes 1 through 4. Stroke timing is not required by the code since this is not a safety function in modes 5 or 6. Timing is performed to verify operability per Technical Specification. Stroke time closed test will be considered an augmented test in the Inservice Testing Program.

ALTERNATE TESTING:

When these valves are opened in modes 5 or 6 they will be stroke timed to the closed position. This testing is not required to be performed more often than quarterly during cold shutdown or refuel. If they are not energized, no testing will be performed since they are considered passive closed. Fail safe testing of valves AHV-1A and AHV-1D is satisfied by stroke timing of the valve.

Third ten-year interval identified this justification as CSJ-01.

COLD SHUTDOWN JUSTIFICATION - CSJ - 02

COMPONENTS: DHV-3 and DHV-4

FUNCTION:

During normal plant operation, these valves isolate the Decay Heat Removal System (low pressure) from the reactor coolant hot leg (high pressure). They automatically close when the Reactor Coolant System pressure reaches 284 psig, increasing. They are opened during normal cool down of the Reactor to the Cold Shutdown condition, and during post-Loss of Coolant Accident to prevent boron precipitation in the Core which could block flow channels.

CATEGORY: B CLASS: 1

DEFERRED TEST JUSTIFICATION:

DHV-3 and DHV-4 have design interlocks which require them to be closed during normal plant operation when the Reactor Coolant System is $\geq$ 284 psig (ITS 3.4.13). Due to their design, these valves cannot be exercised during normal plant operation. They are normally "Locked" Closed by power removed to prevent spurious opening in the event of a fire.

ALTERNATE TESTING:

These valves shall be full-stroke exercised and timed open and closed during cold shutdowns. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-04.

COLD SHUTDOWN JUSTIFICATION - CSJ - 03

COMPONENTS: DHV-5 and DHV-6

FUNCTION:

These normally closed low pressure injection containment isolation valves have a safety function in both the open and closed positions. They open upon receiving a low pressure injection signal for injection and also for normal cool down to Cold Shutdown condition. They close for containment isolation.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

Environmental Qualification 89-0725 and Environmental Qualification 89-0361 both recommend not stroking DHV-5 and DHV-6 during normal plant operations. DHV-5 and DHV-6 assist in providing positive isolation of the Reactor Coolant System from the Decay Heat System. If these valves were opened during normal plant operation and the line was pressurized upstream of the valves due to leakage past DHV-1 or DHV-2, overpressurization of the Decay Heat System piping could occur.

ALTERNATE TESTING:

These valves shall be full-stroke exercised and timed open and closed during cold shutdowns. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-05.

COLD SHUTDOWN JUSTIFICATION - CSJ - 04

COMPONENTS: DWV-160

FUNCTION:

This valve is open during normal operations of the plant to supply demineralized water for continuous flushing of the Reactor Coolant Pump seals. It receives an Engineered Safeguard signal for Containment Isolation when the Reactor Building reaches 4 psig pressure and increasing.

CATEGORY: A CLASS: 2

DEFERRED TEST JUSTIFICATION:

Each Reactor Coolant Pump seal receives demineralized water through a small needle valve that, prior to a plant startup, is manually set to a predetermined flow. Once the flow has been set, via local flow indicators, these four separate values are used in the daily Reactor Coolant System inventory calculations. The cycling of DWV-160, when Condensate and Demineralized Water Supply flow is established to the Reactor Coolant Pump seal flushing system, causes the needle valves to receive a surge which changes the preset position of these needles. This, in turn, causes the daily Reactor Coolant System inventory calculations to have an error in them. The control circuitry of this valve does not permit partial exercising.

ALTERNATE TESTING:

This valve shall be full-stroke exercised and timed closed during cold shutdowns. In case of frequent cold shutdowns this valve need not be exercised more often than once every three (3) months.

Second ten-year interval identified this justification as CSJ-06.

