SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

NUCLEAR OPERATIONS

FOR INFORMATION ONLY

NUCLEAR OPERATIONS

COPY NO. 1

GENERAL TEST PROCEDURE

GTP-302

INSERVICE TESTING OF VALVES SECOND TEN YEAR INTERVAL

REVISION 8

SAFETY RELATED

Gerald A Loignon Jr — 12/28/93
DISCIPLINE SUPERVISOR — DATE

Gerald A Loignon Jr for John Nesbitt — 12/29/93
APPROVAL AUTHORITY — DATE

RECORD OF CHANGES

CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE	CHANGE LETTER	TYPE CHANGE	APPROVAL DATE	CANCELLATION DATE
A	P	2-9-94					

INFORMATION USE

Procedure May Be Performed From Memory.
User Retains Accountability for Proper Performance.

NUCLEAR OPERATIONS

COPY NO. ______________

PROCEDURE DEVELOPMENT FORM - A

I. DATE: 1-25-94 PROC. # GTP-302 REV. # 8 CHG. A COMM. # ______

TITLE: INSERVICE TESTING of VALVES SECOND TEN YEAR INTERVAL

NEW PROC ___ CHANGE X PERMANENT X SAFETY RELATED X

REVISION ___ RESTRICTED ___ FROM __________ TO __________ QUALITY RELATED ___

NON-SAFETY RELATED ___

II. DESCRIPTION: ① Step 5.3.2.A.10.a+b, deleted '(s)'. ② Step 5.3.2.A.10.c, deleted reference to 96 hours. ③ Step 5.3.2.B.3.f equation, corrected spacing. ④ 5.3.3.B.2.d+e, corrected spacing. ⑤ Step 5.3.3.B.5.a +b, corrected spacing. ⑥ Enclosure 7.1.E, moved XVG09600 to after XVT09593C. ⑦ Enclosure 7.1.F, added 'FS-Q(c)' to XVT08153 and XVT08154. ⑧ ~~Enclosure~~ RRM 1-25-94 Attachment III, updated step IV, corrected typos in step V and VI.

REASON FOR CHANGE:
① Procedure enhancement. ② To prevent the inadvertent delay in declaring a valve inoperable. ③④⑤⑥ Procedure enhancements. ⑦ Correct table to reflect required testing. ⑧ Updated Attachment to improve its interface with the implementing STPs.

Robert D McGowen
Originator

III. WILL THIS REVISION/CHANGE/NEW PROCEDURE:

		* YES	NO	N/A
1	Result in significant increased personnel radiation exposure? (ALARA review)	___	X	
2	Result in a release of effluents to the Environment?	___	X	
3	Degrade the effectiveness of the Radiation Emergency Plan?	___	___	X
4	Degrade the safeguards effectiveness of the Physical Security, Safeguards Contingency or Training and Qualification Plans?	___	___	X

* If any question 1 through 4 is answered "YES", refer to appropriate section of procedure for direction.

REQUIRED REVIEW AND COMMENT:

(X) OPS	(X) NL&OE	( ) CHS	( ) GMNPO	( ) ______
(X) MNTS	( ) PRS	( ) HPS	( ) GMES	( ) ______
(X) QA	( ) NPS	( ) MNT	( ) GMNSF	( ) ______
(X) QC	( ) TS	( ) GMSS	(X) QR (________)	( ) ______

Arnold R Lorgino Jr. 1/26/94
Discipline Supervisor Date

IV. 10CFR50.59 SCREENING REVIEW/SAFETY EVALUATION

X REQUIRED ☐ EXEMPT ☐ PSRC SUPPORTING DOCUMENT: __________ Arnold R Lorgino Jr. 2/8/94
Discipline Supervisor concurrence

V. TEMPORARY APPROVAL:

QUALIFIED REVIEWER __________ DATE ______ QA REVIEW __________ DATE ______

TELECON BY __________ TELECON BY __________

SHIFT SUPERVISOR __________ DATE ______ FINAL APPROVAL REQUIRED BY: DATE ______

VI. DISCIPLINE SUPERVISOR FINAL REVIEW:

TRAINING REQUIRED? YES ___ NO ✓

IF YES, PRIOR TO PROCEDURE IMPLEMENTATION? YES ___ NO ___

P/CAP AFFECTED? YES ___ NO ✓

COMMENTS RESOLVED: Arnold R Lorgino Jr. 2/8/94
Discipline Supervisor Date

VII. P/CAP ACCEPTABLE?

C. YES ___ NO ___ ______ / ______
NL&OE Date

N. YES ___ NO ___ ______ / ______
RESP. MGR. Date

VIII. FINAL QA REVIEW (As Applicable)

Wm U Pearson 2-9-94
QA Concurrence Date

IX. APPROVAL AUTHORITY:

[signature] 2/9/94
Approval/Concurrence Date

X. PSRC REVIEW:

A. REVIEWED BY:

______ / ______
PSRC Chairman Date

COMMENTS: YES ___ NO ___

B. PSRC COMMENTS RESOLVED:

______ / ______
Responsible Manager Date

______ / ______
PSRC Chairman Date

TABLE OF CONTENTS

1.0 PURPOSE

1.1 This procedure establishes the requirements for Inservice Testing to assess the operational readiness of certain valves, pressure relief devices and their actuating and position indicating systems, which are determined to perform a safety function as described in Section 1.2 and 1.3.

1.2 The active or passive valves addressed by this procedure are those which are required to perform a specific function in shutting down the reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident.

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

1.4 The following are excluded from the requirements of this procedure provided that the valves are not required to perform a specific function as stated in Section 1.1:

A. Valves used only for operating convenience such as vent, drain, instrument and test valves.

B. Valves used only for system control, such as pressure regulating valves.

C. Valves used only for system or component maintenance.

D. External control and protection systems responsible for sensing plant conditions and providing signals for valve operation.

1.5 The requirements of this procedure may be applied partly or in whole to the testing of other plant valves.

2.0 SCOPE

2.1 The valves listed in Enclosure 7.1 are required to be tested in accordance with the requirements of this procedure.

2.2 This procedure applies to all plant personnel who perform Inservice Testing of valves.

3.0 REFERENCES AND GLOSSARY

3.1 References

3.1.1 V.C. Summer Nuclear Station Technical Specifications.

3.1.2 ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition.

3.1.3 ASME/ANSI OMa-1988 Addenda to ASME/ANSI OM-1987, Operation and Maintenance of Nuclear Power Plants Part 10, Inservice Testing of Valves in Light-Water Reactor Power Plants.

3.1.4 ASME/ANSI OM-1987, Operation and Maintenance of Nuclear Power Plants Part 1, Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices.

3.1.5 SAP-134, Control of Station Surveillance Test Activities.

3.1.6 SAP-139, Procedure Development, Review, Approval and Control.

3.1.7 SAP-145, Inservice Testing Second Ten Year Interval.

3.1.8 GMP-100.022, Control of Process Instruments Used For Surveillance Testing.

3.1.9 GMP-103.003, Pump and Valve Trending.

3.1.10 NRC Safety Evaluation Report for Inservice Testing Program for Pumps and Valves and Associated Reliefs for Virgil C. Summer Nuclear Station Unit No. 1, dated 10-18-91.

3.1.11 NRC Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing Programs.

3.1.12 V. C. Summer Operational Quality Assurance Plan.

3.1.13 V. C. Summer Final Safety Analysis Report.

3.1.14 Branch Technical Position MEB No. 2, "Pump and Valve Operability Assurance Program".

3.1.15 10CFR50.55a, Codes and Standards.

3.1.16 10CFR50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors.

3.1.17 Crane 410 Reference Manual.

C01→ 3.1.18 TSP-92003, "Removal of CIV List from Technical Specifications".

3.2 Glossary

3.2.1 **Active Valves** - Valves which are required to change obturator position to accomplish the required functions as specified in Section 1.1.

3.2.2 **Category of Valves** - The valves within the scope of this procedure shall be placed in one or more of the following categories. 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 required.

A. **Category A** - Valves for which seat leakage is limited to a specific maximum amount in the closed position for the fulfillment of their required functions as specified in Section 1.1.

B. **Category B** - Valves for which seat leakage in the closed position is inconsequential for fulfillment of the required functions as specified in Section 1.1.

C. **Category C** - Valves which are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow (check valves) for fulfillment of the required functions as specified in Section 1.1.

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

3.2.3 **Code** - As used in this procedure, shall refer to ASME/ANSI OMa-1988 Addenda to ASME/ANSI OM-1987, Part 10, as referenced in ASME Section XI, 1989 Edition.

3.2.4 **Exercising** - The demonstration based on direct visual or indirect positive indications that the moving parts of a valve function.

3.2.5 **Full Stroke Time** - The time interval from initiation of the actuating signal to the indication of the end of the operating stroke.

3.2.6 **Inservice Life** - The period of time from installation and acceptance of a valve until it is retired from service.

3.2.7 **IST - Inservice Test** - Inservice testing as used in this procedure refers to a special valve test whose results may be compared to previously established reference values to assess the operational readiness of a valve. The Inservice Test is conducted through the use of Surveillance Test Procedures.

3.2.8 **LCO** - Limiting Condition for Operation.

3.2.9 **LOCA** - Loss of Coolant Accident.

3.2.10 **Maintenance** - Routine valve servicing or work on a valve undertaken to correct or prevent an abnormal or unsatisfactory condition.

3.2.11 **Obturator** - Valve closure member (disk, gate, plug, ball, etc.)

3.2.12 **Operational Readiness** - The ability of a valve to perform its intended function.

3.2.13 **Passive Valves** - Valves which maintain obturator position and are not required to change obturator position to accomplish the required functions as specified in Section 1.1.

3.2.14 **Plant Operation** - The conditions of startup, hot standby, operation at power, and reactor cooldown as defined by Technical Specifications.

3.2.15 **Reactor Coolant System Pressure Isolation** - That function which prevents intersystem overpressurization between the reactor coolant system and connected low-pressure systems.

3.2.16 **Reference Values** - One or more values of test parameters measured or determined when the equipment is known to be operating acceptably.

3.2.17 **VIFT** - Valve Identification, Function and Testing Requirements. This document is for information only. A

4.0 RESPONSIBILITIES

4.1 The Test Unit is responsible for the performance of ASME Section XI evaluations per Section 5.4 of this procedure and the initiation of corrective actions for those valves having unacceptable test results.

4.2 The Shift Supervisor or Shift Engineer may review, analyze and sign completed valve test data when qualified Test Unit Personnel are not on-site.

4.3 Other responsibilities for implementation of this procedure are delineated in SAP-145, "Inservice Testing Second Ten Year Interval".

5.0 PROCEDURE

5.1 Testing Requirements

5.1.1 Inservice Testing in accordance with this procedure shall commence when the valves are required to be operable to fulfill their required functions as stated in Section 1.1.

5.1.2 The performance of Inservice Testing shall be in addition to any other specified surveillance requirement.

5.1.3 The more restrictive requirements of Technical Specifications takes precedence over ASME Section XI Code requirements.

5.1.4 Enclosure 7.1 identifies, categorizes and describes the required Inservice Testing to be performed in accordance with the requirements of this procedure.

5.1.5 Enclosure 7.3 discusses the basis and provides justification for both the inclusion or exclusion of valves applicable to the requirements of this procedure.

5.1.6 Safety and Relief valves and nonreclosing pressure relief devices shall be tested as required by OM-1987 Part 1.

5.2 Reference Values

5.2.1 General Requirements

A. Reference values shall be determined from the results of Preservice Testing or from the results of Inservice Testing.

B. Reference values shall only be established when the valve is known to be operating acceptably.

C. Reference values shall be established in accordance with approved Surveillance Test Procedures or other approved procedures.

D. These tests shall be performed under conditions as near as practical to those expected during subsequent Inservice Testing.

E. All subsequent test results shall be compared to the initial reference values or to new reference values established in accordance with Sections 5.2.2 and 5.2.3.

F. If the particular parameter being measured can be significantly influenced by other related conditions, then these conditions shall be analyzed.

5.2.2 Effect of Valve or Actuator Replacement, Repair, and Maintenance on Reference Values

A. 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 value reconfirmed by an Inservice Test run prior to declaring the valve operable.

B. The following are examples of maintenance that could affect valve performance parameters:

1. Adjustment of the following valve components:

a. Stem packing.

b. Limit switches.

c. Control system components.

2. Removal or replacement of the following valve components:

a. Bonnet.

b. Stem packing.

c. Stem assembly.

d. Actuator.

e. Obturator.

f. Control system components.

C. Deviations between the previous and new reference values shall be identified and analyzed.

D. Verification that the new values represent acceptable operation shall be documented in the Record of Tests.

E. Safety and Relief valves and nonreclosing pressure relief devices shall be tested as required by the replacement, repair, and maintenance requirements of OM-1987 Part 1.

5.2.3 Establishing an Additional Set of reference Values

A. If it is necessary or desirable, for some reason other than stated in Section 5.2.2, to establish an additional set of reference values, the following shall apply:

1. An Inservice Test shall first be run at the conditions of the existing set of reference values and the results analyzed.

2. If operation is acceptable a second test shall be performed under the new conditions as soon as practical.

3. The results of the second test shall establish the additional reference values.

4. If operation at the conditions of the existing set of reference values is impractical, an Inservice Test shall be run at the conditions for which the new reference values are required, and the results analyzed.

5. Whenever additional reference values are established, the reasons for doing so shall be justified and documented in the Record of Tests.

5.3 Testing Methods

5.3.1 Valve Position Verification

A. Valves with remote position indicators shall be observed locally at least once every two years to verify that valve operation is accurately indicated.

B. Where practical, this local observation should be supplemented by other indications such as the use of flow meters or other suitable instrumentation to verify valve obturator position. These observations need not be concurrent.

C. Where local observation is not possible, other indications shall be used for verification of valve operation.

5.3.2 Inservice Tests for Category A and B Valves

A. Valve Exercising Test

1. **Exercising Test Frequency** - Active Category A and B valves shall be tested nominally every three months, except as provided in Step 5.3.2.A.2, 5.3.2.A.6, and 5.3.2.A.8.

2. **Exercising Requirements** - Valves shall be tested as follows:

   a. Full-stroke during plant operation to the position(s) required to fulfill its function(s).

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

   c. If exercising is not practical during plant operation, it may be limited to full-stroke exercising during cold shutdowns.

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

   e. If exercising is not practical during plant 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 Step 5.3.2.A.3. Such exercise is not required if the time period since the previous full-stroke exercise is less than three months.

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

3. **Valve Exercising During Cold Shutdown**

   a. 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.

   b. For extended outages, testing need not be commenced in 48 hours provided that all valves required to be tested during cold shutdown will be tested prior to plant startup.

   c. It is not the intent of Step 5.3.2.A.3 to keep the plant in cold shutdown in order to complete cold shutdown testing.

4. **Valve Obturator Movement**

   a. The necessary valve obturator movement shall be determined by exercising the valve while observing an appropriate indicator, such as indicating lights which signal the required change of obturator position, or by observing other evidence, such as changes in system pressure, flow rate, level, temperature, or by the use of non-intrusive test methods.

5. **Power-Operated Valve Stroke Testing**

   a. The **Maximum Allowed** and **Minimum Allowed** value(s) of full-stroke time of each power-operated valve shall be specified in the associated Surveillance Test Procedure.

   b. The stroke time of all power-operated valves shall be measured to at least the nearest second.

   c. Any abnormality or erratic action shall be recorded and an evaluation shall be performed regarding the need for corrective action.

   d. Calibrated stop watches or other appropriate timing devices shall be used when timing power-operated valves.

6. **Valves in Regular Use**

   a. Valves which operate in the course of plant operation at a frequency which would satisfy the exercising requirements of Section 5.3.2 need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during such operation and are recorded in the plant record at intervals no greater than specified in Step 5.3.2.A.1.

7. **Fail Safe Valves**

   a. Valves with fail safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power in accordance with the exercising frequency stated in Step 5.3.2.A.1.

8. **Valves in Systems Out of Service**

   a. For a valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed.

   b. Within three months prior to placing the system in an operable status, the valves shall be exercised and the schedule followed in accordance with the requirements of Section 5.3.2.

9. **Stroke Time Acceptance Criteria - Maximum and Minimum Limiting Stroke Times**

   a. Test results shall be compared to the initial reference values or reference values established in accordance with Section 5.2.

   b. Electric-motor-operated valves with reference stroke times greater than 10 seconds shall exhibit no more than a plus or minus 15 percent change in stroke time when compared to the reference value.

   c. Other power-operated valves with reference stroke times greater than 10 seconds shall exhibit no more than a plus or minus 25 percent change in stroke time when compared to the reference value.

   d. Electric-motor-operated valves with reference stroke times less than 10 seconds shall exhibit no more than a plus or minus 25 percent or plus or minus one second change in stroke time, which ever is greater when compared to the reference value.

   e. Other power-operated valves with reference stroke times less than 10 seconds shall exhibit no more than a plus or minus 50 percent change in stroke time when compared to the reference value.

   f. Valves that stroke in less than two seconds may be exempted from Steps 5.3.2.A.9.d and 5.3.2.A.9.e. In such cases the Maximum Limiting stroke time shall be two seconds.

10. **Corrective Action**

   a. The valve shall be declared inoperable if any of the following occur: |A

      1) The valve fails to exhibit the required change in obturator position.

      2) The measured stroke time is greater than the Maximum Allowed Stroke Time. Refer to Step 5.3.2.A.5.a.

      3) The measured stroke time is less than the Minimum Allowed Stroke Time. Refer to Step 5.3.2.A.5.a.

   b. The valve shall be retested in accordance with Attachment III, Evaluation/Corrective Action for Power Operated Valves, or declared inoperable if the measured stroke time does not meet the acceptance criteria of Step 5.3.2.A.9. |A |A

c. If the valve is retested and the second set of data also does not meet the acceptance criteria of Step 5.3.2.A.9, the valve shall be declared inoperable. |A

d. If the second set of data meets the acceptance criteria, the cause of the initial deviation shall be analyzed and the results documented in the Record of Tests.

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

f. Valve operability based on analysis shall have the results of the analysis recorded in the Record of Tests.

g. Prior to returning a repaired or replacement valve to service, an Inservice Test demonstrating satisfactory operation shall be performed.

B. Valve Seat Leakage Rate Test

1. **Scope**

a. Category A valves shall be leakage tested except as provided in Step 5.3.2.B.1.b.

b. Valves which function in a manner that demonstrates functionally adequate seat leak-tightness need not be additionally leakage tested. In such cases the valve record shall provide the basis for the conclusion that operational observations constitute satisfactory demonstration.

2. **Containment Isolation Valves**

a. Category A valves, which are containment isolation valves, shall be tested in accordance with 10CFR50, Appendix J.

b. Containment isolation valves which also provide a reactor coolant system pressure isolation function shall additionally be tested in accordance with Step 5.3.2.B.3.

c. Category A containment isolation valves shall be seat leakage tested with the differential pressure in the same direction as when the valve is performing its function, with the following exception:

1) The valve may be tested with the differential pressure in the opposite direction if it can be determined that testing in the opposite direction will provide equivalent or more conservative results.

d. Category A containment isolation valves are subject to the leakage rate criteria as specified on Enclosure 7.7, Appendix J Containment Isolation Valve Leakage Rates.

e. The basis for leakage limits for Appendix J testing is described on Enclosure 7.6, Appendix J Type B and C Maximum Leakage Basis.

f. Attachment II, Type B and C Containment Penetration Leakage Assessment Record, will be prepared by the Test Unit and reviewed by the Test Unit Supervisor or his designee.

3. **Leakage Rate for Other Than Containment Isolation Valves**

a. Category A valves, which perform a function other than containment isolation, shall be seat leakage tested to verify their leak-tight integrity.

b. Valve closure prior to seat leakage testing shall be by using the valve operator with no additional closing force applied.

c. Tests shall be conducted at least once every two years.

d. Valve seat leakage tests shall be made with the differential pressure in the same direction as when the valve is performing its function, with the following exceptions:

1) Globe valves may be tested with pressure under the seat.

2) Butterfly valves may be tested in either direction, provided their seat construction is designed for sealing against pressure on either side.

3) Double-disk gate valves may be tested by pressurizing between the disks.

e. Leakage tests involving pressure differentials lower than function pressure differentials are permitted in those types of valves in which service pressure will tend to diminish the overall leakage channel opening, as by pressing the disk into or onto the seat with greater force.

1) Gate valves, check valves, and globe valves, having function pressure differential applied over the seat, are examples of valve applications satisfying this requirement.

f. When leakage tests are performed using lower than function maximum pressure differential, the observed leakage shall be adjusted to the function maximum pressure differential value.

1) This adjustment shall be made by calculation appropriate to the test media and the ratio between the test and function pressure differential, assuming leakage to be directly proportional to the pressure differential to the one-half power.

Equation:

$$LR_m \times \sqrt{\frac{FP}{TP}} = LR_a$$ A

Where:

LR_m = Measured Leak Rate

FP = Maximum Function Pressure

TP = Test Pressure

LR_a = Actual Leakage Rate

g. Valves not qualifying for reduced pressure testing as defined in Step 5.3.2.B.3.e, shall be tested at full maximum function pressure differential.

h. Valve seat leakage shall be determined by one of the following methods:

1) Measuring leakage through a downstream telltale connection while maintaining test pressure on one side of the valve.

2) Measuring the feed rate required to maintain the test pressure in the test volume or between two seats of a gate valve, provided the total apparent leakage rate is charge to the valve or valve combination or gate valve seat being tested, and that the conditions required by Steps 5.3.2.B.3.d and 5.3.2.B.3.e are satisfied.

3) Measuring the pressure decay in the test volume, provided the total apparent leakage rate is charge to the valve or valve combination or gate valve seat being tested, and that the conditions required by Steps 5.3.2.B.3.d and 5.3.2.B.3.e are satisfied.

i. The test medium shall be specified in the associated Surveillance Test Procedure.

j. Leakage rate measurements shall be compared with the Maximum Allowed leakage rates specified in the associated Surveillance Test Procedures. If leakage rates are not specified, the following rates shall be permissible:

1) For water, 0.5D gpm or 5 gpm, whichever is less, at function pressure differential.

2) For air, 7.5D standard ft^3/day, at function pressure differential.

3) D = nominal valve size, in inches.

k. Valves or valve combinations with leakage rates exceeding the Maximum Allowed leakage rates specified in Step 5.3.2.B.3.j shall be declared inoperable and either repaired or replaced.

l. A retest demonstrating acceptable operation shall be performed following any required corrective action before the valve is returned to service. |A

m. Category A valves which function as Reactor Coolant System Pressure Isolation Valves shall also be tested in accordance with Technical Specification Surveillance Requirement 4.4.6.2.2. These valves are listed on Enclosure 7.5. |A

5.3.3 Inservice Tests for Category C Valves

A. Safety Valve and Relief Valve Tests

1. Safety and relief valves shall meet the Inservice Test requirements of OM-1987 Part 1.

B. Exercising Tests for Check Valves

1. **Exercising Test Frequency** - Check valves shall be exercised nominally every three months, except as provided by steps 5.3.3.B.2, 5.3.3.B.3, 5.3.3.B.4 and 5.3.3.B.5.

2. **Exercising Requirements** - Valves shall be exercised as follows:

a. During plant operation, each check valve shall be exercised or examined in a manner which verifies obturator travel to the closed, full-open or partially open position required to fulfill its function.

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

c. If exercising is not practical during plant operation, it may be limited to full-stroke exercising during cold shutdowns.

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

e. If exercising is not practical during plant 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 Step 5.3.3.B.3. Such exercise is not required if the time period since the previous full-stroke exercise is less than three months.

g. All valves testing required to be performed during a refueling outage shall be completed prior to returning the plant to operation.

3. Valve Exercising During Cold Shutdown

a. 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.

b. For extended outages, testing need not be commenced in 48 hours provided that all valves required to be tested during cold shutdown will be tested prior to plant startup.

c. It is not the intent of Step 5.3.2.A.3 to keep the plant in cold shutdown in order to complete shutdown testing.

4. Valves in Regular Use

a. Check valves which operate in the course of plant operation at a frequency which would satisfy the exercising requirements of Section 5.3.3 need not be additionally exercised, provided that the observations otherwise required for testing are made and analyzed during such operation and are recorded in the plant record at intervals no greater than specified in Step 5.3 3.B.1.

5. Valve Obturator Movement

   a. The necessary valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat on cessation or reversal of flow, or opens to the position required to fulfill its function, as specified in Step 1.2, or both.

   b. Observation may be made by observing a direct indicator such as a position indicating device, or by other indicator(s) such as changes in system pressure, flow rate, level, temperature, seat leakage testing, by the use of non-instrusive test methods or other positive means. |A

   c. The use of a mechanical exerciser to move the obturator shall be performed as follows: |A

      1) The force or torque required to initiate movement (breakaway) shall be measured and recorded.

      2) The breakaway force shall not vary by more than 50 percent from the established reference value.

      3) The reference value shall established as follows: |A

         a) The reference value used shall be the value obtained when the valve is known to be operating properly. |A

         b) It shall be taken under conditions as close as practical to the condition under which the valve will be tested, e.g., wet vs. dry, equivalent static head, etc. |A

         c) As an alternative to the testing in Steps 5.3.3.B.5.a or 5.3.3.B.5.b, disassembly every refueling outage to verify operability of check valves may be used. |A

6. Valves in Systems Out of Service

   a. For a valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed.

   b. Within three months prior to placing the system in an operable status, the valves shall be exercised and the schedule followed in accordance with the requirements of Section 5.3.3.

7. Corrective Action

   a. If a check valve fails to exhibit the required change of obturator position it shall be declared inoperable.

   b. A retest showing acceptable performance shall be run following any required corrective action before the valve is returned to service.

5.3.4 Inservice Tests for Category D Valves

A. Rupture Disk Tests

1. Rupture discs shall meet the requirements for nonreclosing pressure relief devices of OM-1987 Part 1.

5.4 Analyses and Evaluation

5.4.1 All test data must be analyzed within 96 hours of test completion.

5.4.2 Acceptance Criteria

A. Acceptance criteria for Category A and B valve testing is contained in Section 5.3.2.

B. Acceptance criteria for Category C valve testing is contained in Section 5.3.3.

C. Acceptance criteria for Category D valve testing is contained in Section 5.3.4.

5.4.3 Corrective Actions

A. Corrective actions for Category A and B valve testing is contained in Section 5.3.2.

B. Corrective actions for Category C valve testing is contained in Section 5.3.3.

C. Corrective actions for Category D valve testing is contained in Section 5.3.4.

5.4.4 Leakage analysis and projected leakage rates are calculated and recorded on Attachment I.

6.0 RECORDS AND DOCUMENTS

6.1 Valve Records - Records will be maintained for each valve included in the IST Program and will include the following:

6.1.1 The manufacturer.

6.1.2 Manufacturer's model and serial or other unique identification number.

6.1.3 A copy or summary of the manufacturer's acceptance report, if available.

6.1.4 Preservice test results.

6.1.5 Maximum Allowed value of full stroke time as specified in Step 5.3.2.A.5.

6.1.6 Minimum Allowed value of full stroke time as specified in Step 5.3.2.A.5.

6.2 Inservice Test Plans - A record of test plans and procedures shall be maintained which shall include the following:

6.2.1 Identification of valves subject to test.

6.2.2 Category of each valve.

6.2.3 Tests to be performed.

6.2.4 Justification for deferral of stroke testing in accordance with Steps 5.3.2.A.2 and 5.3.3.B.2.

6.3 Record of Tests - A record of each test shall be maintained which shall include the following:

6.3.1 Valve identification.

6.3.2 Date of test.

6.3.3 Reason for test (e.g., post maintenance testing, routine inservice test establishing reference values, etc.).

6.3.4 Values of measured parameters.

6.3.5 Identification of instruments used.

6.3.6 Comparisons with allowable ranges of test values and analysis of deviations.

6.3.7 Requirement for corrective action.

6.3.8 Signature of the person or persons responsible for conducting and analyzing the test.

6.4 Record of Corrective Action - Records of corrective actions shall be maintained which shall include the following:

6.4.1 A summary of corrective actions made for power operated valve stroke time tests, using Attachment III, Evaluation/Corrective Action For Power Operated Valves.

6.4.3 The subsequent Inservice Test and confirmation of operational adequacy.

6.4.4 The signature of the individual(s) responsible for corrective action and verification of results.

6.5 Record of Relief Requests

6.5.1 Relief requests, if any, shall be incorporated as part of this procedure as an Enclosure.

6.5.2 Relief request history may be recalled from records through the record title "Valve Test Relief Request", reference DTI, (003 entry code).

6.5.3 Relief requests will be prepared and approved in accordance with SAP-145.

6.6 Valve Identification, Function and Testing Requirements

6.6.1 Documented results of VIFT reviews shall be numbered, stored, and maintained under separate cover in accordance with approved document procedures.

6.6.2 When revising a VIFT form, verify the last VIFT and page revision. Use the next successive VIFT or page revision number.

6.6.3 A single page of the VIFT may be revised to indicate changes affecting that page without revising the entire VIFT.

6.6.4 VIFTs are for information only. |A

7.0 ENCLOSURES

7.1 IST Program Valve List.

7.2 IST Program Deferred Test Justification.

7.3 Valve Selection Basis.

7.4 Containment Isolation Valve Summary.

7.5 Reactor Coolant System Pressure Isolation Valves Limited to 1 GPM Leakage.

7.6 Appendix J Type B and C Maximum Leakage Basis.

7.7 Appendix J Containment Isolation Valve Leakage Rates.

7.8 Test Paths and Recording Instructions for Appendix J Type C Tests.

IST PROGRAM VALVE LIST

VALVE LEGEND

VALVE TYPE

GT - GATE
GL - GLOBE
PL - PLUG
BF - BUTTERFLY
DP - DIAPHRAM
VB - VACUUM BREAKER
CH - CHECK
RL - SAFETY/RELIEF
RD - RUTURE DISC
SC - STOP CHECK

ACTUATOR TYPE

1. MOTOR
2. AIR
3. SOLENOID
4. AIR/HYDRAULIC

N/A SIGNIFIES CHECKS, RELIEFS OR MANUAL |A

TEST TYPE

ET - EXERCISE TEST
ST - STROKE TIME
FS - FAIL-SAFE
CT - CHECK VALVE TEST
RT - RELIEF VALVE TEST
DIS - DISASSEMBLY
PI - POSITION INDICATION
JL - APPENDIX J, TYPE C
LT - LEAK TEST PRESSURE ISOLATION
PT - PUSH TEST
PET - PARTIAL EXERCISE TEST
RD - RUPTURE DISK
30 - 30 DAY WATER SEAL

TEST FREQUENCY

M - MONTHLY
Q - QUARTERLY
CS - COLD SHUTDOWN
RF - REFUELING OUTAGES (< 24 MONTHS)
2Y - 2 YEARS
5Y - 5 YEARS
10Y - 10 YEARS

POSITIONS

NORMAL SAFETY FAIL-SAFE

O - OPEN
C - CLOSED
B - BOTH

NOTES: DRAWINGS PREFIXED WITH 302 UNLESS OTHREWISE NOTED.

IST PROGRAM VALVE LIST

TABLE ABBREVIATIONS

DRAWING (DWG) COORDINATE (COORD)

ACTUATOR (ACT) TYPE

CATEGORY (CAT)

ACTIVE/PASSIVE (A/P)

POSITION: NORMAL (NRM)
SAFETY (SAF)
FAIL-SAFE (FAL)

TEST-FREQUENCY (FREQ)

RELIEF REQUEST (RR)

DEFERRED TEST JUSTIFICATION (DTJ)

BOTH (B)

OPEN (O)

CLOSED (C)

NON-CODE (NC)

NON-SAFETY (NS)

IST PROGRAM VALVE LIST

SYSTEM: CRDM COOLING SYSTEM (AC)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG07501	852 E11	GT	6"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-AC-1	130.005A 215.004	VIFT-AC-1 XRP0208
XVG07502	852 D11	GT	6"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-AC-1	130.005A 215.004	VIFT-AC-2 XRP0208
XVG07503	852 D11	GT	6"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-AC-1	130.005A 215.004	VIFT-AC-3 XRP0209
XVG-7504	852 E11	GT	6"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-AC-1	130.005A 215.004	VIFT-AC-4 XRP0209
XVC07541	852 D11	CH	3/4"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.004	VIFT-AC-5 XRP0208
XVC07544	852 D11	CH	3/4"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.004	VIFT-AC-6 XRP0209

IST PROGRAM VALVE LIST

SYSTEM: AIR HANDLING SYSTEM (AH)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS	
		TYPE	SIZE						NRM	SAF	FAL					
XVB00001A	103 D6	BF	36"	2	2	A	AP	YES	C	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y JL-2Y	DTJ-AH-1	130.005B 215.002A	DWG. PREFIX 912 VIFT-AH-1 PASSIVE DURING OPERATION (LC) XRP0402	
XVB00001B	103 D4	BF	36"	2	2	A	AP	YES	C	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y JL-2Y	DTJ-AH-1	130.005B 215.002A	DWG. PREFIX 912 VIFT-AH-2 PASSIVE DURING OPERATION (LC) XRP0402	A
XVB00002A	103 G10	BF	36"	2	2	A	AP	YES	C	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y JL-2Y	DTJ-AH-1	130.005B 215.002A	DWG. PREFIX 912 VIFT-AH-3 PASSIVE DURING OPERATION (LC) XRP0101	A
XVB00002B	103 H12	BF	36"	2	2	A	AP	YES	C	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y JL-2Y	DTJ-AH-1	130.005B 215.002A	DWG. PREFIX 912 VIFT-AH-4 PASSIVE DURING OPERATION (LC) XRP0101	A
XVB00003A	140 F12	BF	16"	2	3	B	A	NO	O	O	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y	N/A	124.001	DWG. PREFIX 912 VIFT - TO BE DEVELOPED	
XVB00003B	140 E2	BF	16"	2	3	B	A	NO	O	O	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y	N/A	124.001	DWG. PREFIX 912 VIFT - TO BE DEVELOPED	

IST PROGRAM VALVE LIST

SYSTEM: AIR HANDLING SYSTEM (AH)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVB0003A-CVI-AH	C-818 140 SHT. 1	CH	3/8"	N/A	3	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	124.003 224.004	VIFT TO BE DEVELOPED
XVB0003B-CVI-AH	C-818 140 SHT. 2	CH	3/8"	N/A	3	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	124.003 224.004	VIFT TO BE DEVELOPED
XVB00004A	140 F12	BF	16"	2	3	B	A	NO	C	O	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y	N/A	124.001	DWG. PREFIX 912 VIFT - TO BE DEVELOPED
XVB00004B	140 E2	BF	16"	2	3	B	A	NO	C	O	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y	N/A	124.001	DWG. PREFIX 912 VIFT - TO BE DEVELOPED

IST PROGRAM VALVE LIST

SYSTEM: AUXILIARY STEAM (AS)

VALVE NUMRER	DWG/ COORD	VALVE TYPE	VALVE SIZE	ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION NRM	POSITION SAF	POSITION FAL	TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
XVG00265	051 C13	GT	6"	4	3	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.003	VIFT TO BE DEVELOPED
XVG00273	051 C12	GT	6"	4	3	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.003	VIFT TO BE DEVELOPED

IST PROGRAM VALVE LIST

SYSTEM: STEAM GENERATOR BLOWDOWN (BD)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG00503A	781 C9	GT	3"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	136.001	VIFT-BD-1 XRP0326
XVG00503B	781 F9	GT	3"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	136.001	VIFT-BD-2 XRP0234
XVG00503C	781 H9	GT	3"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	136.001	VIFT-BD-3 XRP0219

IST PROGRAM VALVE LIST

SYSTEM: COMPONENT COOLING WATER SYSTEM (CC)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVB9503A	611 B7	BF	20"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-2
XVB9503B	611 B5	BF	20"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-3
XVR09510	612 F07	RL	3/4"	N/A	3	C	A	NO	C	O	-	RT-10Y	N/A	401.003	VIFT TO BE DEVELOPED
XVB09524A	611 C07	BF	16"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-4
XVB09524B	611 C06	BF	16"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-5
XVB09525A	611 C07	BF	16"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-6
XVB09525B	611 C05	BF	16"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-7
XVB09526A	611 E08	BF	16"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-8
XVB09526B	611 E04	BF	16"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-9
XVR09553	612 B01	RL	3/4"	N/A	3	C	A	NO	C	O	-	RT-10Y	N/A	401.003	VIFT TO BE DEVELOPED

SYSTEM: COMPONENT COOLING WATER SYSTEM (CC)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG09568	612 H11	GT	8"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-CC-1	130.005C 215.004	VIFT-CC-10 XRP0312
XVC09570	612 G13	CH	8"	N/A	2	AC	A	YES	O	C	-	JL-2Y	DTJ-CC-1	215.004	VIFT-CC-11 XRP0312
XVC09591A	612 A07	CH	1½"	N/A	3	N/A	N/A	NO	O	N/A	-	CT-CS(C)	N/A	130.005C	VALVE IN PROGRAM FOR INCREASED EQUIPMENT RELIABILITY ASME XI NOT APPLICABLE
XVC09591B	612 A04	CH	1½"	N/A	3	N/A	N/A	NO	O	N/A	-	CT-CS(C)	N/A	130.005C	VALVE IN PROGRAM FOR INCREASED EQUIPMENT RELIABILITY ASME XI NOT APPLICABLE
XVC09591C	612 A01	CH	1½"	N/A	3	N/A	N/A	NO	O	N/A	-	CT-CS(C)	N/A	130.005C	VALVE IN PROGRAM FOR INCREASED EQUIPMENT RELIABILITY ASME XI NOT APPLICABLE
XVT09593A	612 C07	GL	1½"	1	3	N/A	N/A	NO	O	N/A	-	ET-CS(C) ST-CS(C) PI-2Y	N/A	130.005C	VALVE IN PROGRAM FOR INCREASED EQUIPMENT RELIABILITY ASME XI NOT APPLICABLE
XVT09593B	612 C04	GL	1½"	1	3	N/A	N/A	NO	O	N/A	-	ET-CS(C) ST-CS(C) PI-2Y	N/A	130.005C	VALVE IN PROGRAM FOR INCREASED EQUIPMENT RELIABILITY ASME XI NOT APPLICABLE

IST PROGRAM VALVE LIST

SYSTEM: COMPONENT COOLING WATER SYSTEM (CC)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVT09593C	612 C01	GL	1½"	1	3	N/A	N/A	NO	O	N/A	-	ET-CS(C) ST-CS(C) PI-2Y	N/A	130.005C	VALVE IN PROGRAM FOR INCREASED EQUIPMENT RELIABILITY ASME XI NOT APPLICABLE
XVG09600	612 F02	GT	3"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-CC-1	130.005C 215.004	VIFT-CC-12 XRP0204
XVC09602	612 F1	CH	3"	N/A	2	AC	A	YES	O	C	-	JL-2Y	DTJ-CC-1	215.004	VIFT-CC-13 XRP0204
XVG09605	612 G12	GT	8"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-CC-1	130.005C 215.004	VIFT-CC-14 XRP0330
XVG09606	612 H12	GT	8"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-CC-1	130.005C 215.004	VIFT-CC-15 XRP0330
XVG09625	612 J12	GT	8"	1	3	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-CC-2	130.005C	VIFT-CC-16
XVG09626	612 J12	GT	8"	1	3	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-CC-2	130.005C	VIFT-CC-17
XVG09627A	611 J12	GT	4"	2	3	B	A	NO	C	O	O	ET-CS(O) ST-CS(O) FS-CS(O) PI-2Y	DTJ-CC-3	130.005C	VIFT-CC-18

IST PROGRAM VALVE LIST

SYSTEM: COMPONENT COOLING WATER SYSTEM (CC)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG09627B	611 J12	GT	4"	2	3	B	A	NO	C	O	O	ET-CS(O) ST-CS(O) FS-CS(O) PI-2Y	DTJ-CC-3	130.005C	VIFT-CC-19
XVC09632	612 J13	CH	8"	N/A	3	C	A	NO	O	C	-	CT-CS(C)	DTJ-CC-2	130.005C	VIFT-CC-20
XVC09633	612 J13	CH	8"	N/A	3	C	A	NO	O	C	-	CT-CS(C)	DTJ-CC-2	130.005C	VIFT-CC-21
XVC09680A	612 J11	CH	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) DIS-RF(O)	DTJ-CC-4	122.003 401.006	VIFT-CC-22
XVC09680B	612 K11	CH	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) DIS-RF(O)	DTJ-CC-4	122.003 401.006	VIFT-CC-23
XVC9682A	611 G7	CH	24"	N/A	3	C	A	NO	B	B	-	CT-Q(B)	N/A	222.002	VIFT-CC-24
XVC9682B	611 G5	CH	24"	N/A	3	C	A	NO	B	B	-	CT-Q(B)	N/A	222.002	VIFT-CC-25
XVC9682C	611 G6	CH	24"	N/A	3	C	A	NO	B	B	-	CT-Q(B)	N/A	222.002	VIFT-CC-26
XVB09687A	611 E07	BF	16"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-27
XVB09687B	611 E04	BF	16"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	222.002	VIFT-CC-1
XVC09689	612 G12	CH	3/4"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.004	VIFT-CC-28 XRP0330

IST PROGRAM VALVE LIST

SYSTEM: CHEMICAL AND VOLUME CONTROL SYSTEM (CS)

VALVE NUMBER	DWG/ COORD	VALVE TYPE	VALVE SIZE	ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION NRM	POSITION SAF	POSITION FAL	TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
LCV00115B	675 G07	GT	8"	1	2	B	A	NO	C	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.003	VIFT-CS-1
LCV00115C	675 E08	GT	4"	1	2	B	A	NO	O	B	-	ET-CS(B) ST-CS(B) PI-2Y	DTJ-CS-1	130.005D	VIFT-CS-2
LCV00115D	675 H08	GT	8"	1	2	B	A	NO	C	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.003	VIFT-CS-3
LCV00115E	675 E08	GT	4"	1	2	B	A	NO	O	B	-	ET-CS(B) ST-CS(B) PI-2Y	DTJ-CS-1	130.005D	VIFT-CS-4
LCV00459	673 A13	GL	3"	2	1	B	A	NO	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y	DTJ-CS-2	130.005D	VIFT-CS-5
LCV00460	673 A14	GL	3"	2	1	B	A	NO	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y	DTJ-CS-2	130.005D	VIFT-CS-6
XVT08100	673 C03	GL	2"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-CS-3	130.005D 215.003A	VIFT-CS-7 XRP0410
XVT08102A	671 H15	GL	1.5"	1	2	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-CS-4	130.005D	VIFT-CS-8 XRP0408
XVT08102B	672 H15	GL	1.5"	1	2	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-CS-4	130.005D	VIFT-CS-9 XRP0229
XVT08102C	673 H15	GL	1.5"	1	2	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-CS-4	130.005D	VIFT-CS-10 XRP0221

SYSTEM: CHEMICAL AND VOLUME CONTROL SYSTEM (CS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVC08103	673 C04	CH	3/4"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.003A	VIFT-CS-11 XRP0410
XVT08104	675 G04	GL	2"	1	2	B	A	NO	C	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	205.005	VIFT-CS-12
XVG08106	675 E14	GT	3"	1	2	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-CS-12	130.005D	VIFT-CS-13
XVG08107	675 F15	GT	3"	1	2	A	A	YES	O	B	-	ET-CS(B) ST-CS(B) JL-2Y	DTJ-CS-6	130.005D 215.003A	VIFT-CS-14 XRP0409
XVG08108	675 F15	GT	3"	1	2	B	A	NO	O	B	-	ET-CS(B) ST-CS(B) JL-2Y	DTJ-CS-6	130.005D	VIFT-CS-15
XVT08109A	675 E11	GL	2"	1	2	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	205.003	VIFT-CS-16
XVT08109B	675 G11	GL	2"	1	2	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	205.003	VIFT-CS-17
XVT08109C	675 F11	GL	2"	1	2	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	205.003	VIFT-CS-18
XVT08112	673 C04	GL	2"	1	2	A	A	YES	O	C	-	ET-CS(C) ST-CS(C) PI-2Y JL-2Y	DTJ-CS-3	130.005D 215.003A	VIFT-CS-19 XRP0410
XVR08117	673 A10	RL	2"	N/A	2	AC	A	YES	C	B	-	RT-10Y JL-2Y	N/A	401.003 215.003A	VIFT-CS-20 XRP0409
XVR08121	673 C04	RL	2"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.003	VIFT - TO BE DEVELOPED

SYSTEM: CHEMICAL AND VOLUME CONTROL SYSTEM (CS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG08130A	675 F08	GT	8"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.003	VIFT-CS-21
XVG08130B	675 G08	GT	8"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.003	VIFT-CS-22
XVG08131A	675 G08	GT	8"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.003	VIFT-CS-23
XVG08131B	675 G08	GT	8"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.003	VIFT-CS-24
XVG08132A	675 F12	GT	8"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.005	VIFT-CS-25
XVG08132B	675 G08	GT	8"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.005	VIFT-CS-26
XVG08133A	675 G12	GT	8"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.005	VIFT-CS-27
XVG08133B	675 G12	GT	8"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.005	VIFT-CS-28
XVT08145	673 B14	GL	2"	2	1	B	P	NO	C	C	C	FS-CS(C) PI-2Y	DTJ-CS-8	130.005D	VIFT-CS-29
XVT08146	673 B13	GL	3"	2	2	B	A	NO	B	O	O	ET-CS(O) ST-CS(O) FS-CS(O) PI-2Y	DTJ-CS-7	130.005D	VIFT-CS-30

SYSTEM: CHEMICAL AND VOLUME CONTROL SYSTEM (CS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVT08147	673 A13	GL	3"	2	2	B	A	NO	B	O	O	ET-CS(O) ST-CS(O) FS-CS(O) PI-2Y	DTJ-CS-7	130.005D	VIFT-CS-31
XVT08149A	673 A9	GL	2"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	205.005 215.003A	VIFT-CS-32 XRP0318
XVT08149B	673 A9	GL	2"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	205.005 215.003A	VIFT-CS-33 XRP0318
XVT08149C	673 A8	GL	2"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	205.005 215.003A	VIFT-CS-34 XRP0318
XVT08152	673 A3	GL	3"	2	2	A	A	YES	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y JL-2Y	DTJ-CS-9	130.005D 215.003A	VIFT-CS-35 XRP0318
XVT08153	673 B9	GL	1"	2	1	B	P	NO	C	C	C	PI-2Y FS-Q(C)	N/A	205.005	VIFT-CS-36
XVT08154	673 B9	GL	1"	2	1	B	P	NO	C	C	C	PI-2Y FS-Q(C)	N/A	205.005	VIFT-CS-37
XVC08314A	677 F11	CH	2"	N/A	3	C	A	NO	C	B	-	CT-Q(B)	N/A	204.005	VIFT-CS-38
XVC08314B	677 H11	CH	2"	N/A	3	C	A	NO	C	B	-	CT-Q(B)	N/A	204.005	VIFT-CS-39

SYSTEM: CHEMICAL AND VOLUME CONTROL SYSTEM (CS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVC08346	673 A14	CH	3"	N/A	1	C	A	NO	B	B	-	*CT-Q(O) CT-CS(O) CT-RF(C)	DTJ-CS-7	130.005D 205.005 PENDING	VIFT-CS-40 *ONLY IF IN-SERVICE
XVC08347	673 B14	CH	3"	N/A	1	C	A	NO	B	B	-	*CT-Q(O) CT-CS(O) CT-RF(C)	DTJ-CS-7	130.005D 205.005 PENDING	VIFT-CS-41 *ONLY IF IN-SERVICE
XVC08348A	671 F15	CH	1.5"	N/A	1	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-42
XVC08348B	672 F14	CH	1.5"	N/A	1	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-43
XVC08348C	673 G14	CH	1.5"	N/A	1	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-44
XVC08367A	671 G15	CH	1.5"	N/A	1	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-45
XVC08367B	672 G15	CH	1.5"	N/A	1	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-46
XVC08367C	673 G15	CH	1.5"	N/A	1	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-47
XVC08368A	671 G15	CH	1.5"	N/A	2	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-48 XRP0408
XVC08368B	672 G15	CH	1.5"	N/A	2	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-49 XRP0229
XVC08368C	673 G15	CH	1.5"	N/A	2	C	A	NO	O	C	-	CT-RF(C)	DTJ-CS-10	230.006D	VIFT-CS-50 XRP0221
XVC08378	673 B15	CH	3"	N/A	1	C	A	NO	B	B	-	*CT-Q(O) CT-CS(O) CT-RF(C)	DTJ-CS-7	130.005D 205.005 PENDING	VIFT-CS-51 *ONLY IF IN-SERVICE
XVC08379	673 A15	CH	3"	N/A	1	C	A	NO	B	B	-	*CT-Q(O) CT-CS(O) CT-RF(C)	DTJ-CS-7	130.005D 205.005C PENDING	VIFT-CS-52 *ONLY IF IN-SERVICE

IST PROGRAM VALVE LIST

SYSTEM: CHEMICAL AND VOLUME CONTROL SYSTEM (CS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVC08381	673 A4	CH	3"	N/A	2	AC	A	YES	O	B	-	CT-Q(O) JL-2Y	DTJ-CS-6	215.003A 205.005	VIFT-CS-53 XRP0409
XVC08442	675 G04	CH	2"	N/A	2	C	A	NO	C	O	-	CT-CS(O)	DTJ-CS-5	130.004	VIFT-CS-54
XVC08470	675 C09	CH	3"	N/A	2	C	A	NO	B	O	-	CT-RF(O) PET-Q(O)	DTJ-CS-13	205.003 230.006A	VIFT - TO BE DEVELOPED
XVC08480A	675 E11	CH	2"	N/A	2	C	A	NO	B	B	-	CT-Q(O) CT-CS(C)	DTJ-CS-12	130.005D 205.003	VIFT-CS-55
XVC08480B	675 H11	CH	2"	N/A	2	C	A	NO	B	B	-	CT-Q(O) CT-CS(C)	DTJ-CS-12	130.005D 205.003	VIFT-CS-56
XVC08480C	675 G11	CH	2"	N/A	2	C	A	NO	B	B	-	CT-Q(O) CT-CS(C)	DTJ-CS-12	130.005D 205.003	VIFT-CS-57
XVC08481A	675 F11	CH	3"	N/A	2	C	A	NO	B	B	-	CT-Q(C) CT-RF(O) PET-Q(O)	DTJ-CS-11	205.003 230.006A 205.005	VIFT-CS-58
XVC08481B	675 H11	CH	3"	N/A	2	C	A	NO	B	B	-	CT-Q(C) CT-RF(O) PET-Q(O)	DTJ-CS-11	205.003 230.006A 205.005	VIFT-CS-59
XVC08481C	675 G11	CH	3"	N/A	2	C	A	NO	B	B	-	CT-Q(C) CT-RF(O) PET-Q(O)	DTJ-CS-11	205.003 230.006A 205.005	VIFT-CS-60

SYSTEM: DIESEL GENERATOR SYSTEM (DG)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVC00970A	351 G12	CH	2"	N/A	3	C	A	NO	C	B	-	CT-Q(B)	N/A	225.001A	VIFT-DG-1
XVC00970B	351 G3	CH	2"	N/A	3	C	A	NO	C	B	-	CT-Q(B)	N/A	225.001A	VIFT-DG-2
XVC00971A	351 G11	CH	3"	N/A	3	C	A	NO	C	B	-	CT-Q(B)	N/A	225.001A	VIFT-DG-3
XVC00971D	351 G4	CH	3"	N/A	3	C	A	NO	C	B	-	CT-Q(B)	N/A	225.001A	VIFT-DG-4
XVC00972A	351 G14	CH	2"	N/A	3	C	A	NO	C	B	-	CT-Q(B)	N/A	225.001A	VIFT-DG-5
XVC00972B	351 G2	CH	2"	N/A	3	C	A	NO	C	B	-	CT-Q(B)	N/A	225.001A	VIFT-DG-6
XVC10977A	*	CH	3/4"	N/A	3	C	A	NO	C	C	-	CT-Q(C)	N/A	225.001A	*DWG. 1MS-32-005-6 VIFT TO BE DEVELOPED
XVC10977B	*	CH	3/4"	N/A	3	C	A	NO	C	C	-	CT-Q(C)	N/A	225.001A	*DWG. 1MS-32-005-6 VIFT TO BE DEVELOPED
XVC10978A	*	CH	3/4"	N/A	3	C	A	NO	C	C	-	CT-Q(C)	N/A	225.001A	*DWG. 1MS-32-005-6 VIFT TO BE DEVELOPED
XVC10978B	*	CH	3/4"	N/A	3	C	A	NO	C	C	-	CT-Q(C)	N/A	225.001A	*DWG. 1MS-32-005-6 VIFT TO BE DEVELOPED
XVX10999A	*	SO	3/8"	3	3	B	A	NO	C	O	-	PET-Q(O)	N/A	225.001A PENDING	*DWG. 1MS-32-005-6 VIFT TO BE DEVELOPED
XVX10999B	*	SO	3/8"	3	3	B	A	NO	C	O	-	PET-Q(O)	N/A	225.001A PENDING	*DWG. 1MS-32-005-6 VIFT TO BE DEVELOPED

SYSTEM: DIESEL GENERATOR SYSTEM (DG)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVX20950A	*	SO	3/8"	3	3	B	A	NO	C	O	-	PET-Q(O)	N/A	225.001A PENDING	*DWG. 1MS-32-005-6 VIFT TO BE DEVELOPED
XVX20950B	*	SO	3/8"	3	3	B	A	NO	C	O	-	PET-Q(O)	N/A	225.001A PENDING	*DWG. 1MS-32-005-6 VIFT TO BE DEVELOPED

IST PROGRAM VALVE LIST

SYSTEM: DEMINERALIZED WATER SYSTEM (DN)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVD08767	715 D10	GT	1"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.004	VIFT-DN-1 XRP0231
XVD08768	715 D11	GT	1"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.004	VIFT-DN-2 XRP0231

SYSTEM: EMERGENCY FEEDWATER SYSTEM (EF)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG01001A	085 D05	GT	6"	1	3	B	A	NO	C	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-EF-1	130.005E	VIFT-EF-1
XVG01001B	085 G05	GT	6"	1	3	B	A	NO	C	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-EF-1	130.005E	VIFT-EF-2
XVG01002	085 J05	GT	8"	1	3	B	A	NO	C	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-EF-1	130.005E	VIFT-EF-3
XVG01008	085 J06	GT	8"	1	3	B	A	NO	C	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-EF-1	130.005E	VIFT-EF-4
XVC01009A	085 B12	CH	4"	2	2	C	A	NO	C	B	-	FS-Q(C) CT-Q(B) PI-2Y	N/A	120.004	VIFT-EF-5 XRP0308
XVC01009B	085 D12	CH	4"	2	2	C	A	NO	C	B	-	FS-Q(C) CT-Q(B) PI-2Y	N/A	120.004	VIFT-EF-6 XRP0205
XVC01009C	085 G12	CH	4"	2	2	C	A	NO	C	B	-	FS-Q(C) CT-Q(B) PI-2Y	N/A	120.004	VIFT-EF-7 XRP0213
XVC01013A	085 D06	CH	6"	N/A	3	C	A	NO	C	B	-	CT-CS(O) CT-Q(C) PET-Q(O)	DTJ-EF-2	130.003 220.001 120.004	VIFT-EF-8
XVC01013B	085 F04	CH	6"	N/A	3	C	A	NO	C	B	-	CT-CS(O) CT-Q(C) PET-Q(O)	DTJ-EF-2	130.003 220.001 120.004	VIFT-EF-9
XVC01014	085 H05	CH	8"	N/A	3	C	A	NO	C	B	-	CT-CS(O) CT-Q(C) PET-Q(O)	DTJ-EF-2	130.003 220.002 120.004	VIFT-EF-10

SYSTEM: EMERGENCY FEEDWATER SYSTEM (EF)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVC01016	085 H09	CH	4"	N/A	3	C	A	NO	C	B	-	CT-CS(O) DIS-RF(C)	DTJ-EF-4	130.003 401.006	VIFT-EF-13
XVK01019A	085 A10	SC	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) CT-CS(O)	DTJ-EF-5	130.003 120.004	VIFT-EF-14
XVK01019B	085 D10	SC	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) CT-CS(O)	DTJ-EF-5	130.003 120.004	VIFT-EF-15
XVK01019C	085 F10	SC	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) CT-CS(O)	DTJ-EF-5	130.003 120.004	VIFT-EF-16
XVK01020A	085 B10	SC	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) CT-CS(O)	DTJ-EF-5	130.003 120.004	VIFT-EF-17
XVK01020B	085 E10	SC	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) CT-CS(O)	DTJ-EF-5	130.003 120.004	VIFT-EF-18
XVK01020C	085 G10	SC	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) CT-CS(O)	DTJ-EF-5	130.003 120.004	VIFT-EF-19
XVC01022A	085 J06	CH	8"	N/A	3	C	A	NO	C	B	-	DIS-RF(B)	DTJ-EF-3	401.006	VIFT-EF-20
XVC01022B	085 J05	CH	8"	N/A	3	C	A	NO	C	B	-	DIS-RF(B)	DTJ-EF-3	401.006	VIFT-EF-21
XVC01023A	085 A07	CH	2"	N/A	3	C	A	NO	C	B	-	CT-Q(O)	N/A	220.001A	VIFT-EF-22
XVC01023B	085 F07	CH	2"	N/A	3	C	A	NO	C	B	-	CT-Q(O)	N/A	220.001A	VIFT-EF-23
XVC01024	085 H08	CH	3"	N/A	3	C	A	NO	C	B	-	CT-Q(O)	N/A	220.002	VIFT-EF-24
XVC01027	085 C04	CH	4"	N/A	NNS	C	A	NO	C	O	-	CT-Q(O)	N/A	220.001A	VIFT (to be developed)
XVC01034A	085 D05	CH	6"	N/A	3	C	A	NO	C	B	-	DIS-RF(B)	DTJ-EF-3	401.006	VIFT-EF-25
XVC01034B	085 F05	CH	6"	N/A	3	C	A	NO	C	B	-	DIS-RF(B)	DTJ-EF-3	401.006	VIFT-EF-26

SYSTEM: EMERGENCY FEEDWATER SYSTEM (EF)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG01037A	085 F02	GT	8"	1	3	B	A	NO	C	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-EF-1	130.005E	VIFT-EF-27
XVG01037B	085 G02	GT	8"	1	3	B	A	NO	C	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-EF-1	130.005E	VIFT-EF-28
XVC01038A	083 C12	CH	4"	N/A	2	C	A	NO	C	B	-	CT-CS(B)*	DTJ-EF-6	130.003	VIFT-EF-29 *Reverse test pending MRF-21507 (Refuel 8)
XVC01038B	083 E12	CH	4"	N/A	2	C	A	NO	C	B	-	CT-CS(B)*	DTJ-EF-6	130.003	VIFT-EF-30 *Reverse test pending MRF-21507 (Refuel 8)
XVC01038C	083 G12	CH	4"	N/A	2	C	A	NO	C	B	-	CT-CS(B)*	DTJ-EF-6	130.003	VIFT-EF-31 *Reverse test pending MRF-21507 (Refuel 8)
XVC01039A	083 B12	CH	4"	N/A	2	C	A	NO	C	B	-	CT-CS(B)*	DTJ-EF-6	130.003	VIFT-EF-32 *Reverse test pending MRF-21507 (Refuel 8)
XVC01039B	083 E12	CH	4"	N/A	2	C	A	NO	C	B	-	CT-CS(B)*	DTJ-EF-6	130.003	VIFT-EF-33 *Reverse test pending MRF-21507 (Refuel 8)
XVC01039C	083 G12	CH	4"	N/A	2	C	A	NO	C	B	-	CT-CS(B)*	DTJ-EF-6	130.003	VIFT-EF-34 *Reverse test pending MRF-21507 (Refuel 8)
XVC01048A	085 A08	CH	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) CT-CS(O)	DTJ-EF-4	130.003 220.001A	VIFT-EF-11
XVC01048B	085 F08	CH	4"	N/A	3	C	A	NO	C	B	-	CT-Q(C) CT-CS(O)	DTJ-EF-4	130.003 220.001A	VIFT-EF-12
IFV03531	085 A09	GL	3"	2	3	B	A	NO	O	B	O	ET-Q(B) ST-Q(B) FS-Q(O) PI-2Y	N/A	120.004	VIFT-EF-35

IST PROGRAM VALVE LIST

SYSTEM: EMERGENCY FEEDWATER SYSTEM (EF)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
IFV03531-CVI-EF	B-817-056	CH	3/4"	N/A	NC NS	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	220.007 120.006	GL-8904
IFV03536	085 B09	GL	3"	2	3	B	A	NO	O	B	O	ET-Q(B) ST-Q(B) FS-Q(O) PI-2Y	N/A	120.004	VIFT-EF-36
IFV03536-CVI-EF	B-817-056	CH	3/4"	N/A	NC NS	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	220.007 120.006	GL-8904
IFV03541	085 D09	GL	3"	2	3	B	A	NO	O	B	O	ET-Q(B) ST-Q(B) FS-Q(O) PI-2Y	N/A	120.004	VIFT-EF-35
IFV03541-CVI-EF	B-817-056	CH	3/4"	N/A	NC NS	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	220.007 120.006	GL-8904
IFV03546	085 E09	GL	3"	2	3	B	A	NO	O	B	O	ET-Q(B) ST-Q(B) FS-Q(O) PI-2Y	N/A	120.004	VIFT-EF-38
IFV03546-CVI-EF	B-817-056	CH	3/4"	N/A	NC NS	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	220.007 120.006	GL-8904
IFV03551	085 F09	GL	3"	2	3	B	A	NO	O	B	O	ET-Q(B) ST-Q(B) FS-Q(O) PI-2Y	N/A	120.004	ViFT-EF-39
IFV03551-CVI-EF	B-817-056	CH	3/4"	N/A	NC NS	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	220.007 120.006	GL-8904
IFV03556	085 G09	GL	3"	2	3	B	A	NO	O	B	O	ET-Q(B) ST-Q(B) FS-Q(O) PI-2Y	N/A	120.004	VIFT-EF-40
IFV03556-CVI-EF	B-817-056	CH	3/4"	N/A	NC NS	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	220.007 120.006	GL-8904

IST PROGRAM VALVE LIST

SYSTEM: FIRE SERVICE SYSTEM (FS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG06772	231 D6	GT	4"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.004	VIFT-FS-1 XRP0404
XVG06773	231 D6	GT	4"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.004	VIFT-FS-2 XR0404
XVG06797	231 D6	GT	4"	1	2	A	A	YES	O	C	-	ET-Q(C) ST-Q(C) PI-2Y JL-2Y	N/A	170.003 215.004	VIFT-FS-3 XR0427
XVC06799	231 D6	CH	4"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.004	VIFT-FS-4 XR0427

SYSTEM: FEEDWATER SYSTEM (FW)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
IFV00478	083 B02	PL	16"	2	NNS	N/A	A	NO	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y	DTJ-FW-1	130.003	VIFT-FW-1
IFV00488	083 E02	PL	16"	2	NNS	N/A	A	NO	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y	DTJ-FW-1	130.003	VIFT-FW-2
IFV00498	083 G02	PL	16"	2	NNS	N/A	A	NO	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y	DTJ-FW-1	130.003	VIFT-FW-3
XVG01611A	083 C06	GT	18"	4	2	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-FW-2	130.003 130.004	VIFT-FW-4
XVG01611A-CV-FW	1MS-25-899	CH	1½"	N/A	NC NS	A/C	A	NO	C	C	-	CT-CS(C)	DTJ-FW-4	248.002	GL-8904
XVG01611B	083 E06	GT	18"	4	2	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-FW-2	130.003 130.004	VIFT-FW-5
XVG01611B-CV-FW	1MS-25-899	CH	1½"	N/A	NC NS	A/C	A	NO	C	C	-	CT-CS(C)	DTJ-FW-4	248.002	GL-8904
XVG01611C	083 G06	GT	18"	4	2	B	A	NO	O	C	-	ET-CS(C) ST-CS(C) PI-2Y	DTJ-FW-2	130.003 130.004	VIFT-FW-6
XVG01611C-CV-FW	1MS-25-899	CH	1½"	N/A	NC NS	A/C	A	NO	C	C	-	CT-CS(C)	DTJ-FW-4	248.002	GL-8904
XVT01633A	083 B-09	SC	1½"	1	2	B/C	A	NO	B	C	-	ET-Q(C) ST-Q (C) PI-2Y	N/A	148.001	VIFT-FW-7

IST PROGRAM VALVE LIST

SYSTEM: FEEDWATER SYSTEM (FW)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVT01633B	083 D-09	SC	1½"	1	2	B/C	A	NO	B	C	-	ET-Q(C) ST-Q (C) PI-2Y	N/A	148.001	VIFT-FW-8
XVT01633C	083 G-09	SC	1½"	1	2	B/C	A	NO	B	C	-	ET-Q(C) ST-Q (C) PI-2Y	N/A	148.001	VIFT-FW-9
XVT01678A	083 A06	GT	3"	2	2	B	A	NO	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	148.001	VIFT-FW-10
XVT01678B	083 D05	GL	3"	2	2	B	A	NO	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	148.001	VIFT-FW-11
XVT01678C	083 F05	GL	3"	2	2	B	A	NO	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	148.001	VIFT-FW-12
XVC01684A	083 B05	CH	18"	N/A	2	C	A	NO	O	C	-	CT-CS(C)	DTJ-FW-2	130.005F	VIFT-FW-13
XVC01684B	083 E05	CH	18"	N/A	2	C	A	NO	O	C	-	CT-CS(C)	DTJ-FW-2	130.005F	VIFT-FW-14
XVC01684C	083 G05	CH	18"	N/A	2	C	A	NO	O	C	-	CT-CS(C)	DTJ-FW-2	130.005F	VIFT-FW-15
IFV03321	083 A02	GL	6"	2	NNS	N/A	A	NO	C	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y	DTJ-FW-3	130.003	VIFT-FW-16
IFV03331	083 D02	GL	6"	2	NNS	N/A	A	NO	C	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y	DTJ-FW-3	130.003	VIFT-FW-17

SYSTEM: FEEDWATER SYSTEM (FW)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
IFV03341	083 F02	GL	6"	2	NNS	N/A	A	NO	C	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y	DTJ-FW-3	130.003	VIFT-FW-18

SYSTEM: POST ACCIDENT HYDROGEN REMOVAL SYSTEM (HR)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS	
		TYPE	SIZE						NRM	SAF	FAL					
XVX06050A	861 C12	GL	3/8"	3	2	A	A	YES	O	B	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-1 XRP0301B	
XVX06050B	861 F12	GL	3/8"	3	2	A	A	YES	C	B	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-2 XR0105B	
XVX06051A	861 B11	GL	3/8"	3	2	A	A	YES	C	B	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-3 XRP0301A	A
XVX06051B	861 E12	GL	3/8"	3	2	A	A	YES	C	B	C	ET-Q(B) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-4 XRP0105A	A
XVX06051C	861 A11	GL	3/8"	3	2	A	A	YES	C	B	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-5 XRP0301A	A
XVX06052A	861 C10	GL	3/8"	3	2	A	A	YES	C	B	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-6 XRP0301B	A

SYSTEM: POST ACCIDENT HYDROGEN REMOVAL SYSTEM (HR)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS	
		TYPE	SIZE						NRM	SAF	FAL					
XVX06052B	861 F10	GL	3/8"	3	2	A	A	YES	C	B	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-7 XRP0105B	A
XVX06053A	861 B10	GL	3/8"	3	2	A	A	YES	C	B	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-8 XRP0301A	A
XVX06053B	861 E10	GL	3/8"	3	2	A	A	YES	C	B	C	ET-Q(B) ST-Q(B) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-9 XRP0105A	A
XVX06054	861 C10	GL	3/8"	3	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-10 XRP0301B	A
XVG06056	861 G11	GT	5"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-11 XRP0103	
XVG06057	861 G10	GT	6"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-12 XRP0103	
XVG06066	861 K11	GT	6"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-13 XRP0302	

IST PROGRAM VALVE LIST

SYSTEM: POST ACCIDENT HYDROGEN REMOVAL SYSTEM (HR)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG06067	861 K10	GT	6"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	138.001 215.005	VIFT-HR-14 XRPO302

SYSTEM: INSTRUMENT AIR SYSTEM (IA)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS	
		TYPE	SIZE						NRM	SAF	FAL					
XVT02660	273 G04	GL	2"	2	2	A	A	YES	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y JL-2Y	DTJ-IA-1	130.005G 215.002A	VIFT-IA-1 XRP0311	A
XVC02661	273 G03	CH	2"	N/A	2	AC	A	YES	O	C	-	CT-CS(C) JL-2Y	DTJ-IA-1	130.005G 215.002A	VIFT-IA-2 XRP0311	A
XVT02662A	273 B04	GL	6"	2	2	A	A	YES	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y JL-2Y	DTJ-IA-1	130.005G 215.002A	VIFT-IA-3 XRP0319	A
XVT02662B	273 B03	GL	6"	2	2	A	A	YES	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y JL-2Y	DTJ-IA-1	130.005G 215.002A	VIFT-IA-4 XRP0319	A
XVT02679	274 D04	GL	2"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.002A	VIFT-IA-5 XRP0324	A
XVT02680	274 C04	GL	2"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.002A	VIFT-IA-6 XRP0324	A

SYSTEM: MAIN STEAM SYSTEM (MS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
IPV02000	011 C07	GL	8"	2	2	B	A	NO	C	O	C	ET-Q(O) ST-Q(O) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-1
IPV02010	011 D07	GL	8"	2	2	B	A	NO	C	O	C	ET-Q(O) ST-Q(O) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-2
IPV02020	011 G07	GL	8"	2	2	B	A	NO	C	O	C	ET-Q(O) ST-Q(O) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-3
IFV02030	011 E04	GL	4"	2	3	B	A	NO	C	B	O	ET-Q(B) ST-Q(B) FS-Q(O) PI-2Y	N/A	121.002	VIFT-MS-4
IFV02030- CVI-MS	B-817- 042	CH	1"	N/A	NC	A/C	A	NO	C	C	-	CT-Q(C) CT-RF(C)	N/A	220.007 120.006	GL-8904
XVM02801A	011 B05	GL	32"	2	2	B	A	NO	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y PET-Q(C)	DTJ-MS-1	121.002 130.004	VIFT-MS-5
XVM02801B	011 D03	GL	32"	2	2	B	A	NO	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y PET-Q(C)	DTJ-MS-6	121.002 130.004	VIFT-MS-6
XVM02801C	011 G05	GL	32"	2	2	B	A	NO	O	C	C	ET-CS(C) ST-CS(C) FS-CS(C) PI-2Y PET-Q(C)	DTJ-MS-1	121.002 130.004	VIFT-MS-6

IST PROGRAM VALVE LIST

SYSTEM: MAIN STEAM SYSTEM (MS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG02802A	011 E09	GT	4"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	121.002	VIFT-MS-8
XVG02802B	011 G05	GT	4"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	121.002	VIFT-MS-9
XVS02806A	011 B07	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-10
XVS02806B	011 B06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-11
XVS02806C	011 B06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-12
XVS02806D	011 B06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-13
XVS02806E	011 B05	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-14
XVS02806F	011 E07	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-15
XVS02806G	011 E07	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-16
XVS02806H	011 E06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-17

SYSTEM: MAIN STEAM SYSTEM (MS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVS02806I	011 E06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-18
XVS02806J	011 E05	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-19
XVS02806K	011 F07	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-20
XVS02806L	011 G06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-21
XVS02806M	011 F06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-22
XVS02806N	011 G06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-23
XVS02806P	011 F06	RL	6"	N/A	2	C	A	NO	C	O	-	RT-10Y	N/A	401.002	VIFT-MS-24
XVT02813	011 H03	GL	1 1/2"	1	3	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	121.002	VIFT-MS-25
XVT02843A	011 C05	GL	1 1/2"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-26
XVT02843B	011 C04	GL	1 1/2"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-27