COLD SHUTDOWN JUSTIFICATION - CSJ - 05

COMPONENTS: FWV-14, FWV-15, FWV-28, FWV-29, FWV-30, FWV-31, FWV-32, FWV-33, FWV-36

FUNCTION:

FWV-14 and FWV-15, Turbine Driven Main Feedwater Pump Suction Isolation Valves; FWV-28, Main Feedwater Pump 3B to Steam Generator 3A cross tie; FWV-29 and FWV-30, Main Feedwater Block Valves; FWV-31 and FWV-32, Main Feedwater Low-Load Block Valves; FWV-33 and FWV-36, Main Feedwater Throttling Start-up Block Valves. These valves are the Main Feedwater Isolation Valves. Under normal conditions these valves are open to various positions to supply feedwater to the steam generators depending on power level and feedwater demand. In the event of reactor trip and/or emergency feedwater initiation, FWV-14, 15, 29, 30, 31 and 32 are automatically isolated by the Integrated Control System. Automatic controls, independent of the Integrated Control System, are designed to assure closure of all Feedwater Block valves (FWV-14, 15, 28, 29, 30, 31, 32, 33 and 36) in the event of a main steam line break to prevent the addition of positive reactivity and a resulting power increase.

CATEGORY: B CLASS: 2 (valves FWV-29, -30, -31, -32, -33, and -36)
3 (valves FWV-14, -15, and -28)

DEFERRED TEST JUSTIFICATION:

Full-stroke exercising of these valves during Plant Operation is not possible because loss of feedwater supply to a steam generator would likely cause the plant to trip due to low feedwater level in the generator. For this reason partial stroke testing of the end devices has also been discontinued as a part of the monthly Feedwater Isolation Functional Test and only matrix logic is verified.

ALTERNATE TESTING:

These valves are full-stroke exercised and timed closed during cold shutdowns. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Second ten-year interval identified this justification as CSJ-09.

COLD SHUTDOWN JUSTIFICATION - CSJ - 06

COMPONENTS: MSV-25, MSV-26, MSV-27, MSV-28

FUNCTION:

The Main Steam Line Atmospheric Dump Valves (MSV-25, MSV-26) function as Control Valves to provide pressure control for the removal of decay heat from the Reactor Coolant System following a reactor trip; they prevent excessive challenges to the Main Steam Safety Valves. The manual isolation valves (MSV-27, MSV-28) allow the Dump valves to relieve when open and prevent excessive cool down if the Dump valve fails open.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

In order to exercise the dump valves during normal plant operations, they would have to be isolated from the Main Steam system via single isolation valves MSV-27 (for MSV-25) and MSV-28 (for MSV-26). These isolation valves are manually operated. If significant leakage past the single isolation valve were to occur, and MSV-25 or MSV-26 were exercised, the steam dumped to atmosphere may cause a transient on the system that could lead to a low main steam pressure event which, if low enough, would actuate the Emergency Feedwater Initiation and Control System. Additionally, in order to time-stroke exercise MSV-25 and MSV-26, lifted leads, jumpers, etc. are required, as the timing measures the valve stroke using a simulation of current signals to the valves' control system (4-20 ma, close-to-open). For personnel safety reasons, this should not be performed with single valve isolation from the Main Steam system.

ALTERNATE TESTING:

MSV-25 and MSV-26 are full-stroke exercised during Cold Shutdown outages. Fail-safe testing of these valves naturally occurs as they are air-operated, and the closure signal bleeds air off, simulating a loss of power. Manual valves MSV-27 and MSV-28 are exercised during the dump valve test at cold shutdown frequency. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Second ten-year interval identified this justification as CSJ-11.

COLD SHUTDOWN JUSTIFICATION - CSJ - 07

COMPONENTS: MSV-411, MSV-412, MSV-413, MSV-414

FUNCTION:

During operation, these normally open Piston Operated Valves provide for Main Steam line isolation in the event of an upstream Main Steam line break to prevent the uncontrolled blowdown of a steam generator; and the addition of positive reactivity to the core and a resulting power increase. In addition, the MSV-411 and MSV-413 valves must open after closure to mitigate the consequences of a Once-Through Steam Generator tube rupture by utilizing the Turbine Bypass Valves to reduce the amount of iodine released to the environment.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

Full-stroke exercising these valves during plant operation is not practical as it would cause steam generator and feedwater temperature and pressure fluctuation that would likely trip the plant. Partial stroke testing is no longer performed due to recommendations in Improved Technical Specification Surveillance Requirement 3.7.2.1 and NUREG 1482 Rev. 1, Section 4.2.4.

ALTERNATE TESTING:

These valves shall be full-stroke exercised and timed closed during cold shutdowns. Fail-safe testing is performed at the same frequency. Valves MSV-411 and MSV-413 will be stroke timed open as well during cold shutdown. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Second ten-year interval identified this justification as CSJ-12.

COLD SHUTDOWN JUSTIFICATION - CSJ - 08

COMPONENTS: MSV-130 and MSV-148

FUNCTION:

MSV-130 & MSV-148, Steam Generator 3A & 3B drain isolation valves. These are block valves outside containment to drain the secondary side of the steam generator. These valves remain closed and are not opened during normal plant operation.

CATEGORY: A CLASS: 2

DEFERRED TEST JUSTIFICATION:

Stroking these valves during normal plant operation would drain feedwater from the Once-Through Steam Generator and create severe system upset transients. Valve control circuitry is not provided with partial stroke capability.

ALTERNATE TESTING:

These valves shall be full-stroke exercised and timed in the closed direction during cold shutdowns. Fail-safe testing is satisfied by stroke timing since air is vented. Additionally, they are tested in accordance with 10CFR50, Appendix J, Type C leak rate testing at the specified 10CFR50 Option B frequency. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-14.

COLD SHUTDOWN JUSTIFICATION - CSJ - 09

COMPONENTS: MUV-49

FUNCTION:

This valve is the Letdown cooler isolation block valve outside containment; all Reactor Coolant system letdown passes through this valve. It has a close safety function to automatically isolate containment on Engineered Safeguard or Diverse Containment isolation signal.

CATEGORY: A CLASS: 2

DEFERRED TEST JUSTIFICATION:

Stroking this valve during normal plant operation would temporarily isolate the Reactor Coolant Letdown flowpath. Should this valve fail in the closed position while stroking during normal plant operation, the Reactor Coolant system letdown capabilities would be lost. Reactor Coolant pump seal injection cannot be terminated, therefore the plant would eventually have to be tripped on high pressurizer level. Additionally, this valve is not designed for partial stroking.

ALTERNATE TESTING:

This valve shall be full-stroke exercised and timed in the closed direction during cold shutdowns. Fail-safe test is not required since air supply is from a dedicated accumulator. Leak testing is performed in accordance with 10CFR50 Appendix J Option B frequency requirements. In case of frequent cold shutdowns this valve need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-15.

COLD SHUTDOWN JUSTIFICATION - CSJ - 10

COMPONENTS: MUV-18, MUV-27, and MUV-596

FUNCTION:

MUV-18, Reactor Coolant Pump Seal Injection Water Isolation Valve, is a normally open block valve outside containment for isolation of Reactor Coolant pump seal injection. This valve auto closes on an Engineered Safeguard (ES Train B) diverse actuation signal, and is within the scope of the Containment Leak Rate Testing (Appendix J) Program.

MUV-27, Makeup isolation valve to reactor coolant system, is normally open for makeup to reactor coolant system. This valve auto closes on an Engineered Safeguard (ES Train B) diverse actuation signal.

MUV-596, Common Reactor Coolant Pump Seal Injection Water / Make-Up Isolation Valve, is a normally open isolation valve. This valve isolates both Reactor Coolant pump seal injection water and normal Reactor Coolant Make-Up on an Engineered Safeguard (ES Train A) diverse actuation signal.

Each of these valves must be capable of closure for some accidents. Closure of these valves ensures that High Pressure Injection water is not diverted from being available for post-accident injection and recirculation phases.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

Stroking of the MUV-18 valve would interrupt seal injection flow to the Reactor Coolant pump seal packages, resulting in potential damage to the seals. Should this valve fail in the closed position during a full-stroke test during normal plant operation, the normal means of reactor coolant pump seal injection is removed. Additionally, the control circuitry of this valve does not permit partial exercising.