SYSTEM: MAIN STEAM SYSTEM (MS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVT02843C	011 H05	GL	1 1/2"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-28
XVT02869A	011 B04	GL	4"	2	2	B	A	NO	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-29
XVT02869B	011 E03	GL	4"	2	2	B	A	NO	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-30
XVT02869C	011 G04	GL	4"	2	2	B	A	NO	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-31
XVC02876A	011 F06	CH	4"	N/A	3	C	A	NO	C	B	-	PET-Q(O) CT-RF(O) DIS-RF(C)	DTJ-MS-2	220.002 401.006 220.008	VIFT-MS-32
XVC02876B	011 F05	CH	4"	N/A	3	C	A	NO	C	B	-	PET-Q(O) CT-RF(O) DIS-RF(C)	DTJ-MS-2	220.002 401.006 220.008	VIFT-MS-33
XVT02877A	011 C09	GL	1 1/2"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-34
XVT02877B	011 H09	GL	1 1/2"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	121.002	VIFT-MS-35

SYSTEM: REACTOR MAKEUP WATER SYSTEM (MU)

VALVE NUMBER	DWG/ COORD	VALVE TYPE	VALVE SIZE	ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION NRM	POSITION SAF	POSITION FAL	TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
XVD01920A	791 G05	GT	4"	2	3	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	146.003	VIFT-MU-1
XVD01920B	791 G05	GT	4"	2	3	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	146.003	VIFT-MU-2

SYSTEM: NUCLEAR DRAINS (ND)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVD06242A	821 A09	GT	3"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	140.001 215.003A	VIFT-ND-1 XRP0424
XVD06242B	821 A08	GT	3"	2	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	140.001 215.003A	VIFT-ND-2 XRP0424

SYSTEM: NITROGEN BLANKETING (NG)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS	
		TYPE	SIZE						NRM	SAF	FAL					
XVT06587	311 B12	GL	1"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.002A	VIFT-NG-1 XRP0313	A
XVC06588	311 B13	CH	1"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.002A	VIFT-NG-2 XRP0313	A

SYSTEM: REACTOR COOLANT SYSTEM (RC)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
PCV00444B	602 F16	GL	3"	2	1	N/A	N/A	NO	B	N/A	C	ET-CS(B) ST-CS(B) FS-CS(C) PI-2Y	N/A	130.003	Valve in program per T.S. 4.4.4.1. ASME XI not applicable.
PCV00445A	602 D16	GL	3"	2	1	N/A	N/A	NO	B	N/A	C	ET-CS(B) ST-CS(B) FS-CS(C) PI-2Y	N/A	130.003	Valve in program per T.S. 4.4.4.1. ASME XI not applicable.
PCV00445B	602 E16	GL	3"	2	1	N/A	N/A	NO	B	N/A	C	ET-CS(B) ST-CS(B) FS-CS(C) PI-2Y	N/A	130.003	Valve in program per T.S. 4.4.4.1. ASME XI not applicable.
XVG08000A	602 D16	GT	3"	1	1	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	127.001	VIFT-RC-4
XVG08000B	602 F16	GT	3"	1	1	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	127.001	VIFT-RC-5
XVG08000C	602 E16	GT	3"	1	1	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	127.001	VIFT-RC-6
XVS08010A	602 D11	RL	6"	N/A	1	C	A	NO	C	O	-	RT-5Y	N/A	401.001	VIFT-RC-7
XVS08010B	602 D12	RL	6"	N/A	1	C	A	NO	C	O	-	RT-5Y	N/A	401.001	VIFT-RC-8
XVS08010C	602 D14	RL	6"	N/A	1	C	A	NO	C	O	-	RT-5Y	N/A	401.001	VIFT-RC-9

SYSTEM: REACTOR COOLANT SYSTEM (RC)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVD08028	602 B03	DF	3"	2	2	A	A	YES	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	142.001 215.003A	VIFT-RC-10 XRP0422
XVC08046	602 B04	CH	3"	N/A	2	AC	A	YES	C	C	C	JL-2Y	N/A	215.003A	VIFT-RC-12 XRP0422
XVD08033	602 A06	DF	1"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	142.001 215.003A	VIFT-RC-11 XRP0420
XVD08047	602 B06	DF	1"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	142.001 215.003A	VIFT-RC-13 XRP0420
XVT08095A	601 E08	GL	2"	1	1	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	142.001	VIFT-RC-14
XVT08095B	601 E06	GL	2"	1	1	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	142.001	VIFT-RC-15
XVT08096A	601 F06	GL	2"	1	1	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	142.001	VIFT-RC-16
XVT08096B	601 F08	GL	2"	1	1	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	142.001	VIFT-RC-17

IST PROGRAM VALVE LIST

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM (RH)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
FCV00602A	641 E12	GT	3"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.004	VIFT-RH-1
FCV00602B	641 E12	GT	3"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	205.004	VIFT-RH-2
XVG08701A	641 H15	GT	12"	1	1	A	A	NO	C	B	-	ET-CS(B) ST-CS(B) PI-2Y LT-2Y	DTJ-RH-1	130.004 215.008 215.003C	VIFT-RH-3 T.S. 4.4.6.2.2 XRP0316
XVG08701B	641 F16	GT	12"	1	1	A	A	NO	C	B	-	ET-CS(B) ST-CS(B) PI-2Y LT-2Y	DTJ-RH-1	130.004 215.008 215.003C	VIFT-RH-4 T.S. 4.4.6.2.2 XRP0226
XVG08702A	641 H15	GT	12"	1	1	A	A	NO	C	B	-	ET-CS(B) ST-CS(B) PI-2Y LT-2Y	DTJ-RH-1	130.004 215.008	VIFT-RH-5 T.S. 4.4.6.2.2
XVG08702B	641 F15	GT	12"	1	1	A	A	NO	C	B	-	ET-CS(B) ST-CS(B) PI-2Y LT-2Y	DTJ-RH-1	130.004 215.008	VIFT-RH-6 T.S. 4.4.6.2.2
XVC08703A	641 H15	CH	3/4"	N/A	2	AC	P	NO	C	C	-	LT-2Y	N/A	215.008	VIFT-RH-7
XVC08703B	641 F15	CH	3/4"	N/A	2	AC	P	NO	C	C	-	LT-2Y	N/A	215.008	VIFT-RH-8
XVG08706A	641 B08	GT	8"	1	2	B	A	NO	C	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	205.004	VIFT-RH-9

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM (RH)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG08706B	641 D08	GT	8"	1	2	B	A	NO	C	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	205.004	VIFT-RH-10
XVR08708A	641 G14	RL	3"	N/A	2	C	A	NO	C	O	-	*RT-RF	N/A	401.005	VIFT-RH-11 *T.S. 4.4.9.3.1.C
XVR08708B	641 E14	RL	3"	N/A	2	C	A	NO	C	O	-	*RT-RF	N/A	401.005	VIFT-RH-12 *T.S. 4.4.9.3.1.C
XVC08716A	641 B12	CH	10"	N/A	2	C	A	NO	C	B	-	CT-Q(B)	N/A	205.004	VIFT-RH-13
XVC08716B	641 C12	CH	10"	N/A	2	C	A	NO	C	B	-	CT-Q(B)	N/A	205.004	VIFT-RH-14

SYSTEM: SERVICE AIR SYSTEM (SA)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVT02912	241 B10	GL	2"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.002A	VIFT-SA-1 XRP0310
XVC02913	241 B11	CH	2"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.002A	VIFT-SA-2 XRP0310

SYSTEM: SPENT FUEL COOLING SYSTEM (SF)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVD06571	651 H12	DF	3"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.003A	VIFT-SF-1 XRP0419
XVD06672	651 H12	DF	3"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.003A	VIFT-SF-2 XRP0419
XVD06697	651 H12	DF	3"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.003A	VIFT-SF-3 XRP0421
XVD06698	651 H12	DF	3"	N/A	2	A	P	YES	C	C	-	JL-2Y	N/A	215.003A	VIFT-SF-4 XRP0421

SYSTEM: SAFETY INJECTION SYSTEM (SI)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG08801A	691 D15	GT	3"	1	2	A	A	YES	C	B	-	ET-CS(B) ST-CS(B) PI-2Y JL-2Y	DTJ-SI-1	130.005H 215.003C	VIFT-SI-1 XRP0426
XVG08801B	691 D16	GT	3"	1	2	A	A	YES	C	B	-	ET-CS(B) ST-CS(B) PI-2Y JL-2Y	DTJ-SI-1	130.005H 215.003C	VIFT-SI-2 XRP0426
XVG08808A	692 B10	GT	12"	1	2	B	A	NO	O	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-SI-2	130.004	VIFT-SI-3
XVG08808B	692 D10	GT	12"	1	2	B	A	NO	O	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-SI-2	130.004	VIFT-SI-4
XVG08808C	692 G10	GT	12"	1	2	B	A	NO	O	O	-	ET-CS(O) ST-CS(O) PI-2Y	DTJ-SI-2	130.004	VIFT-SI-5
XVG08809A	693 E05	GT	14"	1	2	B	A	NO	O	B	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	205.004	VIFT-SI-6
XVG08809B	693 G05	GT	14"	1	2	B	A	NO	O	B	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	205.004	VIFT-SI-7
XVG08811A	693 J11	GT	14"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	105.003 215.003A	VIFT-SI-8 XRP0329
XVG08811B	693 J11	GT	14"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	105.003 215.003A	VIFT-SI-9 XRP0425

SYSTEM: SAFETY INJECTION SYSTEM (SI)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG08812A	693 J10	GT	14"	1	2	B	A	NO	C	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	105.003	VIFT-SI-10
XVG08812B	693 J10	GT	14"	1	2	B	A	NO	C	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	105.003	VIFT-SI-11
XVT08860	692 G05	GL	1"	2	2	A	A	YES	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	105.003 215.003A	VIFT-SI-12 XRP0317
XVC08861	692 G05	CH	1"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.003A	VIFT-SI-13 XRP0317
XVT08871	692 B14	GL	3/4"	2	2	A	A	YES	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	105.003 215.003A	VIFT-SI-14 XRP0321
XVT08875A	692 A10	GL	1"	2	2	B	P	NO	C	C	C	FS-CS(C) PI-2Y	DTJ-SI-3	130.005H	VIFT to be developed
XVT08875B	692 C10	GL	1"	2	2	B	P	NO	C	C	C	FS-CS(C) PI-2Y	DTJ-SI-3	130.005H	VIFT to be developed
XVT08875C	692 E10	GL	1"	2	2	B	P	NO	C	C	C	FS-CS(C) PI-2Y	DTJ-SI-3	130.005H	VIFT to be developed
XVT08878A	692 C08	GL	1"	2	2	B	P	NO	C	C	C	FS-CS(C) PI-2Y	DTJ-SI-3	130.005H	VIFT to be developed
XVT08878B	692 E08	GL	1"	2	2	B	P	NO	C	C	C	FS-CS(C) PI-2Y	DTJ-SI-3	130.005H	VIFT to be developed
XVT08878C	692 G08	GL	1"	2	2	B	P	NO	C	C	C	FS-CS(C) PI-2Y	DTJ-SI-3	130.005H	VIFT to be developed

SYSTEM: SAFETY INJECTION SYSTEM (SI)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVT08880	692 A05	GL	1"	2	2	A	A	YES	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	105.003 215.003A	VIFT-SI-15 XRP0320
XVG08884	691 D06	GT	3"	1	2	A	A	YES	C	B	-	ET-CS(B) ST-CS(B) PI-2Y JL-2Y	DTJ-SI-1	130.005H 215.003C	VIFT-SI-16 XRP0415
XVG08885	691 C09	GT	3"	1	2	A	A	YES	C	B	-	ET-CS(B) ST-CS(B) PI-2Y JL-2Y	DTJ-SI-1	130.005H 215.003C	VIFT-SI-17 XRP0222
XVG08886	691 D08	GT	3"	1	2	A	A	YES	C	B	-	ET-CS(B) ST-CS(B) PI-2Y JL-2Y	DTJ-SI-1	130.005H 215.003C	VIFT-SI-18 XRP0412
XVG08887A	693 E12	GT	10"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	105.003	VIFT-SI-19
XVG08887B	693 G12	GT	10"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	105.003	VIFT-SI-20
XVG08888A	693 E13	GT	10"	1	2	A	A	YES	O	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	105.003 215.003B	VIFT-SI-21 XRP0322
XVG08888B	693 G13	GT	10"	1	2	A	A	YES	O	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	105.003 215.003B	VIFT-SI-22 XRP0227

SYSTEM: SAFETY INJECTION SYSTEM (SI)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG08889	693 C13	GT	10"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	105.003 215.003B	VIFT-SI-23 XRP0325
XVC08926	693 D05	CH	8"	N/A	2	C	A	NO	C	B	-	CT-RF(B) PET-CS(O)	DTJ-SI-4	130.005D 230.006A	VIFT-SI-24
XVC08947	692 A05	CH	1"	N/A	2	AC	P	YES	C	C	-	JL-2Y	N/A	215.003A	VIFT-SI-25 XRP0320
XVC08948A	692 B16	CH	12"	N/A	1	AC	A	NO	C	B	-	CT-RF(O) LT-RF*	DTJ-SI-5	215.008 205.017	VIFT-SI-26 *T.S. 4.4.6.2.2.C
XVC08948B	692 D16	CH	12"	N/A	1	AC	A	NO	C	B	-	CT-RF(O) LT-RF*	DTJ-SI-5	215.008 205.017	VIFT-SI-27 *T.S. 4.4.6.2.2.C
XVC08948C	692 F16	CH	12"	N/A	1	AC	A	NO	C	B	-	CT-RF(O) LT-RF*	DTJ-SI-5	215.008 205.017	VIFT-SI-28 *T.S. 4.4.6.2.2.C
XVC08956A	692 B14	CH	12"	N/A	1	AC	A	NO	C	B	-	CT-RF(O) LT-RF*	DTJ-SI-5	215.008 205.017	VIFT-SI-29 *T.S. 4.4.6.2.2.C
XVC08956B	692 D14	CH	12"	N/A	1	AC	A	NO	C	B	-	CT-RF(O) LT-RF*	DTJ-SI-5	215.008 205.017	VIFT-SI-30 *T.S. 4.4.6.2.2.C
XVC08956C	692 F14	CH	12"	N/A	1	AC	A	NO	C	B	-	CT-RF(O) LT-RF*	DTJ-SI-5	215.008 205.017	VIFT-SI-31 *T.S. 4.4.6.2.2.C
XVC08958A	693 E06	CH	14"	N/A	2	C	A	NO	C	B	-	CT-Q(B)	N/A	205.004	VIFT-SI-32
XVC08958B	693 G06	CH	14"	N/A	2	C	A	NO	C	B	-	CT-Q(B)	N/A	205.004	VIFT-SI-33
XVT08961	692 B15	GL	3/4"	2	2	A	A	YES	C	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	105.003 215.003A	VIFT-SI-34 XRP0321

SYSTEM: SAFETY INJECTION SYSTEM (SI)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVC08973A	693 E15	CH	6"	N/A	1	AC	A	NO	C	B	-	PET-CS(O) CT-RF (O) LT-2Y	DTJ-SI-6	215.008 230.006C 130.004	VIFT-SI-35 T.S. 4.4.6.2.2
XVC08973B	693 F15	CH	6"	N/A	1	AC	A	NO	C	B	-	PET-CS(O) CT-RF (O) LT-2Y	DTJ-SI-6	215.008 230.006C 130.004	VIFT-SI-36 T.S. 4.4.6.2.2
XVC08973C	693 G15	CH	6"	N/A	1	AC	A	NO	C	B	-	PET-CS(O) CT-RF(O) LT-2Y	DTJ-SI-6	215.008 230.006C 130.004	VIFT-SI-37 T.S. 4.4.6.2.2
XVC08974A	693 E14	CH	10"	N/A	2	AC	A	NO	C	B	-	CT-CS(O) LT-2Y	DTJ-SI-6	215.008 130.004	VIFT-SI-38 XRP0322 T.S. 4.4.6.2.2
XVC08974B	693 G14	CH	10"	N/A	2	AC	A	NO	C	B	-	CT-CS(O) LT-2Y	DTJ-SI-6	215.008 130.004	VIFT-SI-39 XRP0227 T.S. 4.4.6.2.2
XVC08988A	691 A08	CH	6"	N/A	1	AC	A	NO	C	B	-	PET-CS(O) CT-RF(O) LT-2Y	DTJ-SI-7	130.005H 230.006C 215.008	VIFT-SI-40 T.S. 4.4.6.2.2
XVC08988B	691 A08	CH	6"	N/A	1	AC	A	NO	C	B	-	PET-CS(O) CT-RF(O) LT-2Y	DTJ-SI-7	130.005H 230.006C 215.008	VIFT-SI-41 T.S. 4.4.6.2.2
XVC08990A	691 B07	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-42 T.S. 4.4.6.2.2
XVC08990B	691 B08	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-43 T.S. 4.4.6.2.2
XVC08990C	691 B07	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-44 T.S. 4.4.6.2.2
XVC08992A	691 B06	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-45 T.S. 4.4.6.2.2
XVC08992B	691 B05	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-46 T.S. 4.4.6.2.2

SYSTEM: SAFETY INJECTION SYSTEM (SI)

VALVE NUMBER	DWG/ COORD	VALVE TYPE	VALVE SIZE	ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION NRM	POSITION SAF	POSITION FAL	TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
XVC08992C	691 B05	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-47 T.S. 4.4.6.2.2
XVC08993A	691 A04	CH	6"	N/A	1	AC	A	NO	C	B	-	PET-CS(O) CT-RF(O) LT-2Y	DTJ-SI-7	130.005H 230.006C 215.008	VIFT-SI-48 T.S. 4.4.6.2.2
XVC08993B	691 A04	CH	6"	N/A	1	AC	A	NO	C	B	-	PET-CS(O) CT-RF(O) LT-2Y	DTJ-SI-7	130.005H 230.006C 215.008	VIFT-SI-49 T.S. 4.4.6.2.2
XVC08993C	691 B04	CH	6"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-50 T.S. 4.4.6.2.2
XVC08995A	691 B13	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-51 T.S. 4.4.6.2.2
XVC08995B	691 B12	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-52 T.S. 4.4.6.2.2
XVC08995C	691 B11	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-53 T.S. 4.4.6.2.2
XVC08997A	691 B15	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-54 T.S. 4.4.6.2.2
XVC08997B	691 B14	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-55 T.S. 4.4.6.2.2
XVC08997C	691 B14	CH	2"	N/A	1	AC	A	NO	C	B	-	LT-2Y CT-RF(O)	DTJ-SI-8	230.006A 215.008	VIFT-SI-56 T.S. 4.4.6.2.2
XVC08998A	691 A15	CH	6"	N/A	1	AC	A	NO	C	B	-	LT-2Y PET-CS(O) CT-RF(O)	DTJ-SI-7	130.004 230.006C 215.008	VIFT-SI-57 T.S. 4.4.6.2.2
XVC08998B	691 A15	CH	6"	N/A	1	AC	A	NO	C	B	-	LT-2Y PET-CS(O) CT-RF(O)	DTJ-SI-7	130.004 230.006C 215.008	VIFT-SI-58 T.S. 4.4.6.2.2
XVC08998C	691 A16	CH	6"	N/A	1	AC	A	NO	C	B	-	LT-2Y PET-CS(O) CT-RF(O)	DTJ-SI-7	130.004 230.006C 215.008	VIFT-SI-59 T.S. 4.4.6.2.2

IST PROGRAM VALVE LIST

SYSTEM: REACTOR BUILDING SPRAY SYSTEM (SP)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG03001A	661 D04	GT	12"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	112.003	VIFT-SP-1
XVG03001B	661 D03	GT	12"	1	2	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	112.003	VIFT-SP-2
XVG03002A	661 G03	GT	3"	1	3	B	A	NO	C	B	-	ET-CS(B) ST-CS(B) PI-2Y	DTJ-SP-1	130.005I	VIFT-SP-3
XVG03002B	661 H03	GT	3"	1	3	B	A	NO	C	B	-	ET-CS(B) ST-CS(B) PI-2Y	DTJ-SP-1	130.005I	VIFT-SP-4
XVG03003A	661 E10	GT	10"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	112.003 215.003A	VIFT-SP-5 XRP0401
XVG03003B	661 E10	GT	10"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	112.003 215.003A	VIFT-SP-6 XRP0303
XVG03004A	661 F10	GT	12"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	112.003 215.003A	VIFT-SP-7 XRP0327
XVG03004B	661 H10	GT	1[illegible]"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	112.003 215.003A	VIFT-SP-8 XRP0328

SYSTEM: REACTOR BUILDING SPRAY SYSTEM (SP)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG03005A	661 F09	GT	12"	1	2	B	A	NO	C	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	112.003	VIFT-SP-9
XVG03005B	661 H09	GT	12"	1	2	B	A	NO	C	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	112.003	VIFT-SP-10
XVC03006A	661 D04	CH	12"	N/A	2	C	A	NO	C	B	-	CT-Q(O) DIS-RF(C)	DTJ-SP-2	212.002 401.006	VIFT-SP-11
XVC03006B	661 E03	CH	12"	N/A	2	C	A	NO	C	B	-	CT-Q(O) DIS-RF(C)	DTJ-SP-2	212.002 401.006	VIFT-SP-12
XVC03009A	661 E11	CH	10"	N/A	2	AC	A	YES	C	B	-	JL-2Y DIS-RF(O)	DTJ-SP-3	215.003A 401.006	VIFT-SP-13 XRP0401
XVC03009B	661 E11	CH	10"	N/A	2	AC	A	YES	C	B	-	JL-2Y DIS-RF(O)	DTJ-SP-3	215.003A 401.006	VIFT-SP-14 XRP0303
XVC03013A	661 F04	CH	3"	N/A	2	C	A	NO	C	B	-	DIS-RF(O)	DTJ-SP-4	401.006	VIFT-SP-15
XVC03013B	661 F04	CH	3"	N/A	2	C	A	NO	C	B	-	DIS-RF(O)	DTJ-SP-4	401.006	VIFT-SP-16
XVV03014A	661 D02	VB	2"	N/A	3	C	A	NO	C	O	-	PT-Q(O)	N/A	112.003	VIFT-SP-17
XVV03014B	661 D02	VB	2"	N/A	3	C	A	NO	C	O	-	PT-Q(O)	N/A	112.003	VIFT-SP-18

IST PROGRAM VALVE LIST

SYSTEM: NUCLEAR SAMPLING SYSTEM (SS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVA09311A	771 D13	GL	1"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-1 XRP0407A
XVA09311B	711 D14	GL	1"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-2 XRP0407A
XVA09312A	771 E13	GL	1"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-3 XRP0407B
XVA09312B	771 E14	GL	1"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-27	N/A	144.001 215.005	VIFT-SS-4 XRP0407B
XVX09339	772 J03	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-5 XRP0417D
XVX09341	772 J03	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-6 XRP0417D

SYSTEM: NUCLEAR SAMPLING SYSTEM (SS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVX09356A	771 C12	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-7 XRP0405
XVX09356B	711 C12	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-8 XRP0405
XVX09357	771 C10	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-9 XRP0405
XVX9364B	771 D11	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-27	N/A	144.001 215.005	VIFT-SS-10 XRP0314
XVX09364C	771 E11	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-11 XRP0223
XVX09365B	771 D10	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-12 XRP0314

SYSTEM: NUCLEAR SAMPLING SYSTEM (SS)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVX09387	711 J10	GL	3/8"	3	2	A	A	YES	B	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001 215.005	VIFT-SS-14 XRP0323
XVX09398A	771 F10	GL	3/8"	3	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	144.001	VIFT-SS-15
XVX9398B	771 G10	GL	3/8"	3	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y	N/A	144.001	VIFT-SS-16
XVX09398C	771 H10	GL	3/8"	3	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	144.001	VIFT-SS-17

SYSTEM: SERVICE WATER SYSTEM (SW)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG03103A	222 C02	GT	16"	1	2	A	A	YES	O	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	123.003A 215.004	VIFT-SW-1 XRPO305
XVG03103B	222 G02	GT	16"	1	2	A	A	YES	O	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	123.003B 215.004	VIFT-SW-2 XRPO102
XVG03105A	222 B08	GT	4"	2	3	B	A	NO	C	O	C	ET-Q(O) ST-Q(O) FS-Q(C) PI-2Y	N/A	123.003A	VIFT-SW-3
XVG03105B	222 J09	GT	4"	2	3	B	A	NO	C	O	C	ET-Q(O) ST-Q(O) FS-Q(C) PI-2Y	N/A	123.003B	VIFT-SW-4
XVB03106A	222 C05	BF	16"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	123.003A 215.004	VIFT-SW-5 XRPO304
XVB03106B	222 G05	BF	16"	1	2	A	A	YES	C	B	-	ET-Q(B) ST-Q(B) PI-2Y JL-2Y	N/A	123.003B 215.004	VIFT-SW-6 XRPO403
XVG03107A	222 C01	GT	16"	1	3	B	A	NO	C	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	223.002A	VIFT-SW-7
XVG03107B	222 G01	GT	16"	1	3	B	A	NO	C	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	223.002A	VIFT-SW-8

SYSTEM: SERVICE WATER SYSTEM (SW)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVG03108A	222 B04	GT	10"	1	3	B	A	NO	O	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	123.003A	VIFT-SW-9
XVG03108B	222 D04	GT	10"	1	3	B	A	NO	O	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	123.003A	VIFT-SW-10
XVG03108C	222 F04	GT	10"	1	3	B	A	NO	O	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	123.003B	VIFT-SW-11
XVG03108D	222 F04	GT	10"	1	3	B	A	NO	O	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	123.003B	VIFT-SW-12
XVG03109A	222 B03	GT	10"	1	3	B	A	NO	O	O	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003A	VIFT-SW-13
XVG03109B	222 B03	GT	10"	1	3	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003A	VIFT-SW-14
XVG03109C	222 F03	GT	10"	1	3	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003B	VIFT-SW-15
XVG03109D	222 H03	GT	10"	1	3	B	A	NO	O	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003B	VIFT-SW-16
XVB03110A	222 B05	BF	12"	1	2	A	A	YES	O	C	-	ET-Q(C) ST-Q(C) PI-2Y JL-2Y	N/A	123.003A 215.004	VIFT-SW-17 XRPO304
XVB03110B	222 H05	BF	12"	1	2	A	A	YES	O	C	-	ET-Q(C) ST-Q(C) PI-2Y JL-2Y	N/A	123.003B 215.004	VIFT-SW-18 XRPO403

SYSTEM: SERVICE WATER SYSTEM (SW)

VALVE NUMBER	DWG/ COORD	VALVE TYPE	VALVE SIZE	ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION NRM	POSITION SAF	POSITION FAL	TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
XVG03111A	222 B02	GT	12"	1	3	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	123.003A	VIFT-SW-19
XVG03111B	222 F02	GT	12"	1	3	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	123.003B	VIFT-SW-20
XVG03112A	222 B02	GT	12"	1	3	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	123.003A	VIFT-SW-21
XVG03112B	222 E02	GT	12"	1	3	B	A	NO	O	C	-	ET-Q(C) ST-Q(C) PI-2Y	N/A	123.003B	VIFT-SW-22
XVC03115A	222 F02	CH	24"	NA	3	C	A	NO	B	B	-	PET-Q(O) CT-Q(C) CT-RF(O)	DTJ-SW-3	123.003A 230.006J	VIFT-SW-23
XVC03115B	222 F10	CH	24"	NA	3	C	A	NO	B	B	-	PET-Q(O) CT-Q(C) CT-RF(O)	DTJ-SW-3	123.003B 230.006J	VIFT-SW-24
XVC03115C	222 G06	CH	24"	NA	3	C	A	NO	B	B	-	PET-Q(O) CT-Q(C) CT-RF(O)	DTJ-SW-3	123.003A 230.006J	VIFT-SW-25
XVB03116A	221 G02	BF	24"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003A	VIFT-SW-26
XVB03116B	221 G10	BF	24"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003B	VIFT-SW-27
XVB03116C	221 G06	BF	24"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003A	VIFT-SW-28
XVC03119A	221 A10	CH	8"	N/A	3	C	A	NO	O	B	-	CT-Q(B)	N/A	123.003A	VIFT-SW-29
XVC03119B	222 J11	CH	8"	N/A	3	C	A	NO	O	B	-	CT-Q(B)	N/A	123.003B	VIFT-SW-30

SYSTEM: SERVICE WATER SYSTEM (SW)

VALVE NUMBER	DWG/ COORD	VALVE		ACT TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVC03120A	222 B09	CH	4"	NA	3	C	A	NO	C	B	-	CT-Q(B)	N/A	123.003A	VIFT-SW-47
XVC03120B	222 J10	CH	4"	NA	3	C	A	NO	C	B	-	CT-Q(B)	N/A	123.003B	VIFT-SW-48
XVB03126A	222 D11	BF	6"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003A	VIFT-SW-31
XVB03126B	222 F11	BF	6"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003B	VIFT-SW-32
XVB03128A	222 E11	BF	6"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.003A	VIFT-SW-33
XVB03128C	222 E11	BF	6"	1	3	B	A	NO	B	B	-	ET-Q(B) ST-Q(B) PI-2Y	N/A	123.0 [illegible]3	VIFT-SW-34
XVC03130A	222 B05	CH	30"	N/A	3	C	A	NO	O	O	-	PET-Q(O) CT-RF(O)	DTJ-SW-3	123.003A 230.006J	VIFT-SW-35
XVC03130B	222 J07	CH	30"	N/A	3	C	A	NO	O	O	-	PET-Q(O) CT-RF(O)	DTJ-SW-3	123.003B 230.006J	VIFT-SW-36
XVC03135A	222 C05	CH	16"	N/A	3	C	A	NO	C	O	-	CT-Q(O)	N/A	223.002A	VIFT-SW-37
XVC03135B	222 C05	CH	16"	N/A	3	C	A	NO	C	O	-	CT-Q(O)	N/A	223.002A	VIFT-SW-38
XVC03136A	222 B05	CH	12"	N/A	3	C	A	NO	O	C	-	CT-CS(C)	DTJ-SW-2	130.005J	VIFT-SW-49
XVC03136B	222 J05	CH	12"	N/A	3	C	A	NO	O	C	-	CT-CS(C)	DTJ-SW-2	130.005J	VIFT-SW-50

SYSTEM: SERVICE WATER SYSTEM (SW)

VALVE NUMBER	DWG/ COORD	VALVE TYPE	VALVE SIZE	ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION NRM	POSITION SAF	POSITION FAL	TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
XVC03137A	222 C04	CH	16"	N/A	2	C	A	NO	O	O	-	CT-Q(O)	N/A	223.002A	VIFT-SW-39 REE-21505 DE LETTER 23437
XVC03137B	222 G04	CH	16"	N/A	2	C	A	NO	O	O	-	CT-Q(O)	N/A	223.002A	VIFT-SW-40 REE-21505 DE LETTER 23437
XVC03162A	222 D13	CH	1.5	N/A	3	C	A	NO	O	C	-	CT-Q(C)	N/A	123.003A	VIFT-SW-41
XVC03162B	222 B13	CH	1.5	N/A	3	C	A	NO	O	C	-	CT-Q(C)	N/A	123.003B	VIFT-SW-42
XVT03164	222 F14	GL	2"	2	3	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-Y2	N/A	123.003A	VIFT-SW-43
XVT03165	222 G14	GL	2"	2	3	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-Y2	N/A	123.003A	VIFT-SW-44
XVC03168	222 H14	CH	2"	N/A	3	C	A	NO	O	C	-	CT-CS(C)	DTJ-SW-1	130.005J	VIFT-SW-45
XVT03169	222 J14	GL	2"	2	2	B	A	NO	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-Y2	N/A	123.003A	VIFT-SW-46

SYSTEM: CHILLED WATER SYSTEM (VU)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVC06461A	841 E10	CH	6"	N/A	3	C	A	NO	B	B	-	CT-Q(B)	N/A	229.001	VIFT-VU-13
XVC06461B	841 E05	CH	6"	N/A	3	C	A	NO	B	B	-	CT-Q(B)	N/A	229.001	VIFT-VU-14
XVC06461C	841 E07	CH	6"	N/A	3	C	A	NO	B	B	-	CT-Q(B)	N/A	229.001	VIFT-VU-15
XVG06516	842 H14	GT	1.5"	1	3	B	A	NO	B	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	222.002	VIFT-VU-20
XVG06517	842 J13	GT	1.5"	1	3	B	A	NO	B	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	222.002	VIFT-VU-21
XVG06518	843 J13	GT	1.5"	1	3	B	A	NO	B	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	222.002	VIFT-VU-22
XVG06519	843 J11	GT	1.5"	1	3	B	A	NO	B	O	-	ET-Q(O) ST-Q(O) PI-2Y	N/A	222.002	VIFT-VU-23
XVX06524A	842 C05	GL	1"	3	3	B	A	NO	B	O	O	ET-Q(O) ST-Q(O) FS-Q(O) PI-2Y	N/A	205.003	VIFT-VU-24
XVX06524B	843 B05	GL	1"	3	3	B	A	NO	B	O	O	ET-Q(O) ST-Q(O) FS-Q(O) PI-2Y	N/A	205.003	VIFT-VU-25
XVX06524C	842 B05	GL	1"	3	3	B	A	NO	B	O	O	ET-Q(O) ST-Q(O) FS-Q(O) PI-2Y	N/A	205.003	VIFT-VU-26

SYSTEM: LIQUID WASTE PROCESSING SYSTEM (WL)

VALVE NUMBER	DWG/ COORD	VALVE		ACT. TYPE	CODE CLASS	CAT	A/P	TYPE C	POSITION			TEST-FREQ (DIRECTION)	RR/DTJ	STP NUMBER	REMARKS
		TYPE	SIZE						NRM	SAF	FAL				
XVD07126	735 C13	GT	3/4"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	145.001 215.003A	VIFT-WL-2 XRP0418
XVD07136	735 C05	GT	3"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	145.001 215.003A	VIFT-WL-4 XRP0423
XVD07150	735 B12	GT	3/4"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	145.001 215.003A	VIFT-WL-5 XRP0418
XVD07170	735 C05	DF	3"	2	2	A	A	YES	O	C	C	ET-Q(C) ST-Q(C) FS-Q(C) PI-2Y JL-2Y	N/A	145.001 215.003A	VIFT to be developed. XPP0423

IST PROGRAM DEFERRED TEST JUSTIFICATION

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SYSTEM	DTJ NO.	VALVE NUMBER (S)	REVISION
AC	AC-1	XVG07501, XVG07502 XVG07503, XVG07504	0
AH	AH-1	XVB00001A, XVB00001B XVB00002A, XVB00002B	0
CC	CC-1	XVC09570, XVC09602, XVG09600 XVG09605, XVG09606, XVG09568	0
CC	CC-2	XVG09625, XVG09726 XVC09632, XVC09633	0
CC	CC-3	XVG09627A, XVG09627B	0
CC	CC-4	XVC09680A, XVC09680B	0
CS	CS-1	LCV0115C, LCV0115E	0
CS	CS-2	LCV0459, LCV0460	0
CS	CS-3	XVT08100, XVT08112	0
CS	CS-4	XVT08102A, XVT08102B, XVT08102C	0
CS	CS-5	XVC08842	0
CS	CS-6	XVG08107, XVG08108, XVC08381	0
CS	CS-7	XVT08146, XVT08147, XVC08346 XVC08347, XVC08378, XVC08379	0
CS	CS-8	XVT08145	0
CS	CS-9	XVT08152	0
CS	CS-10	XVC08348A, XVC08348B, XVC08348C XVC08367A, XVC08367B, XVC08367C XVC08368A, XVC08368B, XVC08368C	0
CS	CS-11	XVC08481A, XVC08481B, XVC08481C	0
CS	CS-12	XVC08480A, XVC08480B, XVC08480C XVG08106	0
CS	CS-13	XVC08470	0
EF	EF-1	XVG01001A, XVG01001B, XVG01002 XVG01008, XVG01037A, XVG01037B	0
EF	EF-2	XVC01013A, XVC01013B, XVC01014	0
EF	EF-3	XVC01022A, XVC01022B XVC01034A, XVC01034B	0
EF	EF-4	XVC01048A, XVC01048B, XVC01016	0