Stroking of the MUV-27 valve during normal operation would temporarily isolate the normal makeup flow path to the Reactor Coolant system. Should this valve fail in the closed position during a full-stroke test during normal plant operation, the normal means of pressurizer level control is removed. This would cause a potential unsafe plant condition. Additionally, the control circuitry of this valve does not permit partial exercising.

Stroking of the MUV-596 during normal operation would result in both interruptions described above for MUV-18 and MUV-27.

COLD SHUTDOWN JUSTIFICATION - CSJ – 10 (continued)

ALTERNATE TESTING:

These valves will be full-stroke exercised and timed closed during cold shutdowns. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-16.

COLD SHUTDOWN JUSTIFICATION - CSJ - 11

COMPONENTS: MUV-541

FUNCTION:

Normal operational function is to allow for the addition of boric acid and/or demineralized water to the Reactor Coolant System to maintain proper boron concentration and Reactor Coolant System inventory. Closes when preset batch limit has been reached or rods are inserted a predetermined amount.

CATEGORY: A CLASS: 3

DEFERRED TEST JUSTIFICATION:

Stroking this valve during power operations affects boron concentration and Reactor Coolant System inventory. A failure during stroke timing would result a transient that could challenge safety systems. Quarterly exercising of this valve is therefore considered impractical and does not provide a commensurate increase in the level of plant safety considering the possible adverse affects.

ALTERNATE TESTING:

This valve shall be full-stroke exercised and timed closed during cold shutdowns. Fail-safe testing is satisfied by stroke timing of the valve. In case of frequent cold shutdowns this valve need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-17.

COLD SHUTDOWN JUSTIFICATION - CSJ - 12

COMPONENTS: MUV-53 and MUV-257

FUNCTION:

These normally open Makeup recirculation valves close automatically on receipt of Engineered Safeguard signal to ensure maximum flow to the Reactor Coolant System when in the High Pressure Injection mode. They isolate non-essential portion of the Makeup System when in post-Loss of Coolant Accident injection and recirculation phases. The valves provide redundant isolation capability to satisfy single failure. Open function is to protect equipment, but not a safety function required for accident mitigation.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

The stroking of these valves during normal plant operation would provide insufficient minimum recirculation flow on the running makeup (high pressure injection) pump. All three pumps have a common minimum recirculation flow line. Should either valve fail in the closed position, damage would result to the running pump. Valve actuating circuitry does not provide for controlled partial stroke capability.

ALTERNATE TESTING:

These valves shall be full-stroke exercised and timed during cold shutdowns. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-18.

COLD SHUTDOWN JUSTIFICATION - CSJ - 13

COMPONENTS: MUV-253, MUV-258, MUV-259, MUV-260, MUV-261

FUNCTION:

Controlled bleedoff Reactor Building isolation and controlled bleedoff isolation valves from Reactor Coolant pumps 3A1, 3A2, 3B1 and 3B2. These normally open valves have an active safety function to close for containment isolation.

CATEGORY: A CLASS: 2

DEFERRED TEST JUSTIFICATION:

Quarterly stroking of these valves will temporarily isolate Reactor Coolant Pump controlled bleedoff. Should any of these valves fail in the closed position while full stroking during normal plant operation, the design mode of normal controlled bleedoff of one (1) gpm of the Reactor Coolant pump seal would be lost. This could lead to seal degradation and possibly premature Reactor Coolant pump seal failure. Seal replacement is a high dose exposure maintenance item. The control circuitry of these valves does not permit partial exercising.

ALTERNATE TESTING:

These valves shall be full-stroke exercised and timed closed during cold shutdowns. Fail-safe test of MUV-253 is satisfied by stroke timing since air is vented. Leak testing is performed in accordance with 10CFR50 Appendix J Option B frequency requirements. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-19.