IST PROGRAM DEFERRED TEST JUSTIFICATION

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SYSTEM	DTJ NO.	VALVE NUMBER (S)	REVISION
EF	EF-5	XVK01019A, XVC01019B, XVC01019C XVK01020A, XVK01020B, XVK01020C	0
EF	EF-6	XVC01038A, XVC01038B, XVC01038C XVC01039A, XVC01039B, XVC01030C	0
FW	FW-1	IFV00478, IFV00488, IFV00498	0
FW	FW-2	XVG01611A, XVG01611B, XVG01611C XVC01684A, XVC01684B, XVC01684C	0
FW	FW-3	IFV03321, IFV03331, IFV03341	0
FW	FW-4	XVG01611A-CV-FW, XVG01611B-CV-FW XVG01611C-CV-FW	0
IA	IA-1	XVT02662A, XVT02662B XVT02660, XVC02661	0
IA	IA-2	XVC32636, XVC32637, XVC32687	0
MS	MS-1	XVM02801A, XVM02801B XVM02801C	0
MS	MS-2	XVC02876A, XVC02876B	0
RH	RH-1	XVG08701A, XVG08701B XVG08702A, XVG08702B	0
SI	SI-1	XVG08801A, XVG08801B XVG08884, XVG08885, XVG08886	0
SI	SI-2	XVG08808A, XVG08808B, XVG08808C	0
SI	SI-3	XVT08878A, XVT08878B, XVT08878C XVT08875A, XVT08875B, XVT08875C	0
SI	SI-4	XVC08926	0
SI	SI-5	XVC08948A, XVC08948B, XVC08948C XVC08956A, XVC08956B, XVC08956C	0
SI	SI-6	XVC08973A, XVC08973B, XVC08973C XVC08974A, XVC08974B	0
SI	SI-7	XVC08988A, XVC08988B XVC08993A, XVC08993B XVC08998A, XVC08998B, XVC08998C	0
SI	SI-8	XVC08990A, XVC008990B, XVC08990C XVC08992A, XVC08992B, XVC08992C XVC08995A, XVC08995B, XVC08995C XVC08997A, XVC08997B, XVC08997C XVC08993C	0

IST PROGRAM DEFERRED TEST JUSTIFICATION

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SYSTEM	DTJ NO.	VALVE NUMBER (S)	REVISION
SP	SP-1	XVG03002, XVG03002B	0
SP	SP-2	XVC03006A, XVC03006B	0
SP	SP-3	XVC03009A, XVC03009B	0
SP	SP-4	XVC03013A, XVC03013B	0
SW	SW-1	XVC03168	0
SW	SW-2	XVC03136A, XVC03136B	0
SW	SW-3	XVC03130A, XVC03130B XVC03115A, XVC03115B XVC03115C	0

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-AC-1	Revision 0
System:	CRDM Cooling System (AC)
Valves:	XVG07501, XVG07502, XVG07503 and XVG07504
Category:	A
Class:	2
Function:	These valves provide containment isolation for the Control Rod Drive Mechanism (CRDM) cooling system.
Test Requirement:	Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	It is not possible to full stroke these normally open valves to the closed safety position during plant operation. Closing these valves results in tripping the CRDM cooling water pumps due to high discharge pressure. This allows containment penetration to heat up which actuates a temperature switch preventing the valves from re-opening. This could result in overheating the CRDMs and loss of rod position indication requiring an immediate plant shutdown or manual reactor trip.
Deferred Testing:	These valves will be full exercised and stroke timed to the closed position during cold shutdown.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-AH-1	Revision 0
System:	Air Handling System (AH)
Valves:	XVB00001A, XVB00001B, XVB00002A and XVB00002B
Category:	A (Cold Shutdown), P (Operation)
Class:	2
Function:	These valves provide containment isolation for the Reactor Building Purge System.
Test Requirement:	Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	During normal plant operation the operating air supply to these valves is administratively locked closed. These valves are required by Technical Specification 3.6.1.1 to remain in the closed position in modes 1, 2, 3 and 4. Full or part stroke exercising these valves during plant operation is not possible due to the possibility of losing containment integrity.
Deferred Testing:	These valves will be full exercised and stroke timed to the closed position during cold shutdown.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CC-1	Revision 0
System:	Component Cooling Water System (CC)
Valves:	(1) XVC09570, XVC09602 (2) XVG09600, XVG09605, XVG09606 and XVG09568
Category:	(1) AC (2) A
Class:	2
Function:	These valves are located in the supply and return lines of the non-essential CCW loop supplying cooling water flow to components within the reactor building containment. Their active safety function is to provide containment isolation during post accident conditions.
Test Requirements:	(1) Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1. (2) Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Full stroke exercising during plant operation would require securing cooling water flow to the Reactor Coolant Pumps (RCP) upper and lower motor bearing oil coolers and thermal barriers. Isolating cooling water flow to the RCPs during plant operation could result in overheating the motor bearings. This may initiate an automatic trip or, subsequent to the loss of a reactor coolant loop, require going to hot standby within 1 hour to comply with Technical Specification 3.4.1.1.
Deferred Testing:	(1) Check valves XVC09570 and XVC09602 shall be verified to have closure and leak tight capability during Type C testing performed during refueling. (2) Power operated valves shall be exercised and stroke timed to the closed position during cold shutdown.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CC-2	Revision 0
System:	Component Cooling Water System (CC)
Valves:	(1) XVG09625 and XVG09626 (2) XVC09632 and XVC09633
Category:	(1) B (2) C
Class:	3
Function:	Power operated valves, XVG-9625 and XVG-9626 provide isolation capabilities between the essential CCW loops and the CCW supply to the non-essential loop inside the reactor building. Check valves, XVC-9632 and XVC-9633 are in-line valves which provide reverse flow isolation between the essential CCW loops and the non-essential CCW loop return from the reactor building. the active safety function of these valves is to close preventing diversion of cooling water flow to the non-essential loop and for isolation during the unlikely event of a break occurring in the non-essential loop.
Test Requirements:	(1) Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1. (2) Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Full stroke exercising these valves during plant operation would require securing cooling water flow to the RCP upper and lower motor bearing oil coolers and thermal barriers. Isolating cooling water flow to the RCPs could result in overheating of the motor bearings. This may initiate a automatic trip or cause extensive damage to the RCP motors. Additionally, loss of a reactor coolant loop would require going to hot standby within 1 hour as required by Technical Specification 3.4.1.1. Partial exercising the power operated valves during plant operation is not possible due to valve control circuitry not providing partial stroke capabilities.
Deferred Testing:	Category B power operated valves shall be exercised and stroke timed to the closed position during cold shutdown. Category C valves shall be exercised to the closed position during cold shutdown.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CC-3	Revision 0
System:	Component Cooling Water System (CC)
Valves:	XVG09627A and XVG09627B
Category:	B
Class:	3
Function:	These normally closed fail-open valves isolate service water makeup to the component cooling water system. Their active safety function is to open on demand providing makeup to CCW upon loss of normal makeup supply from demineralized water, or during the unlikely event of a pipe break/leak, thus maintaining CC pump suction.
Test Requirement:	(1) Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Exercising these valves during normal operation would require securing the associated service water train to preclude injecting service water into the Component Cooling Water System. Service water entering the CC System creates severe water chemistry problems by the injection of various substances and compounds associated with raw lake water. Additionally, securing service water would require placing various train-related emergency safeguards equipment in an inoperable condition. Securing this equipment reduces the safeguards available for emergency core cooling. Partial stroke exercising these valve during power operation would result in the same consequences as full exercising.
Deferred Testing:	Valves shall be full exercised, stroke timed open and fail-safe tested to the open position during cold shutdown.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CC-4	Revision 0
System:	Component Cooling Water System (CC)
Valves:	XVC09680A and XVC09680B
Category:	C
Class:	3
Function:	These normally closed check valves are located in the service water emergency makeup supply to component cooling water. Their safety function is to open allowing service water makeup to the CC system. In the closed position they prevent backflow of chromated component cooling water into the service water system in the event of inadvertent opening of the upstream air operated isolation valve.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Exercising these valves to the open position during plant operation would require injecting service water into the Component Cooling Water System. This creates chemistry problems due to chloride contamination and could cause long term degradation to piping systems and components as result of chloride induced corrosion. Forward exercising by flow during cold shutdowns or refueling outages would require extensive flushing subsequent to testing. The benefit of flow exercising these check valves does not out weigh the hardship involved in Chemistry control recovery and the unnecessary chloride contamination to piping and components.
Deferred Testing:	Valves shall be verified for opening capability via disassembly each refueling outage.
	NOTE: Valve sealing capabilities in the closed position shall be verified quarterly du ing plant operation.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-1	Revision 0
System:	CS
Valves:	LCV00115C and LCV00115E
Category:	B
Class:	2
Function:	These normally open motor operated valves provide isolation capabilities from the VCT to the Charging/SI pump suction. They perform an active function in both the open and closed positions. In the open position they provide a min-flow path for pump protection from overheating during low flow conditions. These valves must be capable of closure upon receipt of a SI signal for alignment of RWST to the SI pump suction.
Test Requirement:	Active Category A and B shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Full exercising the valves during plant operation would require shifting charging pump suction from the VCT to the RWST. This could cause an inadvertent boration resulting in power reduction and possibly plant shutdown. Additionally, valve control circuitry is not provided with partial stroke capabilities.
Deferred Testing:	Valves shall be exercised and stroke timed to the open and closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-2	Revision 0
System:	CS
Valves:	LCV00459 and LCV00460
Category:	B
Class:	1
Function:	These normally open fail-closed valves are located in the letdown line from the RCS to the CS. Their normal function is to remain open during plant heatup and operation to control RCS temperature. Their safety function is to close providing isolation of the RCS to prevent a loss of coolant via the letdown line during an accident condition. Additionally, the valves will close on a containment isolation signal due to interlocks with XVT08149A, B and C and they close on low pressurizer level.
Test Requirement:	Active Category A and B shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Closing and opening these valves during normal operation causes excessive pressure surges which could result in damage to the regenerative heat exchanger. These pressure surges could also result in the lifting of relief valve XVR08117. Allowed leakage through XVR08117 would be exceeded requiring plant shutdown (Technical Specification 3.6.4). Additionally, isolation of letdown administratively requires shutting down charging. Which could place the reactor plant in a unsafe condition. These valves are not capable of partial stroking during operation due to interlocks which would close the letdown orifice valves XVT08149A, B and C.
Deferred Testing:	Valves shall be exercised and stroke timed to the closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-3	Revision 0
System:	CS
Valves:	XVT08100 and XVT08112
Category:	A
Class:	2
Function:	These valves serve a containment isolation function and are located in the RCP seal cooling water return line. Their normal position is open to allow uninterrupted seal cooling water return flow to the VCT. The safety function is to close upon receipt of a containment isolation signal.
Test Requirement:	Active Category A and B shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Exercising these valves during plant operation would require the interruption of cooling water return flow from the RCP seals. Disruption of this flow could result in extensive damage to the RCP seals, thus requiring plant shutdown. Additionally, these valves are not provided with partial stroke capabilities
Deferred Testing:	Valves shall be exercised and stroke timed to the closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-4	Revision 0
System:	CS
Valves:	XVT08102A, XVT08102B and XVT08102C
Category:	B
Class:	2
Function:	These valves are located in the RCP seal cooling water lines, outside containment at the penetration. They are normally in the open position to ensure seal cooling water. The active function is performed in the closed position by providing isolation capabilities during the unlikely event of a high energy line break occurring downstream. The valves can also provide containment isolation by switch actuation as automatic isolation signals are not a part of control circuitry.
Test Requirement:	Active Category A and B shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Exercising these valves during normal plant operation would require the interruption of seal cooling water flow to the RCPs. This flow disruption could cause extensive damage to the pump seals resulting in seal failure. Loss of a reactor coolant pump would require going to hot standby condition within one hour (Technical Specification 3.4.1.1). Additionally, these valves are not provided with partial stroke capabilities.
Deferred Testing:	Valves shall be exercised and stroke timed to the closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-5	Revision 0
System:	CS
Valves:	XVC08442
Category:	C
Class:	2
Function:	This check valve is located in the emergency boration flow path from the boric acid transfer pumps to the charging pump suction. Its safety function is to open allowing emergency boration flow.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Exercising this valve during normal plant operation would require injection of highly concentrated boric acid into the suction of the charging pump and ultimately into the reactor coolant system (RCS). The injection of boric acid into the RCS would result in power reduction and possibly plant shutdown. Partial exercising during plant operation would result in the same conditions as full exercising.
Deferred Testing:	This valve shall be exercised to the full open position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-6	Revision 0
System:	CS
Valves:	(1) XVG08107, (2) XVG08108 and (3) XVC08381
Category:	(1) A , (2) B and (3) AC
Class:	2
Function:	Power operated valves, XVG08107, XVG08108, provide isolation of charging flow to the RCS. These valves receive a signal to close during a safety injection signal thereby routing flow to the safety injection flow path. Both power operated valves and check valve XVC08381 perform a safety function in the open position by allowing passage of flow for emergency boration in the absence of an SI signal. Additionally, XVG08107 and XVC08381 perform a containment isolation function.
Test Requirements:	(1) Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1. (2) Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Exercise testing these valves during normal plant operation would require securing charging and letdown flow which could result in a loss of volume control and pressurizer level causing a reactor trip. Additionally, the power operated valves are not provided with partial stroke capabilities.
Deferred Testing:	Power operated valves shall be exercised and stroke timed to the closed and open positions during cold shutdowns. Check valve XVC08381 shall be verified to have closure and leak tight capability during Type C testing performed during refueling. NOTE: Full flow exercising to open position shall be accomplished on XVC08381 during plant operation by verifying required flow at IFE00122.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-7	Revision 0
System:	CS
Valves:	(1) XVT08146 and XVT08147
	(2) XVC08346, XVC08347, XVC08378 and XVC08379
Category:	(1) B (2) C
Class:	(1) 2 (2) 1
Function:	These valves are located in normal and alternate charging headers. Air operated valves, XVT08146 and XVT08147, are fail-open valves which are required to open allowing emergency boration when an SI signal is not present. The downstream in line check valves are required to open allowing passage of flow and close upon termination of flow to restrict back flow from the RCS to the CVCS.
Test Requirements:	(1) Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1. (2) Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Only one of the two redundant charging nozzles is normally in service during plant operation. The idle charging header contains a significant volume of water at ambient temperature. Exercising the isolation valve located in the idle header during plant operation would subject the nozzles to the possibility of undue fatigue and unnecessary thermal transient effects to the RCS. Closing the isolation valve of the inservice nozzle (to facilitate exercise testing) without the redundant nozzle in service, interrupts all charging flow to the reactor coolant system. This condition exposes the regenative heat exchanger to the possibility of thermally induced damage. Partial exercise of isolation valves and downstream check valves in the idle charging header would result in the same conditions of full exercising.
Deferred Testing:	The in-line check valves located in the charging header shall be verified in the open position by recording flow through valves on a quarterly frequency for the inservice valves and cold shutdown for all valves. Reverse exercising of the in-line check valves shall be conducted each refueling outage.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-8	Revision 0
System:	CS
Valves:	XVT08145
Category:	B (Passive)
Class:	1
Function:	This normally closed, fail-closed valve is the auxiliary pressurizer spray valve. It active function is to provide a Class 1 to 2 isolation boundary.
Test Requirements:	(1) Passive Category B valves shall receive position indication verification and fail safe testing, per Step 5.3.1. (2) Fail-safe valves shall be tested by observing the operation of the actuator upon loss of valve actuating power in accordance with the exercising frequency of Step 5.3.2.A.1.
Deferred Test Justification:	Fail-safe testing this valve requires full exercising. Exercising this valve during plant operation could cause thermally induced damage to the spray line and nozzle. Additionally, thermal transients could cause pressure perturbations in the reactor coolant system which could result in a reactor trip or loss of pressurizer level and pressure control.
Deferred Testing:	Valve shall be fail-safe tested during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-9	Revision 0
System:	CS
Valves:	XVT08152
Category:	A
Class:	2
Function:	This normally open, fail-closed, air operated valve provides isolation capabilities of letdown from the reactor building and provides containment isolation. The normal function of this valve is to remain open allowing passage of letdown flow. the safety function is to close upon receipt of a containment isolation signal and high temperature indications from specific areas in the auxiliary building.
Test Requirement:	Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Exercising this valve during normal plant operation would require the interruption of letdown flow. This isolation of letdown flow would cause thermal shock to associated piping components which over time could result in piping/component damage. Also, charging flow is administratively required to be shutdown when letdown flow is isolated due to the previously mentioned thermal complications. This could result in placing the plant in an unsafe condition for operation.
Deferred Testing:	This valve shall exercised, stroke timed, and fail-safe tested to the closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-10 Revision 0

System: CS

Valves: (1) XVC08348A, XVC08348B and XVC08348C
XVC08367A, XVC08367B and XVC08367C

(2) XVC08368A, XVC08368B and XVC08368C

Category: C

Class: (1) 1 (2) 2

Function: These normally open check valves are located in the RCP seal water injection lines. Their normal function is to open permitting seal water flow to the pump seals. Their active function is performed in the closed position to restrict RCS reverse flow to the CVCS piping upon loss of seal water flow, and to prevent a loss of reactor coolant during the unlikely event of an upstream line break occurring in the seal water supply line. Additionally, XVC08368A, B and C also perform a containment isolation function; however, they are not considered as Category AC valves.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Exercising these check valves to the closed position during plant operation would require isolating cooling water flow to the RCP seals. Securing flow could result in extensive damage to the seals if the associated RCP remained in service. Removal of a RCP from service would require the plant to be in hot standby with 1 hour (Technical Specification 3.4.1.1).

Deferred Testing: Check valves shall be exercised to the closed position during refueling outages.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-11	Revision 0
System:	CS
Valves:	XVC08481A, XVC08481B and XVC08481C
Category:	C
Class:	2
Function:	These check valves are located in the discharge piping of the Charging/SI pumps. These valves must be capable of opening to allow passage of maximum design safety injection flow, and capable of closure to prevent diversion of flow through an idle pump.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Full exercising these valves to the open position during normal operation would require establishing full flow to the RCS. Using this flow path during power operation could cause a loss of pressurizer level control which would result in a reactor trip. Full exercising these valves during cold shutdown is not possible due to insufficient expansion volume to accommodate flow. Additionally, testing at cold shutdown could result in a low temperature overpressure condition.
Deferred Testing:	These valves shall be full stroke exercised to the open position during refueling outages when the vessel head is removed. NOTE: Valves shall be partially exercised open and tested closed during quarterly pump testing.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-12 Revision 0

System: CS

Valves: (1) XVC08480A, XVC08480B and XVC08480C

(2) XVG08106

Category: (1) C (2) B

Class: 2

Function: These valves are located in the Charging/SI Pump minimum flow lines. They all perform an active function in the open position by allowing passage of minimum flow thereby providing pump protection during low flow conditions.

XVG08106 must also be capable of closing to prevent the addition of sump water to the Volume Control Tank during recirculation.

XVC08480A, B and C must be capable of closing to prevent diversion of flow through an idle pump or faulted line.

Test Requirement:

(1) Check valves shall be exercised nominally every three months per Step 5.3.3.B.1.

(2) Active Category A and B valves shall be tested nominally every three months per Step 5.3.2.A.1.

Deferred Test Justification: The stroke testing of XVG08106 in the closed direction during normal operation has the potential for the loss of miniflow for two pumps during a Safety Injection actuation. This is due to the simultaneous opening of MVG-8801A and B, and the closure of MVG-8107 and MVG-8108 leaving the potential for the loss of the minimum required flow for the running pumps. XVC08480A, B and C testing in the closed direction requires the closing of XVG08106.

Deferred Testing:

(1) XVC08480A, B and C shall be tested in the closed direction during cold shutdown when XVG08106 can be closed.

(2) XVG08106 shall be exercised to the closed position during cold shutdown when Safety Injection is not required.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-CS-13	Revision 0
System:	CS
Valves:	(1) XVC08470
Category:	C
Class:	2
Function:	XVC08470 is located in the Charging/SI Pump minimum flow line. It performs an active function in the open position by allowing passage of Charging/SI Pump minimum flow to the Volume control Tank.
Test Requirement:	Check valves shall be exercised nominally every three months per Step 5.3.3.B.1.
Deferred Test Justification:	Full stroke open testing of XVC08470 requires the establishment of the maximum design flow rate through the valve. This flow rate can not be obtained during normal and cold shutdown operations due to system operating limitations.
Deferred Testing:	The full stroke open testing of XVC08470 shall be performed during refuel outages when the reactor Vessel Head is removed and the Charging/SI Pumps are aligned for full flow testing.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-EF-1

System: EF

Valves:
(1) XVG01001A, XVG01001B
(2) XVG01002, XVG01008
(3) XVG01037A, XVG01037B

Category: B

Class: 3

Function:
(1) Back-up Service Water supply isolation valves to the motor driven emergency feedwater pumps A & B.

(2) Back-up Service Water supply isolation valves to the turbine driven emergency Feedwater Pump.

(3) Loops A&B Backup Service Water supply isolation valves to the emergency feedwater pumps.

All the above valves provide an isolation boundary between service water and emergency feedwater. The valves perform their safety function in the open position by allowing service water alignment to the suction of the Emergency Feedwater Pumps upon depletion of their normal supply the condensate storage tank.

Test Requirement: Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.

Deferred Test Justification: Full exercising these valves during normal plant operation could allow service water to be introduced into the suction of the emergency feedwater pumps. This would cause chemistry control problems in the steam generators which, over an extended period of time this could result in steam generator degradation. The operating circuitry of this valve is not provided with partial stroke capabilities.

Deferred Testing: Valves shall be full exercised and stroke timed to the open position during cold shutdowns when Service Water can be removed from service.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-EF-2

System: EF

Valves: XVC01013A, XVC01013B and XVC01014

Category: C

Class: 3

Function: These check valves are located in the CST suction supply to the EF pumps. Their safety function in the open position is to allow passage of suction flow from the CST to the associated EF pump. These valves must be capable of closure to prevent diversion of service water to the CST in the event pump suction is being supplied by service water.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Full exercising these valves to the open position during normal plant operation would require establishing Emergency Feedwater flow to the steam generators. Initiating flow from the CST to the steam generators would cause unnecessary thermal stress to steam generator nozzles due to the relatively cool temperature of the condensate. Over time this could cause thermally induced degradation and possible failure of the steam generator nozzle/piping connectors.

Deferred Testing: Valves shall be partially exercised to the open position during quarterly pump testing. Full exercising to the open position shall be performed during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-EF-3

System: EF

Valves: XVC01022A, XVC01022B, XVC01034A and XVC01034B

Category: C

Class: 3

Function: These check valves are located in the service water backup suction supply to the EF pumps. The safety function in the open position is to allow passage of service water as an alternate supply source to the EF pumps. Additionally, these valves perform an active function in the closed position by preventing diversion of normal suction flow from the CST to a possibly faulted service water line. Also, XVC01022A and B provide train separation for the two service water headers supplying suction to the turbine driven EF pumps.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Exercising these valves to the open position during normal plant operation or cold shutdown would require utilizing service water as a suction source during quarterly pump testing. This would allow emergency feedwater piping and the CST to become contaminated by service water impurities. This is undesirable due to the likelihood of creating adverse chemistry conditions in the steam generators. Partial exercising would result in the same consequences. Reverse exercising these valves would require opening the upstream isolation valve to provide a leakage path. This could allow inleakage of service water to the EF system if XVG01037A or B is not is not properly seated.

Deferred Testing: Valves shall be verified to have opening and closing capabilities by disassembly each refueling outage. Partial exercising after reassembly will not be able to be performed.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-EF-4

System: EF

Valves: XVC01048A, XVC01048B and XVC01016

Category: C

Class: 3

Function: These valves function as the emergency feedwater pumps discharge check valves. The safety function of these valves in the open position is to allow pump flow to the steam generators. In the closed position the valves prevent reverse flow through an idle pump and perform an isolation boundary during the unlikely event of an upstream line break.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Exercising these valves to the full open or partially open position during normal plant operation would require establishing emergency feedwater flow through the valves. This would result in placing unnecessary thermal stress on the associated steam generator piping and nozzles. Over time this could lead to thermally induced degradation and possible failure. Verification that XVC01016 is properly seated would require the removal of the turbine driven emergency feedwater pump from service and the installation of a temporary pressure source downstream or by disassembly. This type of testing activities are not possible during plant operation and are undesirable during cold shutdowns. Step 5.3.3.B.5 allows disassembly as an alternative to check valve flow testing and seat leakage testing to be performed during refuelings or at least once every 2 years.

Deferred Testing: The check valves shall be exercised to the full open position during cold shutdowns. XVC01016 shall be verified to have closure capability either by disassembly or by seat leakage testing during refueling outages.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-EF-5

System: EF

Valves: XVK01019A, XVK01019B, XVK01019C, XVK01020A, XVK01020B and XVK01020C

Category: C

Class: 3

Function: These valves function as the emergency feedwater stop-check valves. There safety function in the open position is to allow passage of emergency feedwater flow. The safety function in the closed position is to prevent reverse flow from the active train to a faulted line in the event of a pipe rupture.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Exercising these valves to the full open or partially open position during normal plant operation would require establishing emergency feedwater flow through the valves. This would result in placing unnecessary thermal stress on the associated piping and nozzles due to the large temperature differential which exists between condensate and feedwater. This condition could eventually result in thermally induced degradation and possible failure.

Deferred Testing: The valves shall be exercised to the full open position during cold shutdowns when flow can be established to the steam generators.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-EF-6

System: EF

Valves: XVC01038C, XVC01038B, XVC01038C, XVC01039A, XVC01039B, and XVC01039C

Category: C

Class: 2

Function: These valves are the Emergency Feedwater Steam Generator isolation check valves. Their primary safety function is to close for isolation of leaks/breaks occurring in the upstream high energy piping. These valves must also be capable of opening to allow Emergency Feedwater flow to the steam generators.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Exercising these valves to the full open or partially open position during normal plant operation would require establishing emergency feedwater flow through the valves. This would result in placing unnecessary thermal stress on the associated piping and nozzles. Eventually this could lead to thermally induced degradation and possible failure. Exercising these to the closed position shall be accomplished by disassembly due to lack of proper test connections. MRF-21507 has been developed for installation of test connections. After installation of appropriate test connections valves shall be exercised to the closed position during cold shutdowns when accessibility to valves is permitted. Exercising during cold shutdowns is reflected in the valve test tables.

Deferred Testing: Valves shall be exercised to the full open position during cold shutdown, and disassembled during refueling to verify closure capability. Exercising in the reverse direction by flow shall be performed during cold shutdowns subsequent to the implementation of MRF-21507, which accomplishes the installation of test connections (Refuel 8).

IST PROGRAM DEFERRED TEST JUSTIFICATION

TJ-FW-1

ste FW

alves: IFV00478, IFV00488 and IFV00498

ategory: Tested as Category B

ass: NNS

unction: These are the feedwater control valves. Their normal function is to regulate the amount of flow going to the steam generators. Also, these valves are credited for performing a safety function in the closed position by providing backup isolation capabilities in the event of feedwater isolation valve failure. These valves receive a feedwater isolation signal.

est
equirement: Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.

eferred Test
istification: These valves are located in the main feedwater flow path to the steam generators and are positioned according to the flow requirements of their associated steam generator. Full exercising these valves during plant operation would require isolation of feedwater to each associated steam generator resulting in a reactor trip. Partial exercising these valves during normal operation would require some repositioning of the valves resulting in flow variations. Partial interruption of feedwater flow could result in a reactor trip.

eferred Testing: Valves shall be exercised and stroke timed to the closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-FW-3

System:	FW
Valves:	IFV03321, IFV03331 and IFV03341
Category:	Tested as Category B
Class:	NNS
Function:	The normal function of the feedwater bypass control valves is to control steam generator water level during startup and shutdown when the plant is below 25% power. The safety function of these valves is to provide backup isolation capabilities upon single active failure of the feedwater isolation valves. Also, these valves receive a feedwater isolation signal.
Test Requirement:	Active Category A & B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	These valves are closed during power operation above 25%. Full exercising these valves during normal power operation could cause a perturbation in the associated steam generator which could result in a reactor trip. Partial exercising these valves during power operation could result in the same consequences full exercising.
Deferred Testing:	Valves shall be exercised and stroke timed to the closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-FW-4

System: FW

Valves: XVG01611A-CV-FW, XVG01611B-CV-FW, XVG01611C-CV-FW

Category: A/C

Class: NNS

Function: These check valves perform the active function of ensuring the pilot air accumulators for the Main Feed isolation valves (XVG-1611A,B,C) are charged and capable of providing operating air to the operators of the Main Feed isolation valves in the event the instrument air header depressurizes. This function ensures the capability of the Feed Isolation Valves to close and remain closed on a feed isolation signal.

Test Requirements:

1) Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.

2) Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: During normal plant operating the Main Feed isolation valves remain open unless required to close in response to a Feed isolation signal. These check valves remain closed except when makeup air is required to test accumulators. Exercising and testing these valves during normal operation would require isolating instrument air to test feed isolation valves which would represent an undue risk of loss of Feedwater and resultant reactor trip and possible loss of heat sink.

Deferred Testing: Valves shall be exercised and tested to the closed position during cold shutdowns.

IST PROGRAM DFFERRED TEST JUSTIFICATION

DTJ-IA-1

System:	IA
Valves:	(1) XVT02662A, XVT02662B and XVT02660 (2) XVC02661
Category:	(1) A (2) AC
Class:	2
Function:	These normally open valves are located in the instrument air lines penetrating reactor containment. Their safety function is to close upon receipt of a containment isolation signal.
Test Requirements:	1) Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1. 2) Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	During normal plant operation these valves must remain in the open position to ensure a continuous supply of instrument air is provided to reactor containment. Exercising these valves to the closed position during plant operation would isolate instrument air from the reactor building. This could cause valves in the normal charging and letdown systems to travel to their fail-safe position resulting in a reactor trip.
Deferred Testing:	Valves shall be exercised and stroke timed to the closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-IA-2

System: IA

Valves: XVC32636-IA, XVC32637-IA, XVC32687-IA

Category: A/C

Class: NNS

Function: These check valves perform the active function of ensuring the emergency operating air accumulators for the Main Steam isolation valves (XVM02801A,B, and C) are charged and capable of providing operating air to the Main Steam Isolation valves in the event the instrument air header depressurizes.

Test Requirement:

1) Active Category A and B valves shall be tested nominally every three months per Step 5.3.2.A.1.

2) Check valves shall be exercised nominally every three months per Step 5.3.3.B.1.

Deferred Test Justification: During normal plant operation the Main Steam isolation valves remain open unless required to close in response to a Main Steam Isolation signal. These check valves (XVC32636-IA, XVC32637-IA, XVC32687-IA) remain closed except when makeup air is required to the accumulators. Exercising and testing these check valves requires isolating instrument air to the fail closed Main Steam isolation valves which presents an undue risk of reactor trip and possible steam line Safety Injection.

Deferred Testing: Valves shall be exercised and tested to the closed direction during Cold Shutdown.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-MS-1

System:	MS
Valves:	XVM02801A, XVM02801B and XVM02801C
Category:	B
Class:	2
Function:	These normally open, air operated valves are the main steam isolation valves. The valves must be capable of closure during the unlikely event of a steam line break occurring inside or outside of containment to limit uncontrolled blowdown to only one steam generator.
Test Requirement:	Active Category A and B valves must be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	These valves must remain in the open position during normal plant operation to allow the passage of steam from the steam generators to the main turbine. Full exercising these valves during plant operation would isolate the associated steam generator from the main steam header which would result in a reactor trip.
Deferred Testing:	Valves shall be full exercised and stroke timed to the closed position during cold shutdown. Also, valves shall be partially exercised quarterly during plant operation.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-MS-2	Revision 0
System:	MS
Valves:	XVC02876A and XVC02876B
Category:	C
Class:	3
Function:	These check valves are located in the individual steam lines supplying the Emergency Feedwater Pump turbine. The safety function of these valves in the open position is to allow steam flow to the pump turbine. Additionally, the valves must close to prevent diversion of steam flow to a faulted steam line.
Test Requirement:	Check valves shall be exercised nominally every three months per Step 5.3.3.B.1.
Deferred Test Justification:	Full stroke open testing of XVC02876A and XVC02876B requires the establishment of the maximum design flow rate through the valve. This flow rate can only be obtained while operating the Turbine Driven Emergency Feedwater Pump at a system flow rate equal to the minimum accident flow rate of 470 GPM with the full steam flow being supplied through only one check valve at a time. This can not be obtained during normal power operation. Full exercising these valves to the closed position during normal plant operation would require closing the upstream isolation valve and depressurizing between the closed valve and the check valve being tested. This is not possible due to the lack of vents and drains within the isolated boundary.
Deferred Testing:	The full stroke open testing of XVC02876A and XVC02876B shall be performed during the approach to cold shutdown for refueling conjunction with Turbine Driven Emergency Feedwater Pump full flow surveillance testing. XVC02876A and XVC02876B shall be verified to have closing capabilities by disassembly each refuel outage.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-RH-1

System:	RH
Valves:	XVG08701A, XVG08701B, XVG08702A and XVG08702B
Category:	A
Class:	1
Function:	These valves provide isolation between RCS and the lower pressure RHR piping. They are designated as pressure isolation valves in the plant Technical Specification.
Test Requirement:	Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Full exercising these valves during normal plant operation is not possible due to interlocks which prevent the valves from opening unless RCS pressure is less than 425 psig. Defeating these interlocks for test purposes could place the plant in an unsafe condition. Should a valve fail in the open position it would be unacceptable to continue plant operation with a single valve isolation between high to low pressure piping systems. Additionally, these valves are not provided with partial stroke capabilities.
Deferred Testing:	Valves shall be full exercised and stroke timed to the open and closed positions during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-1

System: SI

Valves: XVG08801A, XVG08801B, XVG08884, XVG08885 and XVG08886

Category: A

Class: 2

Function: These valves provide an isolation boundary between the normally pressurized portion of the SI system and the non-pressurized portion. The valves must be capable of opening to allow high head safety inspection flow to either the hot or cold legs of the RCS. Additionally, they must be capable of changing positions when switching from cold leg to hot leg recirculation.

Test Requirement: Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.

Deferred Test Justification: Full exercising these valves during normal plant operation would allow charging flow to be injected into the RCS through either the hot or cold leg injection piping. This would place unnecessary thermal stress on the related piping and nozzles and over time could result in degradation and/or failure. Additionally, exercising these valves during normal operation could result in power fluctuations and plant shutdown due to the injection of boric acid solution into the RCS. Additionally, the valve control circuitry is not provided with partial stroke capability.

Deferred Testing: Valves shall be full exercised and stroke timed to the open and closed positions during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-2

System:	SI
Valves:	XVG08808A, XVG08808B, XVG08808C
Category:	B
Class:	2
Function:	The operational function of these valves is to isolate the safety injection accumulator during normal plant shutdown to prevent discharge of accumulators when RCS pressure is less than pressure in accumulators. The safety function is performed in the open position by allowing discharge of the accumulators during an accident condition.
Test Requirement:	Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	These valves remain in the open position during normal plant operation with the valve operator breaker racked out at the motor control center to prevent inadvertent closure of valves. Full exercising these valves during plant operation has the potential of compromising the availability of the SI accumulators should the valves fail in the closed position. This would place the plant in an LCO requiring shutdown due to valve inaccessibility. Full exercising these valves during operation would not enhance valve reliability due to the valves being maintained in their safety position.
Deferred Testing:	Valves shall be exercised and stroke timed to the open position during cold shutdown.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-3

System: SI

Valves: XVT08878A, XVT08878B, XVT08878C
XVT08875A, XVT08875B, XVT08875C

Category: B (Passive)

Class: 2

Function: These valves provide isolation capabilities for the safety injection accumulator fill lines and nitrogen makeup lines. They also perform a boundary isolation function between class 2 and non-code, non-seismic piping. During the unlikely event of a loss of the non-code piping these valves would protect the integrity of the accumulators.

Test Requirements:

(1) Category B passive valves shall receive fail-safe testing, if applicable, and position indication verification per Step 5.3.3.B.5.

(2) Valves with fail-safe actuators shall be tested with the exercising frequency of Step 5.3.2.A.1, which is every 3 months.

Deferred Test Justification: These valves are fail-closed air operated valves located in the reactor containment. Their power supply to the solenoid valves in the actuating system is NON-1E which creates a higher risk of valve remaining in a nonconservative position when exercised. Full or partial exercising this valve during normal operation for the purpose of fail-safe testing could potentially compromise the integrity of the SI accumulators. If the valve failed to reclose after opening accumulator integrity would be dependent upon a non-code, non-seismic line which if ruptured would result in uncontrolled blowdown of the associated accumulator.