COLD SHUTDOWN JUSTIFICATION - CSJ - 14

COMPONENTS: MUV-567

FUNCTION:

This valve provides Reactor Coolant System letdown line isolation inside containment. Since all Reactor Coolant System letdown passes through this valve, it is required to be open during power operations. Modification 97-06-20-01 installed this valve and it replaces the containment isolation function of valves MUV-40, MUV-41 and MUV-505. Therefore, the valve must close on a Containment Isolation Signal to ensure containment integrity.

CATEGORY: A CLASS: 1

DEFERRED TEST JUSTIFICATION:

Stroking this valve during normal plant operation would temporarily isolate the Reactor Coolant Letdown flowpath. Should this valve fail in the closed position while stroking during normal plant operation, the Reactor Coolant System letdown capabilities would be lost. Since Reactor Coolant pump seal injection cannot be terminated, the plant would eventually have to be tripped on high pressurizer level. This valve's circuitry is not designed to permit a partial stroke. Additionally, stroking this valve could result in thermal shock to the inservice letdown cooler by readmitting hot water to the cooled heat exchanger. Previous plant experience indicates that this thermal cycling can lead to letdown cooler failure and is therefore not conducive to safe plant operation. Quarterly stroking of this valve during normal plant operation is therefore considered impractical.

ALTERNATE TESTING:

This valve shall be full-stroke exercised and timed in the closed direction during cold shutdowns. Leak testing is performed in accordance with 10CFR50 Appendix J Option B frequency requirements. In case of frequent cold shutdowns, this valve need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-20.

COLD SHUTDOWN JUSTIFICATION - CSJ - 15

COMPONENTS: RCV-157, RCV-158, RCV-159, RCV-160, RCV-163, RCV-164

FUNCTION:

These valves are the Reactor Coolant System vent valves. These valves were installed in response to NUREG 0737 commitments. Their function is to open to vent non-condensable gases from the Reactor Coolant System in the event of an accident. Formation of gas pockets could prevent natural circulation of the coolant when required for Core heat removal. These valves also have a closed function to provide Reactor Coolant System pressure integrity.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

These normally closed, fail closed, solenoid operated valves provide Reactor Coolant System pressure boundary during plant operation. Since these valves are designed to vent gases to the containment atmosphere post accident, exercising these valves during normal operation could result in discharge of Reactor Coolant System to the containment atmosphere and increase radioactive contamination levels for the containment and nearby equipment. Additionally, failure of a vent valve to close, if opened, would degrade the double valve isolation requirements for Reactor Coolant System pressure boundary and increase the potential for Reactor Coolant System leakage. Quarterly exercising of these valves is therefore, impractical and does not provide a commensurate increase in the level of plant safety considering the possible adverse affects.

ALTERNATE TESTING:

These valves will be exercised, stroke timed, and fail safe tested in accordance with ISTC requirements during cold shutdown outages. Position indication verification will be performed on at least a refueling outage frequency. For Pressurizer vent valves RCV-159 and RCV-160, the above testing will only be performed during cold shutdown outages of sufficient duration where the Pressurizer steam bubble has been collapsed and a nitrogen bubble established. This may result in postponing testing of RCV-159 and RCV-160 during short duration cold shutdowns. In case of frequent cold shutdowns this valve need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-21.

COLD SHUTDOWN JUSTIFICATION - CSJ - 16

COMPONENTS: SWV-12

FUNCTION:

This valve is required to close on Reactor Building Cooling Actuation "A" or "B" to isolate non-essential loads from the Nuclear Services Closed Cycle Cooling System post accident. The valve is normally open and provides Nuclear Services Closed Cycle Cooling System cooling to non essential loads during power operations.

CATEGORY: B CLASS: 3

DEFERRED TEST JUSTIFICATION:

During normal plant operations, this valve remains in the open position to ensure a continuous supply of cooling water to the Reactor Coolant Pump Seal Return Coolers and other loads. Quarterly stroking of this valve will temporarily isolate cooling water to the Seal Return Coolers thereby preventing adequate cooling of both Makeup pump recirculation and Reactor Coolant Pump seals controlled bleedoff. Should this valve fail in the closed position while full stroking during normal plant operation, a plant shutdown could be required in addition to possible component damage. Quarterly exercising of this valve is therefore, impractical and does not provide a commensurate increase in the level of plant safety considering the possible adverse affects.