Deferred Testing: Valves shall be fail-safe tested during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-4

System: SI

Valves: XVC08926

Category: C

Class: 2

Function: This check valve is located in the RWST supply line to the charging pumps suction. Its normal function is to prevent reverse flow from the VCT to the RWST upon failure occurring to LCV00115B or LCV00115D. This is not considered a safety function. The valve performs a safety function in the open position by allowing passage of flow from the RWST to the charging pump suction during an accident condition, and in the closed direction to prevent backflow of Reactor Building sump water into the RWST by the RHR pumps during Post-LOCA recirculation.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Full stroke open exercising of this valve during normal plant operation would require establishing flow from the RWST to the RCS. Establishing design basis flow to the RCS could result in a loss of pressurizer level control and a reactor trip. Additionally, the RWST contains a high boric acid concentration, injection to the RCS from this source could result in a plant shutdown. The same consequences could result from partial exercising during normal operation.

Closure testing of this valve during normal operation would require the isolation of the RWST suction supply to the Charging Pumps. This activity would require immediate shutdown.

Full stroke open exercising of this valve during cold shutdown could result in a low temperature overpressure condition and damage to RCS components. This condition could be created because the RCS does not contain sufficient expansion volume to accommodate the required flow.

Closure testing of this valve during cold shutdown would require the isolation of the RWST suction supply to the Charging Pumps. This activity would render a required boric acid flow path inoperable, placing the plant in a unsafe condition.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-4 (continued)

Deferred Testing: The valve shall be partially exercised during cold shutdown by utilizing the VCT and full exercised open during refueling when the refueling cavity can be used to contain the large volume of water.

The valve shall be tested closed during refueling when all operations involving core alterations and positive reactivity changes have been suspended.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-5

System: SI

Valves: XVC08948A, XVC08948B, XVC08948C
XVC08956A, XVC08956B, XVC08956C

Category: AC

Class: 1

Function: These check valves are located in the discharge lines from the safety injection accumulators to the RCS cold legs. They are normally in the closed position to prevent inleakage of reactor coolant to the accumulators. Also the valves must be capable of opening to dump accumulator contents to the RCS during an accident condition.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Full or partial exercising these valves to the open position during normal plant operation would require initiating flow from the SI accumulators to the RCS. This is not possible due to the inability of accumulator pressure to overcome RCS pressure to establish flow. It is not possible to full or partially exercised these valves during cold shutdown as the RCS does not contain sufficient expansion volume to accept the required flow.

Deferred Testing: These valves shall be full exercised to the open position during each refueling outage by utilizing less than or equal to 75 psi of nitrogen pressure as the motive force for dumping the accumulator contents to the RCS. Verification that valves went to the full open position shall be determined by an industry proven acoustic method. Verification that valves are capable of performing their pressure isolation function shall be satisfied by testing pursuant to Technical Specification 4.4.6.2.2.c which will determine that seat leakage is within required limits.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-6

System:	SI
Valves:	XVC08973A, XVC08973B, XVC08973C, XVC08974A, XVC08974B
Category:	AC
Class:	1 and 2 (XVC08974A and XVC08974B)
Function:	These valves are located in the low head safety injection lines to the RCS cold legs. Their safety function in the open position is to allow passage of safety injection flow. In the closed position they perform a pressure isolation function by preventing reverse flow from the RCS to the RHR system which is of a lower design pressure.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Full or partially exercising these valves during normal operation would require establishing low head safety injection flow to the RCS. This is not possible due to the inability of the RHR pumps to develop sufficient discharge head to overcome RCS pressure. The pumps cannot inject until RCS pressure is reduced to below their shutoff head.
Deferred Testing:	Check valves shall be exercised to the full open position during cold shutdowns. XVC08974A and XVC08974B shall be verified to pass design flow by indication provided at IFE00605A and IFE00605B respectively. XVC08973A, B, and C shall be verified to travel to the full open position when exposed to forward flow by non-intrusive methods which will require containment entry for their application. Proper valve closure and leak tight integrity shall be verified by full differential seat leakage testing pursuant to Technical Specification Surveillance Requirement 4.4.6.2.2.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-7

System:	SI
Valves:	XVC08988A, XVC08988B, XVC08993A, XVC08993B, XVC08998A, XVC08998B, XVC08998C
Category:	AC
Class:	1
Function:	These valves are located in the safety injection lines leading to the RCS hot and cold legs. In the closed position, these valves perform a pressure isolation function (re. Technical Specification Surveillance Requirement 4.4.6.2.2). Additionally, the valves must be capable of opening to allow safety injection flow.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Full exercising these valves during normal operation would require establishing low head safety injection flow to the RCS. This is not possible due to the inability of the RHR pumps to develop sufficient discharge head to overcome RCS pressure. Partial exercising of XVC08988A and XVC08988B cannot be performed for the same reason as full exercising. Partial exercising of XVC08993A and XVC08993B and XVC08998A, B and C during normal operation would require establishing high head safety injection flow which would result in injecting relatively cool water into the RCS causing thermal stress to piping and nozzles and possible thermally induced failure. Additionally, the RCS does not have sufficient expansion volume to accommodate high head safety injection flow.
Deferred Testing:	Check valves shall be exercised to the full open position during cold shutdown when RCS pressure is reduced to below the shutoff head of the RHR pumps. XVC08988A and XVC08988B, XVC08993A and XVC08993B, and XVC08998A, B and C shall be verified to travel to the full open position when exposed to forward flow by non-intrusive methods which will require containment entry for their application. Proper valve closure and leak tight integrity shall be verified by full differential seat leakage testing pursuant to Technical Specification Surveillance Requirements 4.4.6.2.2.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SI-8

System:	SI
Valves:	XVC08990A, XVC08990B, XVC08990C XVC08992A, XVC08992B, XVC08992C XVC08995A, XVC08995B, XVC08995C XVC08997A, XVC08997B, XVC08997C XVC08993C
Category:	AC
Class:	1
Function:	These valves are located in the high head safety injection lines leading to the RCS hot and cold legs. Their safety function in the closed position is to provide RCS pressure isolation (re: Technical Specification Table 3.4-1). Also, these valves must be capable of opening to allow high head safety injection flow.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Full or partial exercise of these valves during normal plant operation could result in any one of several undesirable/unsafe plant conditions. Flow exercising these valves would require the alignment of the RWST to the charging pump suction to acquire the necessary volume. The RWST contains highly borated relatively cool water. Injection of RWST contents into the RCS would cause an inadvertent boration resulting in a power fluctuation and possible shutdown. Additionally, this would cause thermal shock to the injection nozzles and associated piping resulting in thermally induced degradation and possible failure. It is impractical to exercise these valves during cold shutdown due to the RCS having insufficient expansion volume to accommodate the required flow rate. Therefore, testing during cold shutdown could result in a low temperature overpressure condition and possible damage to RCS components.
Deferred Testing:	Check valves shall be full exercised to the open position during refueling outages when the vessel head is removed and the refueling pool can be used to contain the large volume of water. Additionally, valves shall be verified to properly close and provide leak tight integrity when tested for seat leakage pursuant to Technical Specification Surveillance Requirement 4.4.6.2.2.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SP-1

System:	SP
Valves:	XVG03002A and XVG03002B
Category:	B
Class:	3
Function:	These normally closed, motor-operated valves provide isolation between the sodium hydroxide tank and the spray system. The valves must be capable of opening upon receipt of a containment spray actuation signal. Additionally, the valves must be capable of closure for train separation.
Test Requirement:	Active Category A and B valves shall be tested nominally every 3 months per Step 5.3.2.A.1.
Deferred Test Justification:	Full exercising these valves during normal plant operation would require closing the upstream manual isolation valve to restrict migration of NaOH to the spray system piping. However, there would still be some migration of NaOH. In fact, exercising these valves at the normal frequency would result in 80%-85% increase of NaOH in the Reactor Building Spray System and ultimately in the RCS via the RWST and CVCS. Higher radiation levels in the reactor building due to radioactivated sodium is not conducive to sound ALARA and maintenance practices. Additionally, the valve control circuitry is not provided with partial stroke capability.
Deferred Testing:	These valves shall be full exercised and stroke timed to the open and closed positions during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SP-2

System:	SP
Valves:	XVC03006A and XVC03006B
Category:	C
Class:	2
Function:	These check valves are located in the spray pump suction supply lines from the RWST. The valves must be capable of opening to allow containment spray injection, and closure to prevent diversion of flow during the recirculation mode.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Exercising these check valves to the closed during normal operation would either require establishing recirculation flow or the use of an outside pressure source. The sumps are maintained in a dry condition therefore recirculation flow is not possible. Using an outside pressure source requires repositioning manual valves including isolation of the RWST which would render several safety systems inoperable. This could place the plant in an unsafe condition should these systems be called upon.
Deferred Testing:	Check valves shall be verified for closing capability via disassembly during refueling outages.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SP-3

System:	SP
Valves:	XVC03009A and XVC03009B
Category:	AC
Class:	2
Function:	These check valves are located in the individual spray headers inside containment. They must be capable of opening upon pump actuation thereby, allowing the required flow to reach the spray nozzles. Also, these valves must be capable of closing for containment isolation.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Exercising these check valves to the open position during any operational mode would require initiating spray pump flow to the containment. This would result in spraying the containment and filters causing subsequent damage to various electrical components and insulation.
Deferred Testing:	Check valves shall be verified for opening capability via disassembly during refueling outages. Valves shall be Type C tested upon reassembly to verify closure and leak tight integrity.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SP-4

System:	SP
Valves:	XVC03013A and XVC03013B
Category:	C
Class:	2
Function:	These valves are located in the supply lines from the sodium hydroxide storage tank to the spray pump suction. They must be capable of opening to allow NaOH ultimately to be sprayed in the containment for iodine reduction. Also, these must close to prevent diversion of recirculation flow to NaOH storage tank.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Flow exercising these valves to the open position during any operational mode would require either spraying the containment or injecting highly corrosive sodium hydroxide into the RWST via the full flow pump test line. Both hydraulic test circuits would result in component damage. Testing these valves in the closed direction can also result in the introduction of sodium hydroxide into the RWST.
Deferred Testing:	Check valves shall be disassembled during refueling outages for verification of proper opening and closing. Note: Partial exercising cannot be performed subsequent to reassembly due to the same consequences as full exercising.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SW-1

System:	SW
Valves:	XVC03168
Category:	C
Class:	3
Function:	This check valve is located on the cooling water discharge side of the Digital Rod Position Indication cooling unit coil. The valve provides a Class 3 to NNS boundary isolation. The active function is performed in the closed position. The valve must be capable of closure in the event of a failure for downstream air operated valve to close upon receipt of a SI signal. Thereby, isolating non-seismic, non-code piping from the service water system during an accident condition.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Exercising this valve to the closed position every three months would require entry into the reactor building to facilitate the installation of temporary equipment for testing purposes. This would result in unnecessary exposure of personnel to radiation and extreme heat. For ALARA concerns, personnel entry into the reactor building during plant operation is prohibited except for special situations or abnormal conditions requiring a response. Additionally, cooling water to the DRPI cabinets would require isolation for an extended amount of time which could allow the DRPI indication system data cabinets operating environment to exceed their 95°F. Thereby, possibly requiring plant shutdown.
Deferred Testing:	Valves shall be exercised to the closed position during cold shutdowns.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SW-2

System:	SW
Valves:	XVC03136A and XVC03136B
Category:	C
Class:	3
Function:	These check valves are located in the Industrial Cooling Water lines supplying the Reactor Building Cooling Units (RBCU). The valves remain in the open position during plant operation allowing passage of cooling water flow. The active safety function is performed in the closed position. They must be capable of closure to prevent the loss of service water during post accident operation.
Test Requirement:	Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.
Deferred Test Justification:	Exercising either of these valves to the closed position during normal plant operation would require depressurizing the common Industrial Cooling Water supply header. After testing and repressurizing during plant operation, two events have the potential for causing the plant to be shutdown. The low flow trips on the Industrial Cooling Water Pumps and normal response time of the Service Water Pump return isolation valves may cause RBCU water to drain into the service water pond. Air could be entrapped in the elevated RBCUs resulting in the necessity to fill and vent. Thereby, requiring reactor building entry and plant shutdown. In addition, these valves do provide redundant isolation capabilities for their associated downstream motor operated valve which is tested quarterly and closes on a SI signal.
Deferred Testing:	Valves shall be exercised to the closed position during cold shutdowns when the industrial cooling water header can be depressurized without any adverse consequences.

IST PROGRAM DEFERRED TEST JUSTIFICATION

DTJ-SW-3

System: SW

Valves:
1) XVC03115A, XVC03115B, XVC03115C
2) XVC03130A, XVC03130B

Category: C

Class: 3

Function:
1) These valves are the Service Water Pump discharge check valves. They open to allow passage of service water flow during pump operation and close following pump shutdown to prevent system drainage.
2) These valves are located in the Service Water discharge lines to the Service Water Pond. They open to allow passage of service water return flow to the pond.

Test Requirement: Check valves shall be exercised nominally every 3 months per Step 5.3.3.B.1.

Deferred Test Justification: Full stroke exercising of these valves during normal plant operation would require the adjustment of cooler outlet valves located down stream of the heat exchangers cooled by service water to establish the system design flow rate. This evolution would be extensive and impractical to perform during plant operation or during cold shutdown.

Deferred Testing: The valves shall be partial stroked quarterly and full stroke exercised during refueling outages when the Service Water System can be realigned to establish the required design flow rate. Check valve disassembly or the use of non-intrusive test methods may be used in lieu of full stroke exercising.

IST PROGRAM VALVE SELECTION BASIS

This attachment includes discussion pertaining to the reasoning, and provides justification, for both inclusion or exclusion of valves applicable to the requirements of this procedure. The intent of the valve selection basis is to provide a documented reference for responding to questions and concerns regarding the selection of components or the lack thereof. The basis contained in this attachment will not completely avoid all inquires, but by documenting the logic for decisions made, should minimize the amount of time and effort required to respond to those questions. The basis also provides a means of documenting certain SCE&G positions where the Code may be unclear and increase consistency to the testing performed. This attachment should be used in conjunction with the FSAR, Design Basis Documents, Technical Specification and other design documents when additional clarification is required.

IST PROGRAM VALVE SELECTION BASIS

System: Various

Valves: Various, Generic Exclusions

Class: 1, 2 and 3

Category: Not Categorized

Function and Design Safety Requirements:

This basis is intended to generically address valves which are excluded from the test requirements of ASME/ANSI OMa-1988, Part 10. Part 10 test requirements are applicable to all valves, regardless of their safety classification, which are required to perform a specific function in shutting down a reactor to co d shutdown condition, in maintaining a cold shutdown condition or in mitigating the consequences of an accident. This also includes pressure relief devices providing protection for systems or portions of systems which are required for accident mitigation and achieving cold shutdown.

It is SCE&G's position to exclude from testing those valves addressed by Step 1.4 of this procedure (reference ASME/ANSI OMa-1988, Part 10, Paragraph 1.2) which are as follows:

1. Valves used only for operating convenience such as vent, drain, instrument and test valves,

2. Valves used only for system control, such as pressure regulating valves,

3. Valves used only for system or component maintenance,

4. External control and protection systems responsible for sensing plant conditions and providing signals for valve operation.

Additionally relief devices which are installed to meet ASME III design requirements and perform a thermal relief function, shall not be included in the ASME XI valve test program.

Those components which are considered necessary for safe operation of the plant, but are not relied upon for accident mitigation or safe shutdown during an accident condition shall be tested to demonstrate satisfactory operation but not necessarily pursuant to the requirements and limitations of ASME/ANSI OMa-1988, Part 10 (i.e., pressurizer power operated relief valves, fail-safe control valves which are normally in an fail-safe to their required position, thermal relief valves, etc...).

It is SCE&G's opinion that all valves subject to the requirements of ASME XI, Subsection IWV, 1989 Edition are properly addressed within the scope of this procedure.

IST PROGRAM VALVE SELECTION BASIS

System: Various

Valves: Various, which receive an actuation signal to change positions as a result of abnormal plant conditions

Class: 1, 2 and 3

Category: A and B

Function and Design Safety Requirements:

The intent of this Basis is to document SCE&G's position on testing power operated valves which receive an actuation signal (e.g., containment isolation, safety injection, etc...). There are numerous valves which during plant operation remain in the position required to perform their safety function and also receive an actuation signal to ensure proper positioning during accident condition. As allowed by ASME/ANSI OMa-1988 Part 10, these valves could be considered as "passive" thereby, requiring a minimum of testing as addressed in ASME/ANSI OMa-1988, Part 10, Table 1. It is SCE&G's position to test these valves as "active", taking into consideration the consequences of inadvertent mispositioning during an accident condition and the design safety function of these valves. This position most assuredly will enhance plant safety.

IST PROGRAM VALVE SELECTION BASIS

System: AC

Valves: (1) XVG07501, XVG07502, XVG07503, XVG07504

(2) XVC07541 and XVC07544

Class: 2

Category: (1) A

(2) AC

Function and Design Safety Requirements:

These valves provide containment isolation capabilities to the CRDM cooling water piping penetrating containment. The cooling water piping is non-safety, non-seismic outside the inboard/outboard isolation valves. The valves perform an active function in the closed position by providing containment integrity during an accident condition. The motor operated valves must be capable of closure upon receipt of a containment isolation signal. The normal function of XVC07541 and XVC07544 is to provide a relief path for thermal buildup which may occur when isolation valves are in the closed position. This is considered a non-active function. However those checks must also be capable of closure to protect containment integrity.

IST PROGRAM VALVE SELECTION BASIS

System: AH

Valves: (1) XVB00001A, XVB00001B, XVB00002A, XVB00002B

(2) XVB00003A, XVB00003B, XVB00004A and XVB00004B

Class: 3

Category: (1) A

(2) AC

Function and Design Safety Requirements:

Reactor Building Purge System Isolation Valves XVB00001A and XVB00001B and XVB00002A and XVB00002B are required by Technical Specification Surveillance Requirement 4.9.8 to be demonstrated as operable 100 hours prior to core alterations and at least every 7 days during core alterations. These valves are utilized for purging the reactor building prior to refueling activities and are required to close automatically upon receipt of high radiation level signals present at RM-G17A or failure of RM-G17A. Additionally valves close on containment isolation signal. This action ensures containment building integrity and leak tightness preventing release of radiation to the environment. During plant operation these valves are administratively locked closed. Outside Air Intake Valves XVB00003A and XVB00003B and XVB00004A and XVB00004B are fail-close valves supplied with individual air accumulators to allow opening capability upon loss of non-safety air supply. These valves are required to open during and following an accident in order to maintain positive pressure in the Control Room. Technical Specification Surveillance Requirement 4.7.6.e.3 requires verification of valve operability once every 18 months upon simulated SI or high radiation signal.

IST PROGRAM VALVE SELECTION BASIS

System: AS

Valves: XVG00265 and XVG00273

Class: 3

Category: B

Function and Design Safety Requirements:

These valves provide isolation capabilities of the Auxiliary Steam lines located inside the Auxiliary Building in the event of a postulated Auxiliary Steam System line break. The air operated valves must be capable of closure upon receipt of a high temperature signal from ITE01941, 1943, 1949, or ITE01942, 1945, 1956, respectively, which would indicate a high energy pipe rupture or a line break associated with the Auxiliary Steam System. The valves automatically close at 115°F or upon a loss of power. The proper operation of these valves is required to ensure that a high energy pipe rupture or a line break associated with the Auxiliary Steam System does not affect safety related equipment located in the Auxiliary Building.

IST PROGRAM VALVE SELECTION BASIS

System: BD

Valves: XVG00503A, XVG00503B and XVG00503C

Class: 2

Category: B

Function and Design Safety Requirements:

The steam generator blowdown system is non-nuclear safety class, except for that portion inside the reactor building and up to the containment isolation valves which is Class 2. The above valves serve as boundary isolation from Class 2 to non code piping. These valves must be capable of closure to prevent loss of secondary side water inventory during the unlikely event of a line rupture occurring in non-code, non-seismic piping. Also, these valves receive a closure signal for containment isolation and emergency feedwater pump start unless in bypass mode. Additionally, these valves are exempt from Type C leakage testing since the requirements of 10CFR50, Appendix J for secondary piping applies only to direct cycle boiling water reactors.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: XVB09524A, XVB09524B, XVB09525A, XVB09525B
XVB09526A, XVB09526B, XVB09687A, XVB09687B

Class: 3

Category: B

Function and Design Safety Requirements:

Nonessential Loop Isolation Valves provide a required two valve isolation (ANS 18.2) between essential and non-essential components which are supplied component cooling water. During an accident condition these valves must be capable of closure to ensure adequate cooling water supply to those components necessary for safe shutdown and accident mitigation. These valves must also be capable of opening from the closed position to allow switch over from one essential loop to the other.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: (1) XVG09625 and XVG09626

(2) XVC09632 and XVC09633

Class: 3

Category: (1) B (2) C

Function and Design Safety Requirements:

These valves provide isolation capabilities between the essential component cooling water loops which supplies the RHR heat exchangers and the supply and return nonessential cooling water loop to reactor building containment. The power operated valves must be capable of closure upon receipt of a high flow signal from IFS07100A or IFS07100B respectively, which would indicate a pipe rupture or a line severed as a result of pipe rupture or a line severed as a result of pipe whip from a high energy system. The valves automatically close at a flow of 1170 GPM. The in-line check valves located in the nonessential return line must be capabie of closure to prevent diversion of flow through an upstream severed line.

Exercising these valves during plant operation would require interruption of cooling water flow to the Reactor Coolant Pumps upper and lower motor bearing oil coolers and the thermal barriers which could result in damage to the motor or placing the plant in an unsafe condition.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: (1) XVG09627A and XVG09627B

(2) XVC09680A and XVC09680B

Class: 3

Category: (1) B (2) C

Function and Design Safety Requirements:

These valves are located in the service water emergency makeup supply to component cooling water. The Category B power operated valves are credited in the safety analysis for opening capability during the event of any one of the following three postulated accident scenarios;

1) A non-mechanistic crack/break in moderate energy component cooling piping.

2) A non-mechanistic high-energy line break in another system resulting in a leak/break due to whip or jet loads.

3) A seismic event producing simultaneous breaks in all non-seismic instrument connections.

These service water backup valves are required to open in a maximum of 10 seconds after the component cooling water surge tank reaches a predetermined level to maintain suction head to the CC pumps. Valve testing shall be performed during cold shutdown conditions when the service water system can be secured to preclude the injection of chlorides into the CC system. The Category C check valves are required to open allowing injection of service water and are required to close to prevent back flow of chromated component cooling water to the service water system in the event of inadvertent opening of the service water power operated backup valves. State and Federal regulations limit the release of chromates to the environment. These valves shall be exercised in the closed direction quarterly during plant operation and exercised open via disassembly during refueling outages. Exercising to the open position by flow would allow chloride contamination to the component cooling water system.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: (1) XVC09570, XVC09602 and XVC09689

(2) XVG09568, XVG09600, XVG09605 and XVG09606

Class: 2

Category: (1) AC (2) A

Function and Design Safety Requirements:

These valves are containment isolation valves located in the supply and return lines of the nonessential CCW loop supplying cooling water flow to various components within containment. These valves, except XVC-9689, are normally in the open position during plant operation. Their active safety function is in the closed position for containment isolation purposes during post accident conditions. Check valve XVC-9689 is located in a 3/4" bypass around XVG-9605. The design function of this check is to provide a relieving path in the event of thermal build up in the penetration piping during containment isolation. The active safety function is to close for containment isolation. Check valve XCV-9689 is a passive valve serving a containment isolation function and shall receive Type C testing during refueling. All other valves shall be exercised to the closed position during cold shutdown to prevent interruption of cooling water flow to the RCPs. Additionally, the Category A power operated valves shall be stroke timed during cold shutdown exercising.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: XVB09503A and XVB09503B

Class: 3

Category: B

Function and Design Safety Requirements:

Residual Heat Removal Heat Exchanger Inlet Isolation Valves must be capable of opening and closing in the event of various accident conditions. During the post accident safety injection phase, the RHR heat exchanger inlet valve in the active CCW essential loop will remain closed. When the inactive CCW essential loop is brought into operation, its RHR heat exchanger inlet valve will remain open. During the recirculation phase, the closed RHR heat exchanger inlet valve in the active loop must be opened by the operator.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: XVC09682A, XVC09682B and XVC09682C

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are located in the component cooling water pumps discharge piping. Their design safety requirements are to have full open capabilities to pass the required cooling water flow to the RHR heat exchangers as well as provide cooling to the respective ESF pumps. Additionally, these valves must have the ability to go full closed preventing diversion of cooling water flow through an idle pump back to the suction of the running pump. Also, failure of these valves to close could cause damage to the idle pump by allowing reverse rotation to occur. Valves shall be exercised quarterly in the forward and reverse directions during pump testing.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: XVR09510 and XVR09553

Class: 3

Category: A

Function and Design Safety Requirements:

These relief valves provide overpressure protection for the Containment Cooling Water supply and return piping. This piping supplies cooling water to the Reactor Coolant Pump thermal barrier coolers, the Excess Letdown heat exchanger and the Reactor Coolant Drain Tank heat exchanger. These relief valves are required by design to protect from overpressurization the CC piping from Reactor Coolant Pump thermal barrier cooler tube leakage and to protect the containment isolation valves from overpressure. The components supplied are not required for safe shutdown or accident mitigation.

IST PROGRAM VALVE SELECTON BASIS

System: CC

Valves: XVT09593A, XVT09593B, XVT09593C
XVC09591A, XVC09591B, XVC09591C
XVR09592A, XVR09592B, XVR09592C

Class: 3

Category: Not categorized due to function

Function and Design Safety Requirements:

These valves function as the reactor coolant pump thermal barrier isolation valves and overpressure protection. The XVT09593A,B and C, and XVC09591A,B and C are provided to allow for automatic or manual isolation of the CC piping in the event a tube leak in the thermal barrier cooler. This satisfies Westinghouse design criteria and is considered a non-safety function. All CC piping inside containment is non-essential for safe shutdown or accident mitigation. The relief valves have a set point of 2485 PSI providing further protection to piping integrity in the event of a tube leak or thermal expansion subsequent to a tube leak. XVT09593A,B and C and XVC09591A, B and C are incorporated into the IST Program for the purpose of verifying the operating status of the valve for increased equipment reliability.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: XVR019538, XVR019540, XVR09504A and XVR09504B

Class: 3

Category: Not Categorized due to function

Function and Design Safety Requirements:

The above relief valves provide overpressure protection to the component cooling heat exchanger and the RHR heat exchanger. Their installation satisfies ASME III design requirements. The primary function is to provide protection due to thermal expansion of trapped fluids in the event of heat exchanger isolation. These valves do not perform an active function in safe shutdown or accident mitigation.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: XVG09583, XVG09576
XVC09579, XVC09573
XVR09580, XVR09577

Class: 3

Category: Not Categorized due to function

Function and Design Safety Requirements:

Excess letdown heat exchanger CC inlet check valve, XVC09579 and CC discharge isolation valve, XVG09583, provide isolation capabilities of the CC piping from RCS pressure during the unlikely event of a heat exchanger tube failure. Discharge isolation valve, XVG09583, receives an automatic close signal upon a high flow indication at downstream flow transmitter. Relief valve, XVR09580, is located within the isolation boundary of the inlet and discharge valves providing overpressure protection in the event of a tube leak or during thermal expansion of trapped fluid subsequent to heat exchanger isolation. The same arrangement is found on the reactor coolant drain tank heat exchanger CC piping. However, the discharge isolation valve, XVG09576, does not receive an automatic close signal as a result of high flow. These valves are all located inside containment in non-essential CC piping. They do not perform an active safety function in safe shutdown or accident mitigation.

IST PROGRAM VALVE SELECTION BASIS

System: CC

Valves: IVV07096

Class: 3

Category: Not categorized due to function

Function and Design Safety Requirements:

This valve serves as the vent isolation on the component cooling water surge tank providing isolation capabilities to prevent the release of radiation form the tank to the auxiliary building atmosphere. The valve receives a closed signal upon detection of radiation in the cooling water. The valve is not required to function for safe shutdown or accident mitigation.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) XVC08348A, XVC08348B, XVC08348C
XVC08367A, XVC08367B, XVC08367C

(2) XVC08368A, XVC08368B, XVC08368C

Class: (1) 1

(2) 2

Category: C

Function and Design Safety Requirements:

The above check valves are located in the RCP seal water injection lines. During normal plant operation the check valves are open to allow cooling water flow to the pump seals. This flow is injected at a slightly higher pressure than the RCS to ensure seal cooling and to prevent RCS leakage pass the No. 1 seal to the CVCS piping. The RCPs are not relied upon for accident mitigation. Therefore, loss of seal water during an accident condition would not result in an adverse consequences due to the seal water supply lines being of high pressure piping sufficient to contain RCS leakage.

The active function of these checks is performed in the closed position by preventing RCS reverse flow to the CVCS piping in the event of a loss of seal water injection. Additionally, these valves must be capable of closure during the unlikely event of a high energy line break occurring upstream, thereby containing any reactor coolant leakage.

Check valves, XVC08368A, B and C also perform a containment isolation function. However, as addressed in FSAR 6.2.4.2.1 and FSAR Table 6.2 - 53a Type C leakage test is not required. It is preferred to have seal water injection in service during an accident condition to support shutdown and to provide seal integrity. However, seal water operation nor the operation of the RCPs is credited as being required in FSAR Chapter 15 accident analysis.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: XVT08102A, XVT08102B, XVT08102C

Class: 2

Category: B

Function and Design Safety Requirements:

These valves are normally open, motor operated valves located outside containment in the associated penetration piping supplying RCP seal water. Their normal function is to remain in the open position during operation and post accident to ensure seal water is maintained thereby protecting seal integrity. The continued operation of seal water post accident is not credited in the FSAR Chapter 15 accident analysis. Should a loss of seal water occur, RCS leakage from the No. 1 seal is contained by a series of check valves located inside containment. The active function of these valves is performed in the closed position. These valves must be capable of closure for leak break isolation during the unlikely event of a piping failure occurring downstream. Additionally, these valves could be required for containment isolation however, they do not receive an automatic actuation signal for containment isolation. Therefore they must change position by switch actuation. FSAR Table 6.2-53a and Enclosure 7.4 specify that Type C testing is not required due to valve positioning during post accident conditions.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) LCV00115A, LCV00115B, LCV00115C, LCV00115D and LCV00115E

(2) XVC08440

Class: 2

Category: (1) B (except LCV00115A which is not categorized)

(2) Not Categorized

Function and Design Safety Requirements:

LCV00115C and LCV00115E are normally open motor operated valves located in the Charging/SI pump suction supply from the VCT. Their normal function is to remain open thereby supply suction to the charging pumps for normal charging to the RCS and supplying cooling water to the RCP seals. For the same reason XVC08440 must be capable of opening. LCV00115C and LCV00115E also perform a safety function in the closed position by isolating the VCT upon receipt of an SI signal or a Lo-Lo level signal from the VCT. XVC08440 does not perform a safety function in the closed position due to the isolation redundancy provided by LCV00115C and LCV00115E and manual valve XVD08484 located in an upstream branch connection and which is maintained in the locked closed position. LCV00115D and LCV00115B are normally closed motor operated valves located in the Charging/SI pumps suction supply from the RWST. Their safety function in the closed position is to perform an isolation barrier between the RWST and the Charging/SI pump suction thereby preventing inleakage of the borated water contained in the RWST to the RCS. These valves must also be capable of closure during the recirculation mode when RHR is supplying pump suction. Additionally, these valves are required to open upon receipt of an SI signal or a Lo-Lo level signal from the VCT. Their opening aligns the RWST to the Charging/SI pump suction which provides a borated water supply for bringing the plant to a cold shutdown condition.

LCV00115A is a three-way valve located on the downstream side of the reactor coolant filter. This valve provides the capability of diverting letdown flow to the VCT or the boron recycle system. This valve functions during normal reactor coolant boration and dilution operations. Neither of the functions are required for accident mitigation or to bring the plant to a cold shutdown condition.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: LCV00459 and LCV00460

Class: 1

Category: B

Function and Design Safety Requirements:

These valves are located in the letdown line from the RCS to the CS upstream of the regenerative heat exchanger. Their normal function is to remain open during heatup to maintain the heatup rate within allowable limits. Additionally, these valves remain open during plant operation allowing letdown flow to pass through the regenerative heat exchangers thereby reheating the charging flow. Recovering RCS heat by reheating the charging flow minimizes thermal stress on the charging line penetrations into the reactor coolant loop. These valves perform a safety function in the closed position by providing an isolation barrier for the RCS to prevent diversion of reactor coolant to the letdown line in an accident condition. Additionally, these valves close on a low level signal from the pressurizer and they close on a containment isolation signal due to interlocks with XVT08149A, B and C.

These valves shall be exercised to the closed position during cold shutdowns due to the thermal complications created when exercising during plant operation. Also, charging flow is administratively required to be shutdown if these valves are closed during plant operation.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) XVT08100, XVT08112

(2) XVC08103

Class: 2

Category: (1) A

(2) AC

Function and Design Safety Requirements:

These valves are located in the RCP seal cooling water return line at containment penetration XRP0410. XVT08100 and XVT08112 are normally in the open position allowing unobstructed return flow of seal cooling water back to the VCT. The safety position for XVT08100 and XVT08112 is in the closed position only. These valves must be capable of closing upon receipt of a containment isolation signal. Check valve XVC08103 is located in a 3/4" pressure equalization bypass around XVT08112. The check is normally closed with a safety position closed for containment isolation. Additionally, this valve allows for a means of relieving pressure which may buildup within the penetration area due to thermal expansion of trapped fluids during containment isolation. This check valve is considered a Category A passive valve.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) XVT08104

(2) XVC08442

Class: 2

Category: (1) B

(2) C

Function and Design Safety Requirements:

These valves are located in the emergency boration flow path from the boric acid transfer pumps to the charging pumps suction. The safety function of these valves are to open on demand allowing emergency boration flow during various abnormal operating conditions. These conditions include, any questionable shutdown margin, failure of the reactor makeup control system such that bypass is necessary to accomplish boration, or uncontrolled cooldown not requiring safety injection. during these conditions emergency boration may be utilized to restore stable plant operating conditions, or to bring the plant to a safe shutdown condition. Full or partial exercising XVC08442 during normal plant operation would require initiating pump flow. This would cause inadvertant boration resulting in power reduction or possible plant shutdown. XVC08442 shall be exercised during cold shutdown. XVT08104 shall be exercised and stroke timed quarterly.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) XVR08117

(2) XVR08121

Class: 2

Category: (1) AC

(2) C

Function and Design Safety Requirements:

Relief valve XVR08117 is located downstream of the letdown orifice isolation valves. The safety function of this valve is to provide containment isolation and to provide overpressure protection to penetration piping. Relief valve, XVR08121 is located in the RCP seal water return line. The safety function of this valve is to provide overpressure protection to downstream penetration piping, and to provide a flow path for seal water return flow during a containment isolation signal.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: XVG08130A, XVG08130B, XVG08131A, XVG08131B, XVG08132A, XVG08132B, XVG08133A and XVG08133B

Class: 2

Category: B

Function and Design Safety Requirements:

The above valves provide isolation capabilities in the Charging/SI pumps suction and discharge cross-connect headers. Their primary safety function is to provide separation between the Charging/SI pumps. Their alignment during an accident condition depends on which pumps are in use. Their safety position would be in the open and closed positions.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) XVT08146 and XVT08147

(2) XVC08347, XVC08379, XVC08346 and XVC08378

Class: (1) 2 (2) 1

Category: (1) B (2) C

Function and Design Safety Requirements:

The above valves are located in the normal and alternate charging headers downstream of the regenerative heat exchanger. During plant operation only one of the redundant headers is in service. In the event of inadvertent isolation of the inservice header the alternate header must be capable of being placed into service.

During a safety injection signal the CVCS charging headers are automatically isolated by two upstream motor operated valves. Therefore, during a SI signal the check valves mentioned above would perform a safety function in the closed position only. The power operated valves XVT08146 and XVT08147 would have no safety significance. However, the CVCS charging headers provide a means of accomplishing emergency boration when no SI signal is present (e.g. a stuck control rod scenario). For this reason the above valves shall be included in the IST program and exercise tested during cold shutdowns. Exercising these valves during plant operation creates adverse thermal transient conditions which could result in component damage.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: XVT08149A, XVT08149B, XVT08149C and XVT08152

Class: 2

Category: A

Function and Design Safety Requirements:

Valves XVT08149A, B and C provide isolation capabilities to the individual letdown orifices. Their normal function is to control letdown flow rate by orifice isolation. Their design safety function is to close upon receipt of a containment isolation signal and upon receipt of a high temperature indication in specific auxiliary building areas.

XVT08152 provides isolation capabilities of letdown from the reactor building and containment isolation. The normal function of this valve is to remain open allowing passage of letdown return flow. Their safety function is to close upon receipt of a containment isolation signal and upon receipt of a high temperature indication in specific auxiliary building areas. Additionally, XVT08152C can only be exercised during cold shutdowns due to adverse thermal conditions created if exercised during plant operation.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: XVT08153 and XVT08154

Class: 1

Category: B

Function and Design Safety Requirements:

These normally closed, fail-closed, air operated valves are located in series and are used for redundant isolation of the reactor coolant system from the excess letdown heat exchangers. These valves are subject to be open when normal letdown is out of service or to supplement maximum letdown during heatup. The valves do not perform a safety function in the open position. Therefore, the valves should be considered as Category B passive.

Since these valves are Category "B" passive valves, the testing required is fail-safe testing quarterly and position indication at least once every two years.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: XVC08314A and XVC08314B

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are located in the discharge piping of the boric acid transfer pumps. These valves perform a safety function in the open position to allow passage of boric acid to the Charging/SI pump suction. These valves perform a safety function in the closed position by preventing diversion of flow through an idle pump.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) XVG08107

(2) XVG08108

(3) XVC08381

Class: 2

Category: (1) A, (2) B and (3) AC

Function and Design Safety Requirements:

These valves are located in the normal charging flow path. During plant operation the power operated valves XVG08107 and XVG08108 are required to remain in the open position to allow normal charging, just as check valve XVC08381 is normally held in the open position by charging flow. All of these valves perform a safety function in the open position by allowing passage of emergency boration flow in the absence of an SI signal. This may be required during a stuck control rod scenario for restoration of shutdown margins to within T.S. limits.

These valves also perform a safety function in the closed position. Power operated valves XVG08107 and XVG08108 close upon receipt of a safety injection signal thereby directing flow to the SI headers. XVC08381 and XVG08107 are containment isolation valves and must be capable of closure for protection of containment integrity. XVC08381 shall be verified to have closure/leak tight capabilities during Type C testing performed during refueling. Reverse exercising the valve to the closed position and verifying a differential pressure exists does not satisfy code testing requirements and shall not be performed.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) XVC08480A, XVC08480B, XVC08480C and XVC08470

(2) XVT08109A, XVT08109B, XVT08109C and XVG08106

Class: 2

Category: (1) C

(2) B

Function and Design Safety Requirements:

All of the above valves are located in the Charging/SI pump minimum flow lines. The design safety function of XVC08480A, B and C is to open allowing passage of minimum flow when the associated pump is operating in low flow conditions. Additionally, these valves are required to close to prevent diversion of flow to an idle pump. The safety function of XVC08470 is to open allowing passage of pump minimum flow to the VCT. Motor operated valves XVG08106, XVT08109A, XVT08109B and XVT08109C perform a safety function in the open position to allow passage of minimum flow for pump protection during low flow conditions. These low flow conditions may occur during a small break LOCA scenario or during a high energy pipe break occurring on the secondary side. Additionally, these motor operated valves must be capable of closure for mini-flow isolation during the unlikely event of a LOCA scenario requiring maximum high head safety injection flow to be delivered to the RCS.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: XVC08481A, XVC08481B and XVC08481C

Class: 2

Category: C

Function and Design Safety Requirements:

These check valves are in a typical pump discharge application. Their safety function in the open position is allow passage of high head safety injection flow or to allow emergency boration in the absence of a SI signal. These valves must also be capable of closure to prevent the discharge flow from an inservice pump to be diverted through an idle pump.

IST PROGRAM '. ALVE SELECTION BASIS

System: CS

Valves: XVT08105 and HCV00186

Class: 2

Category: Not Applicable

Function and Design Safety Requirements:

HCV00186 is an air operated, fail-open, control valve which regulates seal injection flow to the reactor coolant pumps during startup and shutdown and shutdown when RCS pressure is below normal. When the RCS is at normal operating pressure this valve is maintained in the full open position. XVT08105 is the seal water isolation vale and is maintained in the open position. The reactor coolant pumps are not relied upon during accident conditions. However, it is preferred to maintain seal water injection during LOCA conditions for pump protection and containment of RCS pressure at the seals. Loss of seal injection would result in RCS pressure being checked at injection line check valves. These check valves are tested in the reverse direction to verify operability. Maintaining seal injection flow is not considered a safety function therefore XVT08105 and HCV00186 shall not be included in the IST Program.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: FCV00122

Class: 2

Category: Not Applicable

Function and Design Safety Requirements:

This air operated fail-open valve provides charging pump discharge flow control. This valve is positioned to maintained programmed pressurizer water level. No safety function is performed outside of supporting normal plant operation. Additionally, the valve is outside the safety injection flow path. This valve will not be included in IST Program.

IST PROGRAM VALVE SELECTION BASIS

System: CS

Valves: (1) XVT08145

(2) XVC08377

Class: 1

Category: (1) B Passive

(2) C Passive

Function and Design Safety Requirements:

The pressurizer auxiliary spray valve XVT08145 and downstream check valve XVC08377 provide an alternate means of depressurizing by utilizing the CVCS. Normal depressurization is accomplished by the pressurizer spray valves when the RCPs are in operation. The use of the auxiliary pressurizer spray line is undesirable due to the injection of relatively cool water into the pressurizer resulting in thermal complications. Therefore, this alternative is rarely used. Additionally, XVT08145 is a normally closed fail-closed valve which is not supplied with an individual accumulator to facilitate actuation upon loss of the non-safety air supply. These valves do provide a Class 1 to 2 isolation boundary however, this is considered a passive function. Therefore, XVT08145 shall be tested as a Category B passive valve requiring position indication verification and fail-safe exercising. XVC08377 is classified as a Category C passive valve and shall not be included in the valve test program. Depressurization for accident mitigation is accomplished by the pressurizer safety valves. The class 1 to 2 isolation boundary is maintain by these two normally closed valves satisfying 10CFR50 design requirements.

Note: For further discussion concerning XVC08377 and XVT08145 refer to:

Engineers Technical Work Record
Serial: 0741
Engineer: R.S. Bosnak
Date: 3/4/93

Project Title: MRF 21504-B Verification IST Classification of XVC-8377 and XVT-8145

IST PROGRAM VALVE SELECTION BASIS

System: DG

Valves: XVC00970A, XVC00970B, XVC00971A, XVC00971D, XVC00972A and XVC00972B

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are located in the suction and discharge piping of the diesel fuel oil transfer pumps. The discharge check valves XVC00970A and XVC00970B and XVC00972A and XVC00972B perform a safety function in the open position by allowing passage of fuel oil flow to replenish the day tank. In the closed position these valves prevent diversion of the operating pumps flow through an idle pump. The suction piping check valves XVC00971A and XVC00971D which are located in the fuel oil storage tank, are required to open allowing transference of fuel oil from the storage tank to the day tank upon pump start. These valves also perform a safety function in the closed position by preventing drain-down of the suction line resulting in a loss of pump prime.

IST PROGRAM VALVE SELECTION BASIS

System: DG

Valves: (1) XVC10977A, XVC10977B, XVC10978A and XVC10978B

(2) XVX10999A, XVX10999B, XVX20950A and XVX20950B

Class: 3

Category: (1) C (2) B

Function and Design Safety Requirements:

These valves are all located in the diesel air start system. Air receiver inlet check valves XVC10977A and XVC10977B and XVC10978A and XVC10978B perform a safety function in the closed position only. They are required to close maintaining pressure integrity of the air receivers, thereby providing the required number of engine starts. The safety related function of air start system is provided by the air receivers. The air compressors are not required to run during or following a design basis accident. Therefore, the air receiver inlet check vales do not perform a safety function in the open position.

The air start solenoid valves perform a safety function in the open position. These valves are required to open allowing starting air to the engine. These solenoid valves are not provided with individual actuation switches, or position indicators and there is no visible means of verifying the disc has changed position. The strokes time assigned to these valves shall be the engine start time.

IST PROGRAM VALVE SELECTION BASIS

System: DG

Valves: (1) XVX10998A and XVX10998B

(2) XVC10989A and XVC10989B

Class: 3

Category: Not Applicable

Function and Design Safety Requirements:

These vales are located in the air supply line to the fuel rack shutdown cylinders. the solenoid valves XVX10998A and XVX10998B operate only when shutting down the engines. Check valves XVC10989A and XVC10989B maintain pressure integrity of an air accumulator which supplies actuating air to the fuel rack shutdown cylinder. Again this is required for engine shutdown purposes only. Normal or emergency shutdown of the engine is not considered as support of the engines to perform their safety function. These valves shall not be included in the IST Program.

IST PROGRAM VALVE SELECTION BASIS

System: DG

Valves: XVR00979A, XVR00979B, XVR00980A, XVR00980B, XVR10981A, XVR10981B, XVR10982A, and XVR10982B

Class: 3

Category: Not Applicable

Function and Design Safety Requirements:

Diesel fuel oil transfer pumps discharge relief valves XVR00979A, XVR00979B, XVR00980A and XVR00980B provide overpressure protection only during the unlikely event of pump isolation from the day tank. Normal alignment of the pumps to the day tank is provided with an atmospheric vent. Air start receiver relief valves XVR10981A, XVR10981B, XVR10982A and XVR10982B are considered to be in a thermal application due to the compressors inability to overpressurize the receiver. The relief valves protect their associated receiver in tha event of thermal expansion as a result of a room fire.

IST PROGRAM VALVE SELECTION BASIS

System: DN

Valves: XVD08767 and XVD08768

Class: 2

Category: A (Passive)

Function and Design Safety Requirements:

These locked closed valves isolate the Demineralized Water System from inside containment during normal plant operation. The safety function of these valves is containment isolation. Additionally, the only safety related piping in the Demineralized Water System is this penetration piping and valves, all other piping is considered non-nuclear safety. No other components in the Demineralized Water System shall be included in the IST Program.

IST PROGRAM VALVE SELECTION BASIS

System: EF

Valves: XVG01001A, XVG01001B, XVG01002, XVG01008, XVG01037A and XVG01037B

Class: 3

Category: B

Function and Design Safety Requirements:

These valves serve as an isolation boundary between service water and the emergency feedwater pump suction. During power operation these valves remain in the closed position to prevent Service Water from contaminating the normally clean Emergency Feedwater System. The primary suction source to the EF pumps is the Condensate Storage Tank. Upon low level of the CST these valves must be capable of opening to align the Service Water System as a safety related backup supply source.

IST PROGRAM VALVE SELECTION BASIS

System: EF

Valves: XVC01009A, XVC01009B, and XVC01009C

Class: 2

Category: C

Function and Design Safety Requirements:

These fail-closed air operated check valves serve as containment isolation valves and are in the Emergency Feedwater flow path to the steam generators. They perform a safety function in the open position to allow passage of Emergency Feedwater flow during and accident condition. These valves will pass minimum flow even on loss of actuator power. The valves must be capable of closure in the unlikely event of a line break occurring upstream. This is to prevent loss of steam generator inventory.

Additionally, even though these valves provide a containment isolation function they are exempted from Type C leakage tests. Theses valves fall outside the categoric requirements identified in 10CFR50, Appendix J for valves requiring Type C testing.

IST PROGRAM VALVE SELECTION BASIS

System: EF

Valves: (1) XVC01048A, XVC01048B, and XVC01016

(2) XVK01019A, XVK01019B, and XVK01019C
XVK01020A, XVK01020B, and XVK01020C

Class: 3

Category: C

Function and Design Safety Requirements:

(1) XVC01048A, XVC01048B, and XVC01016 serve as Emergency Feedwater pump discharge check valves. These check valves perform a safety function in the closed position by preventing reverse flow through an idle pump circuit back to the CST, and by preventing a loss of flow during the unlikely event of an upstream line break. Additionally, these valves must be capable of opening to allow maximum flow output to the steam generators.

(2) XVK01019A, XVK01019B and XVK01019C are stop checks located in the motor driven feed pumps discharge lines. These lines run parallel with the turbine driven feed pump discharge lines before coming together to form a common line feeding the associated steam generator. XVK01019A, XVK01019B and XVK01019C perform a safety function in the closed position by preventing reverse flow to turbine driven pump discharge to an idle motor driven pump circuit. Additionally, these valves would function as isolation for a piping rupture/break occurring upstream thereby preventing a loss of flow. These valves have a safety function in the open position by allowing passage of maximum pump flow to the steam generators.

Stop checks XVK01020A, XVK01020B and XVK01020C are located in the turbine driven feed pump discharge lines. These valves must be capable to closure to prevent reverse flow of motor driven pump discharge to an idle turbine driven pump circuit or to prevent loss of flow to a faulted upstream line. These valves must also be capable of full opening to allow maximum turbine driven pump discharge flow to the steam generators.

IST PROGRAM VALVE SELECTION BASIS

System: EF

Valves: XVC01013A, XVC01013B, and XVC01014
XVC01022A, XVC01022B, XVC01034A, and XVC01034B

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are installed in the suction piping of the Emergency Feedwater Pumps. Check valves XVC01013A, XVC01013B and XVC01014 are located in the pump suction piping from the CST. These valves must be capable of opening to provide pump suction flow. Also, these valves must be capable of closing when pump suction supply is changed from the CST to service water. This is required to prevent diversion of service water to the CST. Check valves XVC01022A, XVC01022B, XVC01034A and XVC01034B are located in the pump suction supply from service water. These valves must be capable of opening to allow passage of service water for Emergency Feedwater Pump suction supply. Additionally, these valves perform an active function in the closed position by preventing diversion of normal suction from the CST to a possibly faulted service water line. Also, XVC01022A and XVC01022B provide train separation for the two service water headers supplying suction to the Turbine Driven Emergency Feedwater Pump.

IST PROGRAM VALVE SELECTION BASIS

System: EF

Valves: XVC01023A, XVC01023B, XVC01024, and XVC01027

Class: 3, NNS (XVC01027)

Category: C

Function and Design Safety Requirements:

These valves are located in the Emergency Feedwater Pumps minimum flow recirculation line to the CST. These valves perform a safety function in the open position by allowing recirculation flow back to the CST to prevent the pumps from overheating during low flow conditions. The cloud function has been determined to be a Non-Safety function. The amount of Emergency Feedwater Pump recirculation flow is determined by the individual breakdown orifices. All three recirculation lines tie together downstream of the breakdown orifices. No matter what the path: through the normal path or through a non-running pump, the flow still returns to the CST and eventually the suctions of the running pumps.

IST PROGRAM VALVE SELECTION BASIS

System: EF

Valves: XVC01038A, XVC01038B, and XVC01038C
XVC01039A, XVC01039B, and XVC01039C

Class: 2

Category: C

Function and Design Safety Requirements:

These valves are the emergency feedwater steam generator isolation check valves. They are situated in a an inline configuration to provide redundant isolation capabilities during the unlikely event of a high energy line break occurring upstream. The valves would prevent the release of mass and energy to the containment which subsequently could challenge the reactor containment. These valves also perform a safety function in the open position by allowing Emergency Feedwater flow to the steam generators.

IST PROGRAM VALVE SELECTION BASIS

System: EF

Valves: (1) IFV03531, IFV03541, and IFV03551

(2) IFV03536, IFV03546, and IFV03556

(3) IFV03531-CV1, IFV03541-CV1, IFV03551-CV1
IFV03536-CV1, IFV03546-CV1, IFV03556-CV1

Class: (1) (2) 3 (3) NC, NS

Category: (1) (2) B (3) A/C

Function and Design Safety Requirements:

(1) Flow control valves for the Motor Driven Emergency Feedwater Pumps.

(2) Flow control valves for the Turbine Driven Emergency Feedwater Pump.

(3) Instrument air inlet check valves to the accumulators for the Motor and Turbine Driven Emergency Feedwater Pump flow control valves.

During normal startup and shutdowns these valves modulate the amount of flow supplied to the steam generators. When the MDEF or TDEF pumps receive an actuation signal these valves must be capable of going to the full open position to allow maximum flow to the steam generators. These valves fail-open on loss of air supply. These valves must also be capable of closure upon receipt of a high flow signal which would signify a break in the downstream Emergency Feedwater line or a faulted Steam Generator. A safety related accumulator with an air inlet check valve is provided to ensure closure capability. These inlet check valves perform a safety function in the closed position to maintain pressure available from the accumulator.

IST PROGRAM VALVE SELECTION BASIS

System: EF

Valves: XVK01633A, XVK01633B and XVK01633C

Class: 2

Category: C

Function and Design Safety Requirements:

These stop check valves perform a boundary isolation function between the non-code Chemical Feed System and the Class 2 Emergency Feedwater System. Additionally, these valves are within the Emergency Feedwater penetration piping boundary. They do not require a Type C leakage test in accordance with 10CFR50, Appendix J. The safety function of these valves is to close upon initiation of emergency feedwater to prevent diversion of EF flow to the non-code chemical feed system.

IST PROGRAM VALVE SELECTION BASIS

System: FS

Valves: (1) XVG06772, XVG06773, XVG06797

(2) XVC06799

Class: 2

Category: (1) A

(2) AC

Function and Design Safety Requirements:

These valves are located in the penetration piping where fire service enters containment. The safety function of these valves is to isolate containment. XVG06772 and XVG06773 remain in the locked closed position during normal operation. During refueling outages the valves may be opened to supply hose reel stations inside containment. XVG06797 and XVC06799 supply water to the fire service deluge associated with the reactor building charcoal filter units. XVG06797 remains in the open position during plant operation and receives a containment isolation signal to close. Check valve XVC06799 is the inboard containment isolation valve which normally remains in the closed position. This check valve shall be tested as Category A/C "Passive". The Fire system outside the containment penetration area is non-code, non-seismic.

IST PROGRAM VALVE SELECTION BASIS

System: FW

Valves: IFV-478, IFV-488, IFV-498
IFV-3321, IFV-3331 and IFV-3341

Class: NNS

Category: Tested as Category B

Function and Design Safety Requirements:

The feedwater control valves are normally open fail-closed valves which regulate feedwater flow to the steam generators. The safety function of these valves is in the closed position. Credit is taken for these valves as providing backup isolation capabilities upon single active failure of the feedwater isolation valves during various Design Basis Events. Also these valves receive a feedwater isolation signal.

The feedwater bypass control valves are normally closed, fail-closed valves which are open only during startup and shutdowns when plant power is below 25%. Credit is taken for these valves as providing backup isolation capabilities upon single active failure of the feedwater isolation valves. These valves must be capable of closure upon receipt of a feedwater isolation signal when the feedwater is being circulated through the bypass lines.

IST PROGRAM VALVE SELECTION BASIS

System: FW

Valves: (1) XVG-1611A, XVG-1611B and XVG-1611C
(2) XVT-1678A, XVT-1678B and XVG-1678C
(3) XVC-1684A, XVC-1684B and XVC-1684C

Class: 2

Category: (1) B
(2) B
(3) C

Function and Design Safety Requirements:

Feedwater isolation valves XVG-1611A,B &C are normally open pneumatic-hydraulic actuated valves located in the main feedwater flow path supplying the steam generators. These valves must be capable of closure to isolate feedwater during the unlikely event of a MSLB, FWLB or various other postulated accident scenarios which would require feedwater isolation for accident mitigation. Additionally, these valves are supplied with individual accumulators thus ensuring air supply is available upon loss of their non-safety air supply. Therefore, the inlet air supply check valves associated with these accumulators perform a safety function in the closed position.

Feedwater reverse flush valves, XVT-1678A,B&C are normally closed fail-close valves which upon opening provide flushing capabilities to reduce thermal stresses on the steam generator baffle bolting.

This is accomplished by removal of cold FW downstream of the FWIVs and flushing this cold feedwater through the steam generator blowdown system thereby providing heatup of the feedwater during plant startup. Even though the blowdown system is classified NNS these valves shall be exercised to the open position. Additionally, these valves must be capable of closure upon receipt of a feedwater isolation signal and a containment isolation signal. Although, these valves receive a containment isolation signal, they do not meet the requirements of Appendix J for Type C seat leakage testing. Feedwater isolation check valves XVC-1684A, B & C, are normally open swing check valves which perform a safety function in the closed position. These valves must be capable of closure upon reverse flow conditions to limit steam generator blowdown should a break occur in the upstream feedwater piping.

IST PROGRAM VALVE SELECTION BASIS

System: HR

No valve selection basis was written for Hydrogen Removal System valves.

IST PROGRAM VALVE SELECTION BASIS

System: IA

No valve selection basis was written for Instrument Air System valves.

IST PROGRAM VALVE SELECTION BASIS

System: MS

Valves: IPV02000, IPV02010 and IPV02020

Class: 2

Category: B

Function and Design Safety Requirements:

These normally closed, fail closed valves are the Steam Generator Power Operated Relief Valves. The valves fail closed to prevent inadvertent release of steam during plant operation. This function is not considered as an active function. The active function of these valves is performed in the open position, and a handwheel is provided for positioning the valves upon loss of actuating power. These valves must be capable of opening for plant cooldown and depressurization by discharging steam to the atmosphere during any design basis event resulting in closure of the main steam isolation valves. Additionally, their opening avoids unnecessary lifting of the Steam Generator Safety Valves.

IST PROGRAM VALVE SELECTION BASIS

System: MS

Valves: (1) IFV02030

(2) IFV02030-CV1 (Accumulator Check)

Class: 3

Category: (1) B

(2) A/C

Function and Design Safety Requirements:

This normally closed, fail-open isolation valve is located in the steam line supplying the EFWPT and performs a safety function in the open and closed positions. This valve must be capable of opening to allow steam to the EFWPT turbine and opens automatically upon receipt of a lo-lo level signal from 2 or more steam generators or an undervoltage condition on both ESF busses. Additionally, this valve must be capable of closure to prevent emergency feedwater flow to a faulted steam generator during the unlikely event of a mainsteam line break and to provide an alternate means of isolating Turbine Driven Emergency Feedwater Pump flow in the event of a single active failure occuring to pump discharge flow-control valve.

The valve is supplied with an air accumulator to ensure closure capability. The inlet check valve on this accumulator performs an active function in the closed positon.

IST PROGRAM VALVE SELECTION BASIS

System: MS

Valves: XVG02802A and XVG02802B

Class: 2

Category: B

Function and Design Safety Requirements:

These valves are located in the steam lines supplying the Emergency Feedwater Pump Turbine and provide individual train isolation. The valves remain in the open position during normal plant operations. In addition to maintaining steam pressure up to the Turbine Steam Control Valve this minimizes the potential for moisture entering the turbine and the likelihood of a steam hammer upon turbine actuation. These valves perform a safety function in the open position by allowing steam to the Emergency Feedwater Pump Turbine when Emergency Feedwater is required for a Steam Generator. The valves receives a signal to open upon a lo-lo level indication in 2 of 3 Steam Generators or a loss of both ESF bus voltages. The valves must also be capable of closure during the unlikely event of a line break and subsequent single active failure of either check valve XVC02876A or B to close.

IST PROGRAM VALVE SELECTION BASIS

System: MS

Valves: XVM02801A, XVM02801B, XVM02801C, XVT02869A, XVT02869B, and XVT02869C

Class: 2

Category: B

Function and Design Safety Requirements:

MainSteam Isolation Valves, XVM02801A, B, and C are required to remain in the open position during normal plant operation and are not considered to perform an active function in the open position. These valves must be capable of closure to limit uncontrolled blowdown to only one steam generator during the unlikely event of a steam line break occurring inside or outside containment. These valves receive an emergency closure signal during any of the following events:

1. Containment Hi Pressure
2. Low Steam Line Pressure
3. Hi Steam Line Flow coincident with Lo-Lo RCS average temperature

The MSIV Bypass valves, XVT02869A, B, and C are normally closed, fail-closed, air operated valves. Their non-active functions in the open position includes: 1) equalization of steam pressure across the MSIV prior to opening; 2) provide for main steam line warmup: 3) provide steam for operation of turbine auxiliaries. These valves must be capable of closure to prevent uncontrolled blowdown of more than one steam generator during the unlikely event of a steam line break occurring inside or outside containment. These valves receive the same closure signals as previously mentioned for the MSIV.

IST PROGRAM VALVE SELECTION BASIS

System: MS

Valves: XVS02806A, XVS02806B, XVS02806C, XCS02806D, XVS02806E, XVS02806F, XVS02806G, XVS02806H, XVS02806I, XVS02806J, XVS02806K, XVS02806L, XVS02806M, XVS02806N, XVS02806P

Class: 2

Category: C

Function and Design Safety Requirements:

The Main Steam Header Safety Valves are located on the main steam line outside the reactor building, upstream of the main steam isolation valves. The active function is to provide overpressure protection to the steam generator. The safety valves are sized to pass the steam flow resulting from complete load rejection of shutoff of main steam flow without reactor trip.

IST PROGRAM VALVE SELECTION BASIS

System: MS

Valves: XVC02876A and XVC02876B

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are located between the Main Steam to Emergency Feedwater Pump Turbine isolation valves, XVG02802A & B, and the junction of the two steam supply lines upstream of isolation valve IFV02030. The active function of the valves in the closed position is to provide automatic and positive isolation in the event of a main stem line break occurring in either of the two individual supply lines. This closure prevents failure propagation to the non-affected steam line from occuring thereby assuring an adequate steam source is available to the Turbine Driven Emergency Feedwater Pump. Additionally, the valves must be capable of full opening to permit steam flow to the Turbine.

IST PROGRAM VALVE SELECTION BASIS

System: MS

Valves: IFV02006, IFV02016, IFV02026, IFV02096, IFV02097, IFV02106, IFV02107, IFV02116, IFV02117, IFV02126, IFV02127

Class: NNS

Category: Not categorized

Function and Design Safety Requirements:

These valves are located in non-code, non-seismic piping and are associated with the main steam atmospheric dump valves. IFV-2006 and 2026, open to dump a portion of steam to the atmosphere during a load rejection thereby maintaining condenser back pressure within turbine operating limits and preventing a reactor trip. This function is not required for accident mitigation.

The main steam condenser dump valves listed above open to dump steam to the condenser during a load rejection. The amount of steam which can be dumped to the condenser must be limited to prevent exceeding the condenser back pressure. Any dumps required beyond the capacity of the condenser dump valves shall be routed to the atmosphere. The steam dump system does not perform a safety function. Accident mitigation for overpressure protection is provided by the PORVs and the Main Steam Safety Valves.

IST PROGRAM VALVE SELECTION BASIS

System: MS

Valves: XVT02813, XVT02843A, XVT02843B, XVT02843C, XVT02877A and XVT02877B

Class: 2

Category: B

Function and Design Safety Requirements:

All of the above valves serve as main steam header drain isolation valves. The purpose of these valves which remain open during plant operation, is to provide a means of draining any moisture which has collected in the header. This function in the open position is not considered an active function. The valves must be capable of closure to prevent the uncontrolled blowdown of more than one steam generator during the unlikely event of a main steam line break.

IST PROGRAM VALVE SELECTION BASIS

System: MU

Valves: XVD01920A and XVD01920B

Class: 3

Category: B

Function and Design Safety Requirements:

These valves are normally open, fail-closed valves which provide a double isolation boundary between the safety and non-safety related portions of the Reactor Makeup Water System. The active function of the valves is in the closed positions. In the event of a leak/break occurring in the non-safety, non-seismic portion of the system these valves must be capable of closure to prevent loss of the tritiated water contained in the MU water storage tank and to prevent jeopardizing the normal function of the system, even though this system is not credited for accident mitigation.

IST PROGRAM VALVE SELECTION BASIS

System: ND

Valves: XVD06242A and XVD06242B

Class: 2

Category: A

Function and Design Safety Requirements:

These valves are located in the penetration piping for the discharge of the Reactor Building and Incore Instrumentation Sump Pumps. The normal function of these valves is to open upon receipt of a sump high level signal thereby allowing sump pump flow to be directed to the Waste Holdup or the Floor Drain Tanks. The active function for these valves is to close upon receipt of a Containment Isolation signal for containment integrity.

IST PROGRAM VALVE SELECTION BASIS

System: NG

No valve selection basis was written for Nitrogen Blanketing System valves.

IST PROGRAM VALVE SELECTION BASIS

System: RC

Valves: (1) XVG08000A, XVG08000B, XVG08000C

(2) PCV00444B, PCV00445A, PCV00445B

Class: 1

Category: (1) B

(2) NA

Function and Design Safety Requirements:

The pressurizer is equipped with three Power Operated Relief Valves PCV00444B, PCV00445A & B. The operational objectives of these valves is:

1) accommodate changes in system volume and limit pressure changes due to RCS temperature variations during all modes of operation;

2) limit system pressure for a large power mismatch, thereby preventing a fixed high pressure reactor trip;

3) limit pressurizer pressure to a valve lower than the high pressure trip setpoint;

4) limit the possibility for undesirable lifting of pressurizer safety valves.

The above functions support plant operation. No credit is taken for the PORVs for accident mitigation. The PORVs shall be included in the ASME XI valve test program for trending purposes.

Located upstream of each PORV is a block valve, XVG08000A, B &C. These block valves are normally in the open position. However, they must be capable of closure for isolation of excessive leakage occurring at the PORV. Additionally, Technical Specifications requires the associated block valve to be closed should a PORV becomes inoperable. The block valves are considered to perform an active function in the closed position only.

IST PROGRAM VALVE SELECTION BASIS

System: RC

Valves: XVR08010A, XVR08010B and XVR08010C

Class: 1

Category: C

Function and Design Safety Requirements:

The Pressurizer Safety Valve performs an active function by providing overpressure protection to the RCS and its components. As required by ASME III, protection shall be provided to prevent a rise in pressure of more than 10% above system design pressure. These safeties provide accident mitigation during the following credible events:

- Loss of electrical load and/or turbine trip
- Uncontrolled rod withdrawal at power
- Loss of reactor coolant flow
- Loss of normal feedwater
- Loss of offsite power to the station auxiliaries

IST PROGRAM VALVE SELECTION BASIS

System: RC

Valves: (1) XVD08028, XVD08033 and XVD08047

(2) XVC08046

Class: 2

Category: (1) A,

(2) A/C

Function and Design Safety Requirements:

Isolation valves XVD08033 and XVD08047 are located in the penetration piping for the nitrogen supply to the PRT. The normal function of these valves is to remain in the open position allowing a nitrogen blanket to be maintained in the PRT. The active function of these valves is performed in the closed position. They must be capable of closure upon receipt of a containment isolation signal.

Isolation valve XVD08028 and check valve XVC08046 are located in the penetration piping associated with reactor makeup water supply to the PRT. Their normal function is to provide a supply of water to the PRT for condensation of steam discharged to the tank. Makeup to the PRT is rarely if ever required due to the amount of in leakage. Draining PRT contents to maintain required level is often required when leakage is present from various sources. These valves are exposed to Type C leakage testing more frequently than they are required to open for makeup. Outboard isolation valve XVD08028 receives a containment isolation signal to close and shall be tested as a category A active valve. Inboard check valve XVC08047 is normally in the closed and shall be tested as a category A/C passive valve. These valves perform an active function in the closed position for protection of containment integrity.

IST PROGRAM VALVE SELECTION BASIS

System: RC

Valves: XVT08095A, XVT08095B, XVT08096A and XVT08096B

Class: 1

Category: B

Function and Design Safety Requirements:

These valves are part of the Reactor Vessel head vent system. Their installation configuration is such that no single active failure can prevent venting or isolation capabilities. The active function in the open position is to remove non-condensible gases or steam from the Reactor Vessel head. This action is intended to mitigate a possible condition of inadequate core cooling or impaired natural circulation resulting from the accumulation of non-condensible gases in the RCS.

These valves also perform an active function in the closed position by providing redundant isolation capabilities following venting operation or for isolation of a break occurring downstream.

IST PROGRAM VALVE SELECTION BASIS

System: RC

Valves: PCV00444C and PCV00444D

Class: 1

Category: Not categorized

Function and Design Safety Requirements:

The pressurizer spray valves are air operated fail-closed valves which remain in the closed position during normal steady state power operation. The operational objective of these valves is to pass the amount of cold leg flow required to prevent pressure from reaching the operational setpoint of the Power Operated Relief Valves during a step reduction in power level of 12% of full load.

The function of these valves is not credited for accident mitigation therefore they shall not be tested pursuant to GTP-302.

IST PROGRAM VALVE SELECTION BASIS

System: RH

Valves: FCV00602A and FCV00602B

Class: 2

Category: B

Function and Design Safety Requirements:

These normally open motor operated valves are RHR pump minimum flow control valves. In the open position their active function is to provide pump protection when the RCS pressure is greater than the shutoff head of the RHR pumps. In this instance RHR pump flow is circulated through the mini-flo circuit thereby preventing overheating of the pumps. The valves are required to close when RHR pump discharge flow reaches an upper limit of 1404 gpm @ 350°F thereby ensuring maximum LPSI flow is delivered as needed. The valves are considered as performing an active function in both the open and closed positions.

ISTPROGRAM VALVE SELECTION BASIS

System: RH

Valves: (1) XVG08701A, XVG08701B, XVG08702A, XVG08702B,

(2) XVC08703A, and XVC-8703B

Class: 1

Category: (1) A

(2) AC

Function and Design Safety Requirements:

These normally closed motor operated valves XVG08701A & B and XVG08702A & B are located in the RHR pump suction lines from the RCS. The normal function is to open when RCS pressure is less than 425 psig during plant cooldown. The active safety function of the valves in the open position is to provide alignment to the RHR relief valves XVR08708A & B during low temperature solid water operation thereby providing cold overpressure protection. The active function of these valves in the closed position is to provide a high to low pressure boundary isolation between RCS and RHR. Because of this function these valves shall be leak tested pursuant to Technical Specification 4.4.6.2.2. These valves must be capable of closure during RHR pump suction alignment to the RWST or the containment sump during recirculation. These valves do not require a Type C leakage test based on the following discussion:

- The closed residual heat removal system boundary is used as the outside containment isolation. These lines connect to the safety injection recirculation loops at least one of which is in operation following an accident.

- Check valves, XVC08703A & B are provided for overpressure protection due to thermal build up occurring between the motor operated valves. These valves are not identified in Technical Specifications and on Enclosure 7.5 as pressure isolation valves however, they are tested as such during the testing of XVG08702A & B.

IST PROGRAM VALVE SELECTION BASIS

System: RH

Valves: XVG08706A and XVG08706B

Class: 2

Category: B

Function and Design Safety Requirements:

These normally closed, motor operated valves are located in each RHR heat exchanger outlet to the charging pump suctions. Their active function in the open position is to provide a recirculation flow path from the containment sump to the charging pump suction via the RHR pumps. Additionally, these valves are provided with interlocks to prevent their opening whenever isolation valves XVG08701A & B or XVG08702A & B are in the open position. This interlock prevents possible overpressurization of the charging pump suction piping.

IST PROGRAM VALVE SELECTION BASIS

System: RH

Valves: XVR08708A and XVR08708B

Class: 2

Category: C

Function and Design Safety Requirements:

These relief valves are located in the RHR pumps suction piping. Their active function is to protect the RHR system from overpressurization during residual heat removal operation. Additionally, these valves function to mitigate RCS cold overpressure transients and assure the pressure and temperature limits of 10 CFR 50, Appendix G are not exceeded. The integrity of the reactor coolant pressure boundary during low temperature solid water operation is thereby protected in low temperature high pressure situations.

IST PROGRAM VALVE SELECTION BASIS

System: RH

Valves: XVC08716A and XVC08716B

Class: 2

Category: C

Function and Design Safety Requirements:

These check valves are located in each RHR header downstream of the RHR heat exchangers and upstream of the discharge header cross connect. The active function in the closed position is to prevent diversion of discharge flow during Safety Injection operation. This loss of flow could occur via an open discharge header cross connect through an idle RHR pump or due to a faulted line in the adjacent train. These valves must be capable of opening to allow passage of low head safety injection flow.