ALTERNATE TESTING:

This valve shall be full-stroke exercised, time closed, and fail-safe tested during cold shutdowns. In case of frequent cold shutdowns this valve need not be tested more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-22.

COLD SHUTDOWN JUSTIFICATION - CSJ - 17

COMPONENTS: SWV-47, SWV-48, SWV-49, SWV-50

FUNCTION:

These valves provide containment isolation for Reactor Building Penetrations associated with Nuclear Services Closed Cycle Cooling lines to and from the Reactor Coolant System Letdown Coolers and Reactor Coolant Drain Tank Cooler. These valves are open during normal operation to assure adequate cooling water is provided to components served.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

Quarterly stroking of these valves will temporarily isolate cooling water to the operating letdown cooler(s). The stroking of these valves could therefore result in thermal shock to the inservice letdown cooler(s) by readmitting cooling water to the hot heat exchanger. Previous plant experience indicates that this thermal cycling can lead to letdown cooler failure and is therefore not conducive to safe plant operation. Should any of these valves fail in the closed position while full stroking during normal plant operation, transfer of cooling to an alternate letdown cooler may be required and could result in operational burden. Quarterly testing of these valves is therefore considered impractical.

ALTERNATE TESTING:

These valves shall be full-stroke exercised, stroke timed closed, and fail safe tested during cold shutdowns. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months. Although these valves are Containment Isolation Valves for their affected Reactor Building penetrations, the Nuclear Services Closed Cycle Cooling System is considered a closed system outside Containment and per the Crystal River Unit 3 Final Safety Analysis Report, local leakage rate testing of these valves is not required.

Third ten-year interval identified this justification as CSJ-23.

COLD SHUTDOWN JUSTIFICATION - CSJ - 18

COMPONENTS: SWV-79, SWV-80, SWV-81, SWV-82, SWV-83, SWV-84, SWV-85, SWV-86

FUNCTION:

These valves are normally open for supplying Nuclear Services Closed Cycle Cooling to the Reactor Coolant Pumps' motor bearings, seals and coolers. These valves have a required function to close on Reactor Building Isolation Actuation "A" or "B", coincident with a low surge tank level, thereby isolating a portion of the Nuclear Services Closed Cycle Cooling System which is not required for the safe shutdown of the Plant or for accident mitigation. These valves serve as containment isolation valves for their affected Reactor Building Penetrations.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

During normal plant operations, these valves remain in the open position to ensure a continuous supply of cooling water to the Reactor Coolant Pump motor bearings, air cooler, and seal area coolers. Exercising these valves to the closed position during power operation is not considered practical. Failure of a valve to re-open during stroke testing could lead to pump damage or require that a Reactor Coolant Pump be tripped, thereby adversely affecting plant operation. There are no provisions for a partial stroke for these valves.

ALTERNATE TESTING:

These valves shall be full-stroke exercised, timed closed, and fail safe tested during cold shutdowns. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months. Although these valves are Containment Isolation Valves for their affected Reactor Building penetrations, the Nuclear Services Closed Cycle Cooling System is considered a closed system outside Containment and per the Crystal River Unit 3 Final Safety Analysis Report, local leakage rate testing of these valves is not required.

Third ten-year interval identified this justification as CSJ-24.

COLD SHUTDOWN JUSTIFICATION - CSJ - 19

COMPONENTS: SWV-109 and SWV-110

FUNCTION:

These valves are normally open for supplying Nuclear Services Closed Cycle Cooling to the Control Rod Drive Motor stators. These valves have a required function to close on Reactor Building Isolation Actuation "A" or "B" thereby isolating a portion of the Nuclear Services Closed Cycle Cooling System which is not required for the safe shutdown of the Plant or for accident mitigation. These valves serve as containment isolation valves for their affected Reactor Building Penetrations.