IST PROGRAM VALVE SELECTION BASIS

System: RH

Valves: HCV00603A, HCV00603B, FCV00605A and FCV00605B

Class: 2

Category: Not categorized

Function and Design Safety Requirements:

HCV00603A & B are normally open, fail-open, butterfly valves located downstream of the RHR heat exchangers. The operational objective of these valves is to control the RCS cooldown rate by regulating the reactor coolant flow through the RHR heat exchangers. As the reactor coolant temperature decreases during cooldown, valve positioning is manually adjusted to vary the coolant flow through the heat exchanger. At normal plant operation and following a safeguards actuation, position indication lights are monitored to ensure the valves are maintained in the full open position so so that ECCS flow is not jeapordized. Additionally, these valves are supplied by non-IE power source and non-safety actuating air supply. These valves are not required to change position during an accident condition and are verified to function properly during normal plant shutdown. Testing pursuant to Section XI is not considered applicable.

FCV00605A & B are normally closed, failed-closed butterfly valves located in the RHR heat exchanger bypass lines. The function of these valves is to maintain the system flow rate at a value set on flow controllers FCV00605A & B. As HCV00603A & B is adjusted to increase or decrease flow through the heat exchangers FCV00605A & B are automatically adjusted to maintain a constant system flow at the optimal design point of the pump. This function also has the benefit of minimizing thermal transients on the RHR injection nozzle during startup of the RHR system. These valves are not required to change position during an accident condition and are used only during normal plant shutdowns. Testing pursuant to the requirements of GTP-302 is not considered applicable.

IST PROGRAM VALVE SELECTION BASIS

System: RH

Valves: (1) XVT02912
(2) XVC02913

Class: 2

Category: (1) A
(2) A/C

Function and Design Safety Requirements:

These valves are located in the penetration piping where service air enters the reactor building. During normal plant operation manual valve XVT02912 is maintained locked closed therefore, check valve XVC02913 remains closed. These valves are opened during refueling outages to support maintenance activities being performed inside the reactor building containment. The safety function of these valves is to maintain containment integrity and are classified as containment isolation valves. All piping upstream and downstream of these valves is classified as non-safety related. These valves shall be considered as passive and tested accordingly.

IST PROGRAM VALVE SELECTION BASIS

System: SA

No valve selection basis was written for Service Air System valves.

IST PROGRAM VALVE SELECTION BASIS

System: SF

Valves: XVD06671, XVD06672, XVD06697 and XVD06698

Class: 3

Category: A

Function and Design Safety Requirements:

These normally locked closed manual valves are located in the penetration piping associated with the refueling cavity fill and drain lines. The valves are open only during refueling outages to establish the required water level for fuel transfer. The safety function of these valves is to protect containment integrity and they are classified as containment isolation valves.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVG08801A, XVG08801B, XVG08884, XVG08885 and XVG08886

Class: 2

Category: A

Function and Design Safety Requirements:

XVG08801A and B are normally closed, motor operated valves which provide an isolation between the pressurized and non-pressurized portions of the system. These valves must be capable of opening upon receipt of an SI signal to allow high head safety injection or recirculation flow to the RCS cold legs. Additionally, they are installed in parallel and power is supplied by separate 1E buses to provide redundancy upon single active failure. These valves must be capable of closure when changing from cold leg to hot leg recirculation. Also, Enclosure 7.4 currently identifies XVG08801A & B as containment isolation valves.

XVG08885 is a normally closed, motor operated valve located in the high head cold leg recirculation line. This valve can be opened during post accident recirculation to provide a redundant high head recirculation path to the cold legs. This valve does not receive an SI signal to open as does XVG08801A & B. XVG0888 must be opened from the Main Control Board manually. This valve must be capable of closure when changing from the cold leg to hot leg recirculation path. Additionally, this valve is currently identified in Enclosure 7.4 as a containment isolation valve.

XVG08884 and XVG08886 are normally closed, motor operated valves located in the high head hot leg injection/recirculation path. These valves remain closed during safety injection and cold leg recirculation. They do not receive an automatic actuation signal during an accident condition and must be operated from the main control board. These valves must be capable of opening when changing from cold leg to hot leg recirculation. Additionally, the valves are currently identified in Enclosure 7.4 as containment isolation valves.

NOTE: None of the valves addressed by this basis discussion are considered pressure isolation valves (reference Enclosure 7.5) therefore, seat leakage testing at full differential pressure is not necessary.

1

IMAGE EVALUATION
TEST TARGET (MT-3)

150mm

6"

1

IMAGE EVALUATION TEST TARGET (MT-3)

150mm

6"

1

IMAGE EVALUATION TEST TARGET (MT-3)

150mm

6"

1

IMAGE EVALUATION TEST TARGET (MT-3)

150mm

6"

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVG08808A, XVG08808B and XVG08808C

Class: 2

Category: B

Function and Design Safety Requirements:

These normally open, motor operated valves are located in the safety injection accumulator discharge piping between the discharge checks and the accumulator. These valves are required by Technical Specifications to remain open during operation and are locked open at the motor control center to prevent inadvertent closure. The operational function of these valves is to be capable of closure during normal plant shutdown to prevent discharge of the ECCS accumulators when RCS pressure is less than the nitrogen blanket pressure. This function is not considered necessary for accident mitigation or emergency shutdown. The safety function of these valves is performed in the open position, and the valves are maintained in this position during operation. These valves receive an SI signal to open. The valves shall be tested as active category B valves even though their normal position and safety are the same. This is due to the valves receiving as SI signal to open.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: (1) XVC08973A, XVC08973B, XVC08973C,
(2) XVC08974A, XVC08974B

Class: (1) 1
(2) 2

Category: A/C

Function and Design Safety Requirements:

These [illegible] valves are located in the low head safety injection lines to the RCS cold legs. [illegible] afety function in the closed position is to provide an isolation boundary between [illegible] e reactor coolant system and the RHR system which is constructed to a lower design pressure than the RCS. Failure of these valves to provide this isolation would result in overpressurization and subsequent damage to the RHR system. These valves must be capable of opening to allow low head safety injection during the unlikely event of a LOCA resulting in a depressurization of the RCS to below the shutoff head of the RHR pumps.

Flow testing XVC08973B to the full open position presents a minor problem. This particular valve is located in an non-instrumented header. Non-intrusive methods shall be utilized to verify full open postion when exposed to forward flow in order to comply with G.L. 89-04 position 1.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVC08988A, XVC08988B, XVC08993A, XVC08993B, XVC08998A, XVC08998B, XVC08998C

Class: 1

Category: AC

Function and Design Safety Requirements:

These valves are located in the safety injection lines leading to the RCS hot and cold legs. They are credited with performing a safety function in the closed position by providing an isolation boundary between the RCS and the high head/low head safety injection system Reference Enclosure 7.5. Failure to perform this function could compromise safety injection capabilities. These valves must also be capable of opening to allow safety injection flow.

With the exception of XVC08998A & C all check valves are located in non-instrumented lines therefore, non-intrusive methods must be utilized to accomplish testing as required by G.L. 89-04 position 1.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: (1) XVG08809A, XVC08809B,
(2) XVC08958A, XVC08958B

Class: 2

Category: (1) B
(2) C

Function and Design Safety Requirements:

These valves are located in the RHR Pump suction piping from the RWST. During normal plant operation XVG08809A and B remain open allowing an immediate supply source to the RHR pumps which start automatically on receipt of an SI signal. Downstream suction supply check valves, XVC08958A & B must be capable of opening to allow RWST flow to the RHR pump suction for low head safety injection. Motor operated valves XVG08809A and B are maintained open in order to perform their requisite safety function. These valves must also be capable of re-opening after inadvertent closure.

Upon termination of the low head injection mode and initiation of recirculation from the containment sump check valves XVC08958A & B must be capable of closure to prevent diversion of recirculation flow to the RWST. XVG08809A & B must be capable of closure to prevent diversion of recirculation flow to the RWST in the unlikely event of a single active failure occurring to check valves XVC08958A & B.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVG08811A, XVG08811B, XVG08812A, and XVG08812B

Class: 2

Category: B

Function and Design Safety Requirements:

These normally closed, motor operated valves are located in the two suction lines leading from the containment sump to the RHR pumps. The valves automatically open upon receipt of a Lo-Lo level signal from the RWST coincident with an SI signal. This action terminates the injection phase and accomplishes the required alignment for the recirculation phase. The safety function of these valves in the open position is to allow recirculation flow from the containment sump. Additionally, the valves perform a safety function in the closed position by preventing the pressurized RHR system from being diverted to the containment sump. This event should have the most significant consequences during Mode 4 when RHR is an extension of the RCS. Inadvertent opening of the sump isolation valves would result in a large loss of coolant accident.

XVG08811A and XVG08811B are containment isolation valves as identified in Enclosure 7.4 and FSAR Table 6.2-53a and 6.2-54. Therefore, these valves are required to receive Type C leakage tests.

IS 'ROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVT0887¹a: XVT08961

Class: 2

Category: A

Function and Design Sa1 .y Requirements:

These normally closec fail closed valves are located in the penetration piping associated with the ac mulator check valve test line. This line provides a means of testing the leak tigh' ntegrity of the accumulator discharge check valves during normal operation. Tł safety function of these valves is in the closed position for the protection of contaiiment integrity. Even though, these valves are normally closed and fail closed, they shall be tested as category A active valves. The valves will automatically close upon receipt of a containment isolation signal.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: (1) XVT08860, XVT08880,
(2) XVC08861, XVC08947

Class: 2

Category: (1) A
(2) A/C

Function and Design Safety Requirements:

These valves are located in the penetration piping associated with the SI accumulators nitrogen makeup and fill lines. The safety function of these valves is performed in the closed position by protecting containment integrity. Connected piping upstream and downstream of these penetration boundary valves is non-safety and non-seismic. Outside containment isolation valves, XVT08860 accumulator fill and XVT08880 nitrogen makeup, are normally closed, failed-closed valves. These valves receive a close signal for containment isolation and shall be tested as active valves. Inside containment isolation check valves, XVC08861 and XVC08947 are normally closed and perform no safety function other than containment isolation. These valves shall be tested as category A/C passive which requires Type C testing only. The accumulators function to discharge their contents to the RCS as a passive function which is not dependent upon the operation of other power operated equipment. These valves are not required to operate at the time of accumulator discharge or to maintain accumulator integrity.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: (1) XVG08888A, XVG08888B, XVG08889
(2) XVG08887A, XVG08887B,

Class: 2

Category: (1) A
(2) B

Function and Design Safety Requirements:

XVG08887A and XVG08887B are normally open motor operated valves located in the cross-connect between the low head injection lines. These valves remain open during low head safety injection however they must be capable of closure to provide separation of flow paths during cold leg recirculation and be capable of reopening when changing from cold leg to hot leg recirculation.

XVG08888A and XVG08888B are normally open, motor operated valves located in the low head injection lines to the cold legs. Power is removed from the operators during normal operation to prevent inadvertent closure thereby isolating the primary low head injection flow path. These valves must be capable of closure from the main control board to divert flow to the hot legs during hot leg recirculation and reopening when changing back to cold leg recirculation. These valves are identified in GTP-302 Attachment IV and FSAR Table 6.2-53a and Table 6.2-54 as containment isolation valves requiring a Type C leakage test.

FSAR Table 6.2-53a identifies the necessity to perform the Type C test in the reverse direction due to their location and orientation within the system.

XVG08889 is a normally closed motor operated valve located in the low head injection line to the hot legs. Power is removed from the actuator during normal operation to prevent inadvertent opening. The valve must be capable of opening from the main control board when changing from cold leg to hot leg recirculation and capable of reclosing when changing back to cold leg recirculation. This valve is identified in Enclosure 7.4 and FSAR Table 6.2-53a and 6.2-54 as a containment isolation valve requiring Type C testing. FSAR Table 6.2-53a does specify that leakage testing shall be performed in the reverse direction due to valve location and orientation within the system.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVT08878A, XVT08878B, XVT08878C
XVT08875A, XVT08875B, XVT08875C

Class: 2

Category: B

Function and Design Safety Requirements:

Accumulator fill line isolation valves XVT08878A, B, C, and nitrogen makeup isolation valves XVT08875A, B, & C are normally closed, fail closed valves located inside containment. These valves provide a boundary isolation function from Class 2 to non-code piping and provide a means of isolation to facilitate type C testing on the CIVs. These valves could be considered as performing a safety function in the closed position by protecting the integrity of the associated accumulator during the unlikely event of a break occurring in the non-code, non-seismic portion of piping. This function would be considered passive considering the normal valve position is closed. The only time these valves are opened would be after accumulator discharge check valve testing, accumulator maintenance, or to replenish contents of the accumulators due to leakage. The likely time to fail safe test these valves is during cold shutdown in conjunction with testing performed on XVG08808A, B, & C.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVC08926

Class: 2

Category: C

Function and Design Safety Requirements:

This valve is located in the supply line from the RWST to the charging pump suction. The non-active normal function of this valve is to prevent reverse flow from the VCT to the RWST. This would be possible only in the event of a failure occurring to LCV00115B or LCV00115D which are normally closed. The safety function in the open position is to allow sufficient suction supply to the charging pumps for them to meet their design flow requirements during an accident. The safety function in the closed direction is performed by preventing backflow of Reactor Building sump water into the RWST by the RHR pumps during Post-LOCA recirculation.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVC08948A, XVC08948B, XVC08948C
XVC08956A, XVC08956B, XVC08956C

Class: 1

Category: A/C

Function and Design Safety Requirements:

These check valves are located in the discharge lines from the SI accumulator to the RCS. Their safety function in the open position is to allow accumulator discharge to cold legs when RCS pressure has decreased to below nitrogen pressure in the accumulator subsequent to a LOCA. This provides a passive means of rapidly refilling the reactor and providing emergency core cooling for a large loss of coolant accident. These valves are normally closed during plant operation and perform a pressure isolation function by preventing inleakage of RCS pressure to the accumulators. The valves are identified in Enclosure 7.4 as RCS pressure isolation valves and are tested in the closed position pursuant to the requirements of Technical Specification Surveillance Requirement 4.4.6.2.2. The valves are properly identified in the test program as category A/C in accordance with G.L. 89-04, position 4.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVC08990A, XVC08990B, XVC08990C
XVC08992A, XVC08992B, XVC08992C
XVC08995A, XVC08995B, XVC08995C
XVC08997A, XVC08997B, XVC08997C
XVC08993C

Class: 1

Category: A/C

Function and Design Safety Requirements:

These checks valves are located in the high head safety injection lines leading to the RCS hot and cold legs. The safety function in the closed position is to provide an RCS isolation boundary. The valves are identified in Enclosure 7.4 as RCS pressure isolation valves and are tested in the closed position pursuant to the requirements of Technical Specification Surveillance Requirement 4.4.6.2.2. The valves are properly identified in the test program as category A/C in accordance with G.L. 89-04, position 4.

These valve must also be capable of opening upon pump start to allow high head safety injection flow to be directed to either the hot or cold legs of the RCS. Testing of these valves in the open position shall be performed during refueling outages when the volume of flow required for exercising will not create any undesirable system conditions and while personnel access to reactor containment is possible for flow meter installation.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: (1) XVR08855A, XVR08855B, XVR08855C
XVR08865, XVR08864A, XVR08864B
(2) XVR08857,

Class: (1) 2,
(2) NNS

Category: Not categorized due to function

Function and Design Safety Requirements:

Accumulator relief valves XVR08855A, B, C are sized to pass nitrogen gas displaced when liquid is entering the tank at the maximum flow rate of the hydrotest pump. The safety function of the accumulators is considered passive, makeup to the accumulator is not necessary for accident mitigation. The accumulators are maintained charged in a ready state. Due to their location in reactor containment the accumulators could be exposed to high temperatures during an accident condition whereas, these reliefs would function as overpressure protection due to thermal expansion.

Accumulator nitrogen supply header relief valve XVR08857 is located in NNS piping inside containment upstream of the inboard containment isolation check valve. The valve is sized to protect the nitrogen supply header from overpressure due to failure of the pressure regulator in the full open position. The nitrogen supply line is not required for accident mitigation. This relief is located in a section of line which is normally isolated therefore, the possibility of thermal expansion exists, and as such this relief would provide overpressure protection.

RHR heat exchanger outlet relief valves XVR08864A & B and XVR08865 are located between the RHR heat exchanger outlet check valves and the RCS pressure isolation check valves. These reliefs would provide overpressure protection in the event of thermal expansion occurring in the isolated portion of the line. The pressure isolation valves and the outboard containment isolation valves are periodically tested for leak tight integrity.

IST PROGRAM VALVE SELECTION BASIS

System: SI

Valves: XVT08877A, XVT08877B, XVT08877C
XVT08879A, XVT08879B, XVT08879C

Class: 2

Category: Not categorized

Function and Design Safety Requirements:

These valves are located in branch connections upstream of the individual accumulator discharge checks valves. Their function is to provide a means of testing each check valve separately for verification of leak tight integrity. These valves perform no safety function. Their failure or the loss of their isolation capabilities would not render the safety injection accumulators inoperable.

IST PROGRAM VALVE SELECTION BASIS

System: SP

Valves: XVG03001A, XVG03001B

Class: 2

Category: B

Function and Design Safety Requirements:

These valves are located in the RWST supply to the Containment Spray Pumps. These normally open, motor operated valves receive a spray actuation signal to open if inadvertently closed. The safety function in the open position is to provide a suction source for the Containment Spray Pumps. Additionally with these valves in the open position the system is maintained solid up to the outboard containment isolation valve. This minimizes response time during containment spray actuation. In the closed position these valves provide train separation. This isolation capability provides a means of preventing loss of RWST supply to a faulted train.

IST PROGRAM VALVE SELECTION BASIS

System: SP

Valves: XVG03002A and XVG3002B

Class: 3

Category: B

Function and Design Safety Requirements:

These normally closed, motor operated valves isolate the NaOH fluid from the rest of the spray system piping. The valves must be capable of opening upon receipt of a phase "A" containment isolation signal thereby, allowing sodium hydroxide injection into the containment via the Containment Spray System.

This solution serves to reduce the concentration of airborne radioactive iodine in the containment atmosphere which minimizes the potential for leakage of radioactive material from containment.

These valves must also be capable of closure for train separation during the unlikely event of a fault occurring in one of the trains.

IST PROGRAM VALVE SELECTION BASIS

System: SP

Valves: (1) XVG03003A, XVG03003B
XVG03004A, XVG03004B
(2) XVG03005A, XVG03005B

Class: 2

Category: (1) A
(2) B

Function and Design Safety Requirements:

Spray header isolation valves XVG03003A & B are normally closed, motor operated valves located outside containment between the spray pumps and the penetration. These valves must be capable of opening upon receipt of a containment spray signal. These valves are identified in Enclosure 7.4 and FSAR Tables 6.2-53a and 6.2-54 as containment isolation valves requiring a Type C leakage test. These valves must be capable of closure in the event they are relied upon for containment isolation.

Recirculation sump isolation valves XVG03004A & B are normally closed, motor operated valves located in protective chambers leading from the containment sumps. These valves must be capable of opening upon receipt of an SI signal in conjunction with a Lo-Lo level signal from the RWST. Their opening allows realignment of the spray system from the injection mode to the recirculation mode. These valves are identified in Enclosure 7.4 and FSAR Tables 6.2-53 and 6.2-54 as containment isolation valves requiring Type C leakage testing. These valves must be capable of closure in the event they are relied upon for containment isolation.

Recirculation sump shutoff valves XVG03005A & B are normally closed, motor operated valves located in the spray pump suction supply from the containment sump. These valves must be capable of opening upon receipt of a SI signal in conjunction with a Lo-Lo level signal from the RWST. Their opening is required for realignment of the spray system from the injection mode to the recirculation mode. These valves must be capable of closure for sump isolation. Containment spray may be terminated if airborne activity increases due to the radioactive contaminates in the sump water. This termination of recirculation flow would require closure of XVG03005A & B. These valves provide redundancy in the closed position to the isolation capabilities of XVG03004A & B and are considered to function as containment isolation valves outside of the containment boundary (re: DBD-SP 4.10.3). Type C testing is not required.

IST PROGRAM VALVE SELECITON BASIS

System: SP

Valves: (1) XVC03006A, XVC03006B
XVC03013A, XVC03013B
(2) XVC03009A, XVC03009B

Class: 2

Category: (1) C
(2) AC

Function and Design Safety Requirements:

RWST supply line check valves XVC03006A & B are normally closed valves which must be capable of opening to provide required suction supply to the spray pumps. These valves must be capable of automatic closure to prevent diversion of recirculation flow back to the RWST upon signal active failure of upstream MOV XVG03001A or B to close by switch actuation at the Main Control Board.

Spray header check valves XVC03009A & B are normally closed valves located inside containment. These valves must be capable of full opening upon spray pump actuation thus allowing required flow to the spray nozzles. These valves are identified as containment isolation valves in Enclosure 7.4 and FSAR Tables 6.2-53a and 6.2-54 and are required to receive Type C leakage testing. These valves must be capable of closure and leak tight integrity for containment isolation purposes.

NaOH feed line check valves are normally closed valves located in the sodium hydroxide feed lines to the spray pump suction. These valves must be capable of opening to allow sodium hydroxide to be gravity fed to the spray pump suction. This permits NaOH to be mixed with flow from the RWST to the spray pump suction and ultimately released in the containment via the spray nozzles. NaOH is used to reduce iodine concentration in containment thereby minimizing the potential for a release. These valves must also be capable of closing during the spray system recirculation mode to prevent reverse flow to a depleted NaOH storage tank. Their closing provides a redundant isolation capability in the event upstream MOVs, XVG03002A or B fail to close by Main Control Board switch actuation.

IST PROGRAM VALVE SELECTION BASIS

System: SP

Valves: XVV03014A and XVV03014B

Class: 3

Category: C

Function and Design Safety Requirements:

The sodium hydroxide storage tank vacuum relief valves must open to provide a relief path for any negative pressure which may buildup in the storage tank during the drain down process. This relief function ensures uninterrupted discharge of NaOH from the storage tank. A 3 psig nitrogen cover is maintained on the storage tank vapor space. This is primarily to prevent precipitation formation or tank corrosion which could occur with air present. The function of these valves in the closed position is considered non-active.

IST PROGRAM VALVE SELECTION BASIS

System: SP

Valves: (1) XVR03022A, XVR03022B
XVR03024A, XVR03024B
XVR03025, XVR03026
(2) XVR03015A, XVR03015B

Class: (1) 2
(2) 3

Category: Not categorized due to non-active function

Function and Design Safety Requirements:

The sodium hydroxide storage tank pressure relief valves XVR03015A & B were installed to satisfy ASME III design requirements for Class 3 pressure vessels. The design function is to relieve any nitrogen pressure buildup in excess of 3 psi. An orifice in the nitrogen supply line limits the flow of nitrogen to the relief capacity of one relief valve. This prevents an inadvertent over pressurization of the tank during nitrogen pressurization which is a manual operation. These valves are considered non-active and not required for accident mitigation. The nitrogen supply valves are maintained locked closed.

Spray pump suction line relief valves XVR03022A & B were installed to satisfy an overpressure concern which would occur during the unlikely event of a pump start failure with spray header isolation check valve leakage and the motor operated valve open. This would expose suction piping to containment pressure in addition to RWST static pressure totaling approximately 100 psi which is the design maximum pressure of the line. These relief valves provides protection for a multiple failure scenario. The suction pipeline specification of 151R is capable of withstanding substantially higher pressure than 100 psi without resulting in failure (re: GAI Spec Sp-545). These relief are considered non-active and not required for accident mitigation. (re: DBD-SP-4.18.1.3).

Recirculation sump isolation valve-disk relief valves XVR03025 and XVR03026 are in a thermal relief application on double disc gate valves. This is necessary to avoid overpressurization fof the volume of water trapped between the discs due to thermal variations. Overpressure to the seating area could create excessive drag on the seats. These valves are considered thermal reliefs performing a non-active function. Recirculation sump suction line relief valves XVR03024A & B are located between the normally closed sump isolation and shutoff valves. These reliefs are considered necessary to avoid overpressurization of the volume of water contained between the two normally closed motor operated valves due to normal operating temperature variations. These reliefs perform a non-active thermal relief function.

IST PROGRAM VALVE SELECTION BASIS

System: SS

Valves: XVX09380A, XVX09380B, XVX09380C
XVX09381A, XVX09381B. XVX09381C
XVX09386A, XVX09386B, XVX09386C

Class: 2

Category: Not Categorized

Function and Design Safety Requirements:

Steam generator sample line isolation valves XVX09380A, B & C and XVX09381 are located inside containment in the secondary side of the steam generators and are considered to be in a closed system. General Design Criteria 57 of Appendix A, 10CFR50 does not require inside containment isolation valves for those lines that penetrate primary reactor containment which are neither part of the reactor coolant pressure boundary or connected directly to the containment atmosphere. The normal function of providing samples is not required for accident mitigation and is considered a non-active function.

Accumulator sample line isolation valves XVX09386A, B &C are considered to be in a closed system. General Design Criteria 57 of Appendix A, 10CFR50 does not require inside containment isolation valves for those lines that penetrate primary reactor containment which are neither part of the reactor coolant pressure boundary or connected directly to the containment atmosphere. Design requirements are satisfied by XVX09387. The normal function of XVX09386A, B and C is considered a non-active function.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVG03103A, XVG03103B
XVG03106A, XVG03106B
XVG03110A, XVG03110B

Class: 2

Category: A

Function and Design Safety Requirements:

The normal function of XVG03103A & B during plant operation is to remain open to allow cooling water through the reactor building cooling units. The safety function of these valves is to perform in the open and closed positions. The valves receive an SI signal to open, or to confirm open, ensuring post accident containment cooling. Additionally, the valves must be capable of closure by remote manual switch to facilitate containment isolation if required.

The normal function of XVG03106A & B during plant operation is to remain in the closed position thereby preventing diversion of industrial cooling water to flow to the pond. These valves must be capable of opening upon receipt of a SI signal to allow service water booster pump flow to the RBCUs. These valves must be capable of closure by remote manual switch actuation for containment isolation purposes if required.

Valves XVG03110A & B remain open during plant operation to allow industrial cooling water to the coolers. These valves must be capable of closure upon receipt of an SI signal thereby preventing diversion of service water booster pump flow. Additionally, these valves must be capable of closing by remote manual switch actuation for containment isolation purposes.

All valves discussed in this basis are identified in Enclosure 7.4 and FSAR Tables 6.2.53a and 6.2-54 as containment isolation valves requiring Type C leakage testing. The valves satisfy General Design Criteria 54 and 57 of 10CFR50, Appendix J.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVR03146A, XVR03146B, XVR03146C, XVR03146D
XVR03145A, XVR03145B, XVR03144A, XVR03144B
XVR03144C, XVR13100, XVR13124

Class: 3

Category: Not categorized due to function

Function and Design Safety Requirements:

The above relief valves are installed within the isolation boundary of their associated cooler. Their presence satisfies ASME III overpressure protection requirements for Class 3 pressure vessels. The primary function is to provide a relief path for potential overpressure conditions created as a result of thermal expansion of any trapped fluids when a cooler is isolated. These valves are classified as non-active and are not required for accident mitigation or safe shutdown of the plant.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVC03119A and XVC03119B

Class: 3

Category: C

Function and Design Safety Requirements:

The primary function of these check valves is to isolate the Service Water trains from the Diesel Generator coolers during the unlikely event Fire Service is required to provide backup cooling water to the Diesel Generator coolers. These valves must be capable of closing to prevent reverse flow of Fire Service cooling water to the Service Water trains. These valves must be capable of opening to allow normal Service Water flow to the Diesel Generator coolers.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: (1) XVC03115A, XVC03115B, XVC03115C
(2) XVB03116A, XVB03116B, XVB03116C

Class: 3

Category: (1) C
(2) B

Function and Design Safety Requirements:

Check valve XVC03115A, B & C are located in the Service Water Pump discharge lines. These valves perform an active function in both the open and closed positions. They must be capable of opening to allow passage of Service Water flow. Additionally, they must be capable of closing to prevent diversion of Service Water flow through an idle pump during the unlikely event of downstream motor operated valve failing in the open position. Reverse flow through an idle pump would result in a loss of Service Water flow and possible damage to the idle pump due to reverse rotation.

The Service Water Pump discharge isolation valves XVB03116A, B & C perform an active function in the open and closed positions. These valves must be capable of opening upon pump actuation to allow passage of Service Water flow. Additionally, the valves must be capable of closing subsequent to a pump trip to prevent reverse flow of Service Water through an idle pump.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVG03108A, XVG03108B, XVG03108C, XVG03108D
XVG03109A, XVG03109B, XVG03109C, XVG03109D

Class: 3

Category: B

Function and Design Safety Requirements:

These valves are located in the inlet and outlet Service Water piping associated with the Reactor Building Cooling Units. Their normal function is to provide isolation during maintenance activities or for cooler leak isolation. Valves XVG03109A, B, C & D perform an active safety function in the open and closed positions. Upon receipt of a SI signal one valve in each train must remain in the open position, the other two corresponding valves must close. This conserves service water for other required safety related functions. Valves XVG03108A, B, C & D are normally open and are required to remain open to assure containment cooling. These valves are considered "passive" by FSAR Table 3.9-8 and the Service Water DBD. These valves do receive a SI signal to open. To be consistent with current test philosophy valves which receive an actuation signal in support of an Engineering Safety Feature shall be tested as active valves regardless of their normal and safety positions.

Even though these valves are located within the containment penetration boundary a Type C test is not required. The Service Water piping inside containment is considered a closed system. A closed system is defined as a fluid system which is not part of the RCS and which does not communicate with the reactor building atmosphere. This configuration satisfies General Design Criteria 57 of 10CFR50, App. A.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVG03111A, XVG03111B, XVG03112A, XVG03112B
XVG03107A, XVG03107B

Class: 3

Category: B

Function and Design Safety Requirements:

XVG03111A & B and XVG03112A & B are normally open motor operated valves located in the Industrial Cooling Water return from the RBCUs. The active safety function is performed in the closed position. These valves must be capable of closing upon receipt of a SI signal to isolate the non-safety industrial cooling water system from the Service Water System preventing diversion of Service Water to a possible faulted non-safety piping system.

XVG03107A & B are normally closed motor operated valves located in the Service Water return from the RBCUs. Their normal function is to isolate industrial cooling water from the service water return to the SW pond. This function is not considered an active function. The valves must be capable of opening upon receipt of a SI signal to establish a safety related flow path for supply and return cooling water to the RBCUs.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: (1) XVG03105A, XVG03105B
(2) XVC03120A, XVC03120B

Class: 3

Category: (1) B
(2) C

Function and Design Safety Requirements:

XVG03105A & B are normally closed, fail closed, air operated valves located in the Fire System supply lines to the Diesel Generator coolers. These valves must be capable of opening upon receipt of a high temperature signal of the diesel jacket water or lube oil cooling system in conjunction with an emergency start signal. This assures that backup cooling water is supplied to the Diesel Engine in the event that Service Water is not available or is lost after the diesel has started in the emergency mode. Check valves XVC03120A & B must be capable of opening to allow passage of flow from the Fire System to the Diesel coolers. Additionally, these checks must be capable of closure to prevent diversion of Service Water flow to the non-safety, non-seimsic Fire System. This would be possible during an inadvertent opening of XVG03105A(B) exposing a depressurized fire system.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVC03162A and XVC03162B

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are located in the cooling water return lines from the Diesel Generator starting air compressor aftercoolers. The valves provide class 3 to NNS boundary isolation capabilities and perform an active function in the closed position. They must be capable of closing to prevent a loss of service water in the event of a break occurring in the non-safety related components associated with the Diesel generator starting air compressor aftercoolers. Inlet Service Water cooling supply to the Diesel Generator air start aftercoolers is limited to 40 gpm by the installation of flow restricting orifices thereby limiting the amount of Service Water loss in the case of a faulted NNS component associated with the aftercoolers.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: (1) XVT03164, XVT03165
(2) XVC03168
(3) XVT03169

Class: (1) 3
(2) 3
(3) 2

Category: (1) B
(2) C
(3) B

Function and Design Safety Requirements:

These valves are located in the cooling water supply and return lines associated with the DRPI cooling unit coil. During plant operation all valves remain in the open position to allow passage of industrial cooling water which is the normal supply source with Service Water acting as a backup. This DRPI cooling unit coil is required to satisfy the DRPI indication system data cabinets operating environment of 95°F. In an accident condition the DRPI cooling unit coil is isolated to prevent diversion of service water to a possibly faulted non-seismic, non-safety related piping. These valves perform an active safety function in the closed position. Air operated valves, XVT03164, XVT03165, and XVT03169 are fail-closed valves which must be capable of closure upon receipt of a SI signal. Additionally, XVT03169 is within class 2 penetration piping inside containment. This piping is considered as a closed system in accordance with 10CFR50, Appendix A, General Design Criteria 54 and does not require Type C leakage testing.

Check valve XVC03168 is a class 3 to NNS boundary isolation and must be capable of closure to prevent diversion of Service Water to possibly faulted piping upon failure of XVT03169 closure.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVC03136A and XVC03136B

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are located in the Industrial Cooling Water supply lines to the Reactor Building Cooling Units (RBCU) and provide a Class 3 to NNS boundary isolation. They remain open during normal plant operation allowing passage of cooling water flow to not only the RBCUs, but also the DRPI cooling unit coils. The active safety function is performed in the closed position by preventing the diversion of Service Water to the non-seismic, non-code Industrial Cooling Water System during post accident operation. These valves also provide redundant backup isolation during the unlikely event of the downstream motor operated valve failing to close upon receipt of an SI signal.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVB03126A, XVB03126B, XVB03128A, XVB03128B

Class: 3

Category: B

Function and Design Safety Requirements:

HVAC Chiller inlet isolation valves are required for isolation of Service Water to a non-running chiller and to open when the chiller starts thereby providing cooling water during normal and post accident operating conditions. The valves are considered to perform an active function in both the open and closed positions. These valves must be capable of automatic closure when chillers are not in operation to prevent excessive cooling of the refrigerant in the chiller condenser. This excessive cooling lowers the refrigerant pressure below acceptable operating conditions resulting in a chiller trip. These valves must also be capable of opening upon their associated chiller start to ensure cooling water flow.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: XVB03130A and XVB03130B

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are located in the Service Water discharge lines to the Service Water pond. The intended function of these valves was to prevent siphoning of the pond in the event of a postulated crack occurring upstream of the check valves. This has been determined as a non-active function since the Service Water System and the Auxiliary and Intermediate Buildings are designed to handle all postulated cracks (re: REE -21554). The active function of these valves is in the open position only which is to allow unimpaired return flow of Service Water to the pond.

IST PROGRAM VALVE SELECTION BASIS

System: SW

Valves: (1) XVC03135A, XVC03135B,
(2) XVC03137A, XVC03137B

Class: (1) 3
(2) 2

Category: C

Function and Design Safety Requirements:

Service Water Booster Pump discharge check valves XVC03135A & B perform an active function in the open position. These valves must be capable of opening upon pump actuation to allow booster pump flow to the RBCU during post accident conditions. The valves are provided with an adjustable oil dashpot which controls the opening and closing speed of the disk for prevention of water hammer in the event that electrical power is interrupted to the pump and the motor operated discharge valve. In the closed position the valves prevent diversion of Industrial Cooling Water flow during inadvertant opening of the associated downstream motor operated valve. This function in the closed position is considered nonactive since Industrial Cooling Water is not required for accident mitigation or safe shutdown.

Check valves, XVC03137A & B are located inside containment in the SW Booster Pump discharge piping downstream of the Industrial Cooling Water branch connection. These valves provide a class 2 to class 3 boundary within the penetration piping. A type C leakage test is not required since this piping is considered a closed system in accordance with 10CFR50, Appendix A, General Design Criteria-57 (Re: FSAR 6.2.4.2.3). The active function is performed in the open position. These valves must be capable of opening to allow the required Service Water to the RBCUs during post accident conditions.

IST PROGRAM VALVE SELECTION BASIS

System: VU

Valves: XVC06461A, XVC06461B, XVC06461C

Class: 3

Category: C

Function and Design Safety Requirements:

These check valves are located in the discharge piping of the Chilled Water Pumps. The valves perform an active function in both the open and closed position. They must be capable of closure to prevent diversion of flow though an idle pump. This would result in a loss of flow to the coolers and reverse rotation of the pump causing possible damage. These valves must be capable of opening upon pump start to allow passage of flow to associated essential coolers.