CATEGORY: B CLASS: 2

DEFERRED TEST JUSTIFICATION:

Quarterly stroking of these valves will temporarily isolate Control Rod Drive Motor stator cooling for all Control Rod Drive Motors. Exercising these valves to the closed position during power operation is not considered practical. Valve failure to re-open during stroke testing could lead to Control Rod Drive Motor stator and Nuclear Services Closed Cycle Cooling booster pump damage and require a plant shutdown due to excessive stator temperatures. There are no provisions for a partial stroke for these valves.

ALTERNATE TESTING:

These valves shall be full-stroke exercised, timed closed, and fail safe tested during cold shutdowns. In case of frequent cold shutdowns these valves need not be exercised more often than once every three (3) months. Although these valves are Containment Isolation Valves for their affected Reactor Building penetrations, the Nuclear Services Closed Cycle Cooling System is considered a closed system outside Containment and per the Crystal River Unit 3 Final Safety Analysis Report, local leakage rate testing of these valves is not required.

Third ten-year interval identified this justification as CSJ-25.

COLD SHUTDOWN JUSTIFICATION - CSJ - 20

COMPONENTS: RCV-53

FUNCTION:

This valve is the normally closed motor operated block valve in the Auxiliary Pressurizer Spray line. This valve has a required safety function in the open direction to provide a flowpath from the Decay Heat / Makeup system through the Reactor Coolant System for the mitigation of boron precipitation concerns post accident. This valve has an operational open function to establish Auxiliary Pressurizer Spray and provide Reactor Coolant System pressure control to achieve cold shutdown when normal pressurizer spray (via Reactor Coolant Pumps) is not available. RCV-53 also has a closure function for providing Reactor Coolant System pressure boundary.

CATEGORY B CLASS: 1

DEFERRED TEST JUSTIFICATION:

Valve RCV-53 is maintained in the closed position during power operations. This valve provides the class break from Class 1 to Class 3 and serves with check valve RCV-12 as the required double isolation valves for Reactor Coolant System pressure boundary integrity. Failure of this valve to close, if opened during testing, would degrade the double valve isolation requirements for Reactor Coolant System pressure boundary (leaving only check valve RCV-12) and would increase the potential for Reactor Coolant System leakage. Quarterly exercising of this valve is therefore, impractical and does not provide a commensurate increase in the level of plant safety considering the possible adverse affects.

ALTERNATE TESTING:

This valve shall be full-stroke exercised and timed during cold shutdowns. In cases of frequent cold shutdowns this valve need not be exercised more often than once every three (3) months.

Third ten-year interval identified this justification as CSJ-27

8.0 REFUELING OUTAGE JUSTIFICATIONS

REFUELING OUTAGE JUSTIFICATION (ROJ) INDEX

ROJ-1 MSV-9,10,11,14 - STO, STC, FSTC

REFUELING OUTAGE JUSTIFICATION - ROJ - 1

COMPONENTS: MSV-9, MSV-10, MSV-11 and MSV-14

FUNCTION:

These valves are Turbine Bypass Valves and provide a flow path for diverting Main Steam from the turbine to the condenser. The Steam Generator Tube Rupture analysis takes credit for Turbine Bypass Valves operating to help cool the Reactor Coolant System to a pressure below that of the degraded Once-Through Steam Generator and to divert a portion of the leaked primary coolant to the condenser, reducing offsite doses.

CATEGORY: AUGMENTED CLASS: 4

DEFERRED TEST JUSTIFICATION:

These valves are non-Code Class 1, 2, or 3 valves that are included in the Inservice Testing program as an augmented test requirement. These valves cannot be exercised during normal operation since a plant transient would result from diversion of main process steam from the turbine generator. It is also not practical to exercise these valves during cold shutdowns since test equipment must be installed for stroke timing these valves. The Nuclear Regulatory Commission has determined that the need to setup test equipment is adequate justification to defer testing of a valve until a refueling outage.

ALTERNATE TESTING:

These valves will be stroke timed to the open and closed positions and fail safe tested on a refueling outage frequency. This testing is being performed as an augmented non-Code requirement.

Third ten-year interval identified this justification as ROJ-10.