IST PROGRAM VALVE SELECTION BASIS

System: VU

Valves: XVG06516, XVG06517, XVG06518, XVG06519
XVX06524A, XVX06524B, XVX06524C

Class: 3

Category: B

Function and Design Safety Requirements:

CCW pump motor cooling isolation valves, XVG06516, XVG06517, XVG06518 and XVG06519 are located in the outlet cooling water piping. These valves have a control circuitry which is interlocked with pump operation such that the valves automatically open on pump start and close on termination of pump operation. These valves are not provided with control switches however they are provided with remote position indication. When exercising these valves to their active position the pump switch shall be utilized. The valves must be capable of opening to permit cooling water flow to the CCW pump motor. They must also be capable of closure upon termination of pump operation to prevent build up of condensation within the motor which could result in motor or bearing damage.

Charging pump oil cooler isolation valves, XVX06524A, B & C are fail-open, solenoid operated valves located in the cooling water inlet lines leading to the charging pump gear and oil coolers. These valves have a control circuitry identical to the valves previously mentioned. The valves shall be exercised by the associated pump control switch. The active function of these valves is performed in both the open and closed positions. Valves must be capable of opening upon associated pump start to permit cooling water flow to the cooler thereby protecting the pump from overheating. They must also be capable of closing upon termination of pump run to prevent the buildup of condensation in the Charging Pump oil.

IST PROGRAM VALVE SELECTION BASIS

System: WL

Valves: XVD07170, XVD07126, XVD07136 and XVD07150

Class: 2

Category: A

Function and Design Safety Requirements:

These valves serve a containment isolation function in the non-code lines leading to and from the reactor coolant drain tank. They are air operated, fail-closed valves which normally remain in the open position. Their normal function, which is Reactor Coolant Drain Tank level and gas control, is considered a non-safety function. The active function is performed in the closed position. The valves must be capable of closure upon receipt of a containment isolation signal for containment integrity. Additionally, these valves are identified in Enclosure 7.4 and FSAR Table 6.2.53a as requiring an 10CFR50, Appendix J, Type C leakage test.

NOTE: MRF-22137, performed during Refuel 7, installed XVD07170 as containment isolation valve in lieu of LCV01003. The control valve LCV01003 is used solely for RCDT level control, and no longer receives a containment isolation signal.

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CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVB00001A-AH	REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION	REACTOR BUILDING PURGE SUPPLY	5
XVB00001B-AH	REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION	REACTOR BUILDING PURGE SUPPLY	5
XVB00002A-AH	REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION	REACTOR BUILDING PURGE EXHAUST	5
XVB00002B-AH	REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION	REACTOR BUILDING PURGE EXHAUST	5
XVG00503A-BD (1)(2)	PHASE "A" ISOLATION	STEAM GENERATOR "A" BLOWDOWN LINE	40
XVG00503B-BD (1)(2)	PHASE "A" ISOLATION	STEAM GENERATOR "B" BLOWDOWN LINE	40
XVG00503C-BD (1)(2)	PHASE "A" ISOLATION	STEAM GENERATOR "C" BLOWDOWN LINE	40
XVC01009A-EF (1)(2)	REMOTE MANUAL	EFW SUPPLY TO "A" SG	N/A
XVC01009B-EF (1)(2)	REMOTE MANUAL	EFW SUPPLY TO "B" SG	N/A
XVC01009C-EF (1)(2)	REMOTE MANUAL	EFW SUPPLY TO "C" SG	N/A
XVG01611A-FW (1)(2)	FEEDWATER ISOLATION	MAIN FEEDWATER SUPPLY TO SG-A	5
XVG01611B-FW (1)(2)	FEEDWATER ISOLATION	MAIN FEEDWATER SUPPLY TO SG-B	5

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVG01611C-FW (1)(2)	FEEDWATER ISOLATION	MAIN FEEDWATER SUPPLY TO SG-C	5
XVK01633A-FW (1)(2)	PHASE "B" ISOLATION	CHEMICAL FEED LINE TO FEEDWATER LOOP "A"	60
XVK01633B-FW (1)(2)	PHASE "B" ISOLATION	CHEMICAL FEED LINE TO FEEDWATER LOOP "B"	60
XVK01633C-FW (1)(2)	PHASE "B" ISOLATION	CHEMICAL FEED LINE TO FEEDWATER LOOP "C"	60
XVT01678A-FW (1)(2)	PHASE "A" ISOLATION	STEAM GENERATOR "A" REVERSE FLUSH	40
XVT01678B-FW (1)(2)	PHASE "A" ISOLATION	STEAM GENERATOR "B" REVERSE FLUSH	40
XVT01678C-FW (1)(2)	PHASE "A" ISOLATION	STEAM GENERATOR "C" REVERSE FLUSH	40
IPV02000-MS (1)(2)	REMOTE MANUAL	POWER OPERATED RELIEF ON STEAM LINE "A"	N/A
IPV02010-MS (1)(2)	REMOTE MANUAL	POWER OPERATED RELIEF ON STEAM LINE "B"	N/A
IPV02020-MS (1)(2)	REMOTE MANUAL	POWER OPERATED RELIEF ON STEAM LINE "C"	N/A
XVT02660-IA	PHASE "A" ISOLATION	REACTOR BUILDING INSTRUMENT AIR INLET LINE	40
XVC02661-IA	CHECK VALVE	INSTRUMENT AIR SUPPLY TO REACTOR BUILDING	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVT02662A-IA	PHASE "A" ISOLATION	REACTOR BUILDING INSTRUMENT AIR SUCTION LINE	40
XVT02662B-IA	PHASE "A" ISOLATION	REACTOR BUILDING INSTRUMENT AIR SUCTION LINE	40
XVT02679-IA	MANUAL	BREATHING AIR SUPPLY LINE	N/A
XVT02680-IA	MANUAL	BREATHING AIR SUPPLY LINE	N/A
XVM02801A-MS (1)(2)	MAIN STEAM ISOLATION	MAIN STEAM LINE "A" ISOLATION	5
XVM02801B-MS (1)(2)	MAIN STEAM ISOLATION	MAIN STEAM LINE "B" ISOLATION	5
XVM02801C-MS (1)(2)	MAIN STEAM ISOLATION	MAIN STEAM LINE "C" ISOLATION	5
XVG02802A-MS (1)(2)	REMOTE MANUAL	MAIN STEAM SUPPLY TO TDEFW PUMP	N/A
XVG02802B-MS (1)(2)	REMOTE MANUAL	MAIN STEAM SUPPLY TO TDEFW PUMP	N/A
XVS02806A-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "A" SAFETY	N/A
XVS02806B-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "A" SAFETY	N/A
XVS02806C-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "A" SAFETY	N/A
XVS02806D-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "A" SAFETY	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVS02806E-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "A" SAFETY	N/A
XVS02806F-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "B" SAFETY	N/A
XVS02806G-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "B" SAFETY	N/A
XVS02806H-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "B" SAFETY	N/A
XVS02806I-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "B" SAFETY	N/A
XVS02806J-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "B" SAFETY	N/A
XVS02806K-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "C" SAFETY	N/A
XVS02806L-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "C" SAFETY	N/A
XVS02806M-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "C" SAFETY	N/A
XVS02806N-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "C" SAFETY	N/A
XVS02806P-MS (1)(2)	SAFETY VALVE	MAIN STEAM LINE "C" SAFETY	N/A
XVT02843A-MS (1)(2)	REMOTE MANUAL	MAIN STEAM LINE "A" DRAIN LINE	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVT02843B-MS (1)(2)	REMOTE MANUAL	MAIN STEAM LINE "B" DRAIN LINE	N/A
XVT02843C-MS (1)(2)	REMOTE MANUAL	MAIN STEAM LINE "C" DRAIN LINE	N/A
XVT02869A-MS (1)(2)	MAIN STEAM ISOLATION	MSIV "A" BYPASS VALVE	10
XVT02869B-MS (1)(2)	MAIN STEAM ISOLATION	MSIV "B" BYPASS VALVE	10
XVT02869C-MS (1)(2)	MAIN STEAM ISOLATION	MSIV "C" BYPASS VALVE	10
XVT02877A-MS (1)(2)	REMOTE MANUAL	MAIN STEAM LINE MOISTURE SEPARATOR DRAIN ISOL	N/A
XVT02877B-MS (1)(2)	REMOTE MANUAL	MAIN STEAM LINE MOISTURE SEPARATOR DRAIN ISOL	N/A
XVT02912-SA	MANUAL	REACTOR BUILDING SERVICE AIR	N/A
XVC02913-SA	CHECK VALVE	SERVICE AIR SUPPLY TO REACTOR BUILDING	N/A
XVG03003A-SP	REMOTE MANUAL	SUPPLY TO REACTOR BUILDING SPRAY NOZZLES	N/A
XVG03003B-SP	REMOTE MANUAL	SUPPLY TO REACTOR BUILDING SPRAY NOZZLES	N/A
XVG03004A-SP	REMOTE MANUAL	SPRAY PUMP A SUCTION FROM RECIRCULATION SUMP	N/A
XVG03004B-SP	REMOTE MANUAL	SPRAY PUMP B SUCTION FROM RECIRCULATION SUMP	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVC03009A-SP	CHECK VALVE	SUPPLY TO REACTOR BUILDING SPRAY NOZZLES	N/A
XVC03009B-SP	CHECK VALVE	SUPPLY TO REACTOR BUILDING SPRAY NOZZLES	N/A
XVG03103A-SW(2)	REMOTE MANUAL	SERVICE WATER FROM RBCU "A"	N/A
XVG03103B-SW(2)	REMOTE MANUAL	SERVICE WATER FROM RBCU "B"	N/A
XVB03106A-SW(2)	REMOTE MANUAL	SERVICE WATER TO RBCU "A"	N/A
XVB03106B-SW(2)	REMOTE MANUAL	SERVICE WATER TO RBCU "B"	N/A
XVB03110A-SW(2)	REMOTE MANUAL	SERVICE WATER TO RBCU "A"	N/A
XVB03110B-SW(2)	REMOTE MANUAL	SERVICE WATER TO RBCU "B"	N/A
XVX06050A-HR	PHASE "A" ISOLATION	NORMAL REACTOR BUILDING PRESSURE LINE	40
XVX06050B-HR	REMOTE MANUAL	HYDROGEN ANALYZER RETURN LINE	N/A
XVX06051A-HR	REMOTE MANUAL	HYDROGEN ANALYZER SUPPLY LINE	N/A
XVX06051B-HR	REMOTE MANUAL	HYDROGEN ANALYZER SUPPLY LINE	N/A
XVX06051C-HR	REMOTE MANUAL	HYDROGEN ANALYZER SUPPLY LINE	N/A
XVX06052A-HR	REMOTE MANUAL	HYDROGEN ANALYZER RETURN LINE	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVX06052B-HR	REMOTE MANUAL	HYDROGEN ANALYZER RETURN LINE	N/A
XVX06053A-HR	REMOTE MANUAL	HYDROGEN ANALYZER SUPPLY LINE	N/A
XVX06053B-HR	REMOTE MANUAL	HYDROGEN ANALYZER SUPPLY LINE	N/A
XVX06054-HR	PHASE "A" ISOLATION	NORMAL REACTOR BUILDING PRESSURE LINE	40
XVG06056-HR	REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION	ALTERNATE REACTOR BUILDING PURGE SUPPLY LINE	5
XVG06057-HR	REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION	ALTERNATE REACTOR BUILDING PURGE SUPPLY LINE	5
XVG06066-HR	REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION	ALTERNATE REACTOR BUILDING PURGE EXHAUST LINE	5
XVG06067-HR	REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION	ALTERNATE REACTOR BUILDING PURGE EXHAUST LINE	5
XVD06242A-ND	PHASE "A" ISOLATION	REACTOR BUILDING SUMP DRAIN	40
XVD06242B-ND	PHASE "A" ISOLATION	REACTOR BUILDING SUMP DRAIN	40
XVT06587-NG	MANUAL	NITROGEN SUPPLY TO STEAM GENERATORS	N/A
XVC06588-NG	CHECK VALVE	NITROGEN SUPPLY TO STEAM GENERATORS	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVD06671-SF	MANUAL	REFUELING CAVITY DRAIN LINE	N/A
XVD06672-SF	MANUAL	REFUELING CAVITY DRAIN LINE	N/A
XVD06697-SF	MANUAL	REFUELING CAVITY FILL LINE	N/A
XVD06698-SF	MANUAL	REFUELING CAVITY FILL LINE	N/A
XVG06772-FS	MANUAL	FIRE SERVICE HOSE REEL SUPPLY	N/A
XVG06773-FS	MANUAL	FIRE SERVICE HOSE REEL SUPPLY	N/A
XVG06797-FS	PHASE "A" ISOLATION	FIRE SERVICE DELUGE TO CHARCOAL FILTERS	40
XVC06799-FS	CHECK VALVE	FIRE SERVICE DELUGE TO CHARCOAL FILTERS	N/A
XVD07126-WL	PHASE "A" ISOLATION	RCDT VENT HEADER	40
XVD07136-WL	PHASE "A" ISOLATION	RCDT DISCHARGE TO WASTE	40
XVD07150-WL	PHASE "A" ISOLATION	RCDT VENT HEADER	40
XVD07170-WL	PHASE "A" ISOLATION	RCDT DISCHARGE TO WASTE	40
XVG07501-AC	PHASE "A" ISOLATION	CRDM COOLANT WATER INLET LINE	40
XVG07502-AC	PHASE "A" ISOLATION	CRDM COOLANT WATER INLET LINE	40
XVG07503-AC	PHASE "A" ISOLATION	CRDM COOLANT WATER OUTLET LINE	40

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVG07504-AC	PHASE "A" ISOLATION	CRDM COOLANT WATER OUTLET LINE	40
XVC07541-AC	CHECK VALVE	CRDM COOLANT WATER INLET LINE	N/A
XVC07544-AC	CHECK VALVE	CRDM COOLANT WATER OUTLET LINE	N/A
XVD08028-RC	PHASE "A" ISOLATION	PRT MAKEUP WATER LINE	40
XVD08033-RC	PHASE "A" ISOLATION	PRT N_2 SUPPLY - RETURN LINE	40
XVC08046-RC	CHECK VALVE	PRT MAKEUP WATER LINE	N/A
XVD08047-RC	PHASE "A" ISOLATION	PRT N_2 SUPPLY - RETURN LINE	40
XVT08100-CS	PHASE "A" ISOLATION	RCP SEAL WATER RETURN	40
XVT08102A-CS (1)	REMOTE MANUAL	SEAL INJECTION TO RCP "A"	N/A
XVT08102B-CS (1)	REMOTE MANUAL	SEAL INJECTION TO RCP "B"	N/A
XVT08102C-CS (1)	REMOTE MANUAL	SEAL INJECTION TO RCP "C"	N/A
XVC08103-CS	CHECK VALVE	RCP SEAL WATER RETURN	N/A
XVG08107-CS	REMOTE MANUAL	CHARGING LINE TO REGENERATIVE HEAT EXCHANGER	N/A
XVT08112-CS	PHASE "A" ISOLATION	RCP SEAL WATER RETURN	40
XVR08117-CS	RELIEF VALVE	LETDOWN HEADER RELIEF VALVE	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVT08149A-CS	PHASE "A" ISOLATION	REACTOR COOLANT TO LETDOWN HEAT EXCHANGER	40
XVT08149B-CS	PHASE "A" ISOLATION	REACTOR COOLANT TO LETDOWN HEAT EXCHANGER	40
XVT08149C-CS	PHASE "A" ISOLATION	REACTOR COOLANT TO LETDOWN HEAT EXCHANGER	40
XVT08152-CS	PHASE "A" ISOLATION	REACTOR COOLANT TO LETDOWN HEAT EXCHANGER	40
XVC08368A-CS (1)	CHECK VALVE	SEAL INJECTION TO RCP A	N/A
XVC08368B-CS (1)	CHECK VALVE	SEAL INJECTION TO RCP B	N/A
XVC08368C-CS (1)	CHECK VALVE	SEAL INJECTION TO RCP C	N/A
XVC08381-CS	CHECK VALVE	CHARGING LINE TO REGENERATIVE HEAT EXCHANGER	N/A
XVG08701A-RH (1)	REMOTE MANUAL	RHR PUMP SUCTION FROM REACTOR COOLANT LOOP "A"	N/A
XVG08701B-RH (1)	REMOTE MANUAL	RHR PUMP SUCTION FROM REACTOR COOLANT LOOP "C"	N/A
XVD08767-DN	MANUAL	DEMINERALIZED WATER LINE	N/A
XVD08768-DN	MANUAL	DEMINERALIZED WATER LINE	N/A
XVG08801A-SI	REMOTE MANUAL	B TRAIN HI HEAD TO COLD LEG INJECTION	N/A
XVG08801B-SI	REMOTE MANUAL	B TRAIN HI HEAD TO COLD LEG INJECTION	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVG08811A-SI	REMOTE MANUAL	RHR PUMP "A" SUCTION FROM RECIRCULATION SUMP	N/A
XVG08811B-SI	REMOTE MANUAL	RHR PUMP "B" SUCTION FROM RECIRCULATION SUMP	N/A
XVT08860-SI	PHASE "A" ISOLATION	FILL LINE TO ACCUMULATORS	40
XVC08861-SI	CHECK VALVE	FILL LINE TO ACCUMULATORS	N/A
XVT08871-SI	PHASE "A" ISOLATION	ACCUMULATOR TEST LINE	40
XVT08880-SI	PHASE "A" ISOLATION	ACCUMULATOR NITROGEN SUPPLY	40
XVG08884-SI	REMOTE MANUAL	A TRAIN HI HEAD TO HOT LEG RECIRCULATION	N/A
XVG08885-SI	REMOTE MANUAL	A TRAIN HI HEAD TO COLD LEG INJECTION	N/A
XVG08886-SI	REMOTE MANUAL	B TRAIN HI HEAD TO HOT LEG RECIRCULATION	N/A
XVG08888A-SI	REMOTE MANUAL	A TRAIN LOW HEAD TO COLD LEG INJECTION	N/A
XVG08888B-SI	REMOTE MANUAL	B TRAIN LOW HEAD TO COLD LEG INJECTION	N/A
XVG08889-SI	REMOTE MANUAL	LOW HEAD TO HOT LEG RECIRCULATION	N/A
XVC08947-SI	CHECK VALVE	ACCUMULATOR NITROGEN SUPPLY	N/A
XVT08961-SI	PHASE "A" ISOLATION	ACCUMULATOR TEST LINE	40

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVC08974A-SI	CHECK VALVE	A TRAIN LOW HEAD TO COLD LEG INJECTION	N/A
XVC08974B-SI	CHECK VALVE	B TRAIN LOW HEAD TO COLD LEG INJECTION	N/A
XVC08988A-SI	CHECK VALVE	LOW HEAD TO HOT LEG INJECTION	N/A
XVC08988B-SI	CHECK VALVE	LOW HEAD TO HOT LEG INJECTION	N/A
XVC08990A-SI	CHECK VALVE	B TRAIN HI HEAD TO HOT LEG RECIRCULATION	N/A
XVC08990B-SI	CHECK VALVE	B TRAIN HI HEAD TO HOT LEG RECIRCULATION	N/A
XVC08990C-SI	CHECK VALVE	B TRAIN HI HEAD TO HOT LEG RECIRCULATION	N/A
XVC08992A-SI	CHECK VALVE	A TRAIN HI HEAD TO HOT LEG RECIRCULATION	N/A
XVC08992B-SI	CHECK VALVE	A TRAIN HI HEAD TO HOT LEG RECIRCULATION	N/A
XVC08992C-SI	CHECK VALVE	A TRAIN HI HEAD TO HOT LEG RECIRCULATION	N/A
XVC08995A-SI	CHECK VALVE	A TRAIN HI HEAD TO COLD LEG INJECTION	N/A
XVC08995B-SI	CHECK VALVE	A TRAIN HI HEAD TO COLD LEG INJECTION	N/A

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVC08995C-SI	CHECK VALVE	A TRAIN HI HEAD TO COLD LEG INJECTION	N/A
XVC08997A-SI	CHECK VALVE	B TRAIN HI HEAD TO COLD LEG INJECTION	N/A
XVC08997B-SI	CHECK VALVE	B TRAIN HI HEAD TO COLD LEG INJECTION	N/A
XVC08997C-SI	CHECK VALVE	B TRAIN HI HEAD TO COLD LEG INJECTION	N/A
XVA09311A-SS	PHASE "A" ISOLATION	SAMPLING LINE SUPPLY TO RADIATION MONITOR	40
XVA09311B-SS	PHASE "A" ISOLATION	SAMPLING LINE SUPPLY TO RADIATION MONITOR	40
XVA09312A-SS	PHASE "A" ISOLATION	SAMPLING LINE SUPPLY RETURN FROM RADIATION MONITOR	40
XVA09312B-SS	PHASE "A" ISOLATION	SAMPLING LINE SUPPLY RETURN FROM RADIATION MONITOR	40
XVX09339-SS	PHASE "A" ISOLATION	SAMPLE RETURN LINE TO PRT	40
XVX09341-SS	PHASE "A" ISOLATION	SAMPLE RETURN LINE TO PRT	40
XVX09356A-SS	PHASE "A" ISOLATION	SAMPLING LINE FROM PRESSURIZER	40
XVX09356B-SS	PHASE "A" ISOLATION	SAMPLING LINE FROM PRESSURIZER	40

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVX09357-SS	PHASE "A" ISOLATION	SAMPLING LINE FROM PRESSURIZER	40
XVX09364B-SS	PHASE "A" ISOLATION	SAMPLING LINES FROM REACTOR COOLANT LOOP "B"	40
XVX09364C-SS	PHASE "A" ISOLATION	SAMPLING LINES FROM REACTOR COOLANT LOOP "C"	40
XVX09365B-SS	PHASE "A" ISOLATION	SAMPLING LINES FROM REACTOR COOLANT LOOP "B"	40
XVX09365C-SS	PHASE "A" ISOLATION	SAMPLING LINES FROM REACTOR COOLANT LOOP "C"	40
XVX09387-SS(2)	PHASE "A" ISOLATION	SAMPLING LINES FROM ACCUMULATORS	40
XVX09398A-SS (1)(2)	PHASE "A" ISOLATION	SAMPLING LINE FROM STEAM GENERATOR A BLOWDOWN	40
XVX09398B-SS (1)(2)	PHASE "A" ISOLATION	SAMPLING LINE FROM STEAM GENERATOR B BLOWDOWN	40
XVX09398C-SS (1)(2)	PHASE "A" ISOLATION	SAMPLING LINE FROM STEAM GENERATOR C BLOWDOWN	40
XVG09568-CC	PHASE "B" ISOLATION	COMPONENT COOLING TO RCP BEARINGS	60
XVC09570-CC	CHECK VALVE	COMPONENT COOLING TO RCP BEARINGS	N/A
XVG09600-CC	PHASE "B" ISOLATION	COMPONENT COOLING TO REACTOR COOLANT PUMPS	60

CONTAINMENT ISOLATION VALVE SUMMARY

VALVE NUMBER	ISOLATION SIGNAL	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
XVC09602-CC	CHECK VALVE	COMPONENT COOLING TO REACTOR COOLANT PUMPS	N/A
XVG09605-CC	PHASE "B" ISOLATION	COMPONENT COOLING FROM RCP BEARINGS	60
XVG09606-CC	PHASE "B" ISOLATION	COMPONENT COOLING FROM RCP BEARINGS	60
XVC09689-CC	CHECK VALVE	COMPONENT COOLING FROM RCP BEARINGS	N/A

C_{01} NOTE: (1) Valve not subject to Type "C" leakage test.

(2) Should this valve be found to be incapable of meeting its containment isolation requirements, i.e. inoperable per Technical Specification 3/4.6.4, action statement 3.6.4.c may be satisfied by verifying that the connected closed system is intact inside the Reactor Building.

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES LIMITED TO 1 GPM LEAKAGE		
VALVE NO.	SIZE	DESCRIPTION
XVC-8993 A,B,C	6"	SI to Hot Legs
XVC-8992 A,B,C	2"	SI High Head to Hot Legs
XVC-8990 A,B,C	2"	SI High Head to Hot Legs
XVC-8988 A,B	6"	SI Low Head to Hot Legs
XVC-8997 A,B,C	2"	Primary SI High Head to Cold Legs
XVC-8995 A,B,C	2"	Alternate SI High Head to Cold Legs
XVC-8998 A,B,C	6"	SI to Cold Legs
XVC-8973 A,B,C	6"	RHR Low Head to Cold Legs
XVC-8948 A,B,C	12"	Accumulators to Cold Legs
XVC-8956 A,B,C	12"	Accumulators to Cold Legs
XVG-8701 A,B	12"	RHR Suction from Hot Legs
XVG-8702 A,B	12"	RHR Suction from Hot Legs
XVC-8974 A,B	10"	RHR Low Head to Cold Legs

APPENDIX J TYPE B AND C MAXIMUM LEAKAGE BASIS

CALCULATION FOR TOTAL B AND C LIMIT

A. Calculation for Total B and C Limit (.6 L_a) as stated by V. C. Summer Technical Specification 3.6.1.2.b.

Assumptions:

Containment Volume = 1.842×10^6 ft^3 = 5.216×10^4 m^3 = 5.216×10^{10} CC [From Tech Specs]

Peak Accident Pressure = 47.1 psig (P_a) = 61.8 psia

Test Pressure = 47.1 psig (+10 psig, - 0 psig)

Test Temperature = corrected to 68°F

Maximum Allowable Containment Air Mass
Leakage (L_a) = .2% of containment volume per day.

Maximum Allowable Type B and C Leakage = .6 L_a

Standard Numbers and Conversion Factors:

1 ft^3 = .02832 m^3 = 28317 cc

Air Density (at 14.7 psia and 68°F) = .0752 lbm/ft^3 = 1.205×10^{-6} kg/cc [From the CRANE 410 Reference manual]

°R (Absolute) = °F + 459.7

psia = psig + 14.7

Ideal Gas Law: $$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

Specific Volume @ Standard Temperature
Pressure = 22.4146 m^3/kg-mole

Mass of air = (Density) (Containment Volume)

Density = $\frac{\text{Mass}}{\text{Volume}}$

°Find air density at test conditions (68°F, 61.8 psia).

$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2} \qquad \text{Volume} = \frac{\text{Mass}}{\text{Density}}$$

by substitution

$$\frac{(P_1)(\text{Mass}_1)}{(\text{Density}_1)(T_1)} = \frac{(P_2)(\text{Mass}_2)}{(\text{Density}_2)(T_2)}$$

let condition 1 = STP [68°F, 14.7 psia]

let condition 2 = Test Condition [68°F, 61.8 psia]

Assume mass is constant (Volume reduces to raise pressure).

Assume temperature is constant.

$$\text{Density}_2 = \frac{(\text{Density}_1)(P_2)}{(P_1)} = \frac{(1.205 \times 10^{-6}\ \text{kg/cc})(61.8\ \text{psia})}{(14.7\ \text{psia})}$$

$\underline{\text{Density}_2 = 5.07 \times 10^{-6}\text{kg/cc}}$ [at 68°F, 61.8 psia]

°Find mass inside containment at 61.8 psia, 68°F.
mass = (density)(Volume) =

$\underline{\text{Mass} = 2.64 \times 10^5\ \text{kg}}$ [at 61.8 psia, 68°F]

°Find L_a. This is defined as allowable mass loss per day.

L_a = (Mass in containment at 61.8 psia, 68°F)(.002).

$\underline{L_a = 5.29 \times 10^2\ \text{Kg/day}}$

$\underline{.6\ L_a = 3.17 \times 10^2\ \text{Kg/day}}$

°Find .6 L_a in terms of standard cubic centimeters of air per minute.

$$\frac{(.6\ L_a)}{\text{DAY}}\ \frac{(1\ \text{DAY})}{(24\ \text{HRS})}\ \frac{(1\ \text{HR})}{(60\ \text{MIN})}\ \frac{(1)}{(\text{Density}_1)}$$

by substitution

$$\frac{(\text{Cont. Volume})}{(\text{DAY})(P_1)}\ \frac{(\text{Density})\ P_2\ (.002)\ (.6)}{(\text{Density}_1)}\ \frac{(\text{DAY})\ (\text{HR})}{(24\ \text{HRS})(60\ \text{MIN})} = \frac{(5.216 \times 10^{10}\text{cc})\ (61.8\ \text{psia})\ (.002)\ (.6)}{(14.7\ \text{psia})(24)(60\ \text{min})}$$

$$\boxed{6L_a = 182{,}700\ \text{scc/min}}$$

APPENDIX J CONTAINMENT ISOLATION VALVE LEAKAGE RATES

LEAKAGE AS READ FROM PRESSURE CORRECTED LLRM AT 0 psig (SCC/MIN).

VALVE SIZE	NO. OF PENET.	NO. OF VALVES	SUGGESTED LIMIT (1)	ALERT LIMIT (2)	EVALUATION LIMIT (3) (4)
3/8"	9	20	1890	2415	2940
3/4"	6	8	1890	2415	2940
1"	7	14	2100	2625	3150
2"	5	12	2100	2625	3150
3"	8	17	2100	2625	3150
4"	2	4	2100	2625	3150
6"	5	10	2835	3570	4410
8"	2	4	3045	3885	4725
10"	5	7	3360	4305	5040
12"	4	4	3780	4830	5670
14"	2	2	3780	4830	5670
16"	4	4	3990	5145	5880
36"	2	4	8400	10500	12600

NOTES:

(1) This is the leakage limit for each valve in order to maintain containment leakage at approximately .48 La. Penetration leakage can exceed this limit provided other penetration leakage will not cause the .6LA limit to be exceeded. A MWR should be written to repair the valve at the next refueling outage.

(2) This is the limit for each valve in order to maintain containment leakage at approximately .56LA. Penetration leakage can exceed this limit provided other penetration leakage will not cause the containment .6LA limit to be exceeded. A MWR will be written to Repair/Replace the valve(s) the next shutdown opportunity.

(3) Valves with leakage rates exceeding its limit will be evaluated by Engineering Services prior to declaring the valve operable.

(4) Any valve except 36" RB purge valves exceeding 36456 scc/min leakage will be repaired, reworked or replaced. Reactor Building 36" ventilation purge supply and exhaust valves will be repaired, reworked or replaced if leakage exceeds 15204 scc/min.

NOTE: If the .6 LA limit is exceeded, consult technical specifications for LCO.

TEST PATHS AND RECORDING INSTRUCTIONS
FOR APPENDIX J TYPE C TESTS

1. **SERIES SEPARATE(S)**

Two(2) valves connected to a RB penetration in series, tested separately and generally leading to a single leakage path. Record the smallest leakage value in the minimum column and the largest leakage value in the maximum column.

2. **SERIES SEPARATE(S) AND SIMULTANEOUSLY PARALLEL(SP)**

A single valve connected to a RB penetration in series with two (2) or more parallel valves. The single valve is tested separately from the parallel valves. The parallel valves are tested simultaneously. Each of the test paths generally leads to a single leakage path. Record the smallest of the following values in the minimum column and the largest value in the maximum column.

A. The single valve test leakage value
B. The parallel valves test leakage value

3. **SERIES SEPARATE(S), SIMULTANEOUSLY PARALLEL(SP) AND PARALLEL SEPARATE(PS)**

A single valve connected to a RB penetration in series with three(3) or more parallel valves. The single valve is tested separately from the parallel valves. At least one of the parallel valve is tested separately from the other parallel valves. Two or more of the parallel valves are tested simultaneously. Each of the test paths could lead to multiple leakage paths. Record the smallest of the following values in the minimum column and the largest value in the maximum column.

A. The single valve test leakage value
B. The separate parallel valve(s) test value and the single value obtained from the remaining parallel valves that are tested simultaneously.

4. **SINGLE VALVE(SV)**

A single valve connected to a RB penetration and providing a single leakage path or a penetration with outside and inside containment isolation valves. Record the leakage value in the minimum and the maximum columns.

5. PARALLEL SEPARATE(PS)

Two(2) valves generally connected on the outside of a RB penetration in parallel. Each of the valves are tested separately and could lead to multiple leakage paths. Record each test value in the minimum and maximum columns.

6. SERIES SEPARATE(S) AND PARALLEL SEPARATE(PS)

A single valve connected to a RB penetration in series with two(2) or more parallel valves. All valves are tested separately. Each of the test paths generally lead to a single leakage path. Record the smallest of the following values in the minimum column and the largest value in the maximum column.

A. The single valve test leakage value.
B. The separate parallel valve(s) test values.

7. SIMULTANEOUS SERIES(SS)

Two(2) valves connected to a RB penetration in series, tested simultaneously in parallel and generally leading to a single leakage path. Record 1/2 the leakage value in the minimum column alongside one valve and the full value alongside the other valve in the maximum column.

CATEGORY A VALVE LEAKAGE RATE TRENDING SHEET

VALVE NUMBER ____________ SIZE ________ SYSTEM ________ DRAWING ________ VIFT No. ________ ☐ IRC ☐ ORC
MANUFACTURER ______________ TYPE: ☐ GLOBE ☐ GATE ☐ CHECK ☐ OTHER
☐ SECTION XI ☐ APPENDIX J ☐ BOTH

NOTE: LEAK RATES MEASURED IN CC/MIN.

A. MAX. LEAK RATE
B. (1.1) (MAX. LEAK RATE)
C. BASELINE LEAK RATE
D. PREVIOUS LEAK RATE
E. PRESENT LEAK RATE
F. MONTHS FROM BASELINE TO PRESENT TEST
G. MONTHS FROM BASELINE TO NEXT TEST
H. PMT-POST REPLACEMENT/MAINT/MOD. TEST
I. RT-Routine Test
J. $= \frac{E-C}{F}$ K. $= \frac{B}{G}$ L. = E-D. M. = 1/2 (A-D).

NOTE: REFERENCE PAGE 2 FOR CALCULATION SHEET
NOTE: BASELINE RE-ESTABLISHED EACH PMT (ACCEPTABLE: E < A, J ≤ K, L < M)
CORRECTIVE ACTION: E ≥ A - REPAIR VALVE
J ≥ K - REPAIR VALVE
L ≥ M - REPAIR VALVE, REPLACE VALVE OR DOUBLE TEST FREQUENCY BUT NOT MORE THAN COLD SHUTDOWN FREQUENCY REQUIREMENTS

A. ____________ B. ____________

TEST DATE	STTS NO	C	D	E	F	G	TYPE		J	K	L	M	E<A		J<K		L<M		MWR		
							H (PMT)	I (RT)					YES	NO	YES	NO	YES	NO	YES	NO	NUMBER

REMARKS: ____

CATEGORY A VALVE LEAKAGE TRENDING CALCULATION SHEET

VALVE ____________________ TEST DATE __________________ STTS________________

a. $J = \frac{E-C}{F} =$, $K = \frac{B}{G} =$ ____________

$J =$ $K =$

J<K ☐ ACCEPTABLE

J>K ☐ UNACCEPTABLE - REPAIR OR REPLACE VALVE PRIOR TO RETURN TO SERVICE

b. $L =$ $E-D =$ - , $M = \frac{A-D}{2} = \frac{\quad - \quad}{2}$

$L =$ $M =$

L<M ☐ ACCEPTABLE

L≥M ☐ UNACCEPTABLE (See Corrective Action, Below)

CORRECTIVE ACTION: REPAIR VALVE, REPLACE VALVE OR DOUBLE TEST FREQUENCY BUT NOT MORE OFTEN THAN COLD SHUTDOWN FREQUENCY REQUIREMENTS.

REMARKS ____

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

TYPE B AND C CONTAINMENT PENETRATION LEAKAGE ASSESSMENT RECORD

CYCLE _______ RFO TO _______ RFO

ILRT OUTAGE YES/NO

CYCLE ASSESSMENT REV. NO.	PAGE/ REV. NO.	PAGE(S) NO.(S)	PREPARED BY	REVIEWED BY	APPROVED BY
			SIGNATURE&DATE	SIGNATURE&DATE	SIGNATURE&DATE
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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

TESTING DATES

FROM: ______ TO: ______
DATE DATE

RFO ______ TO RFO ______ (CYCLE)
CYCLE ASSESSMENT REVISION NUMBER ______
PAGE REVISION NUMBER ______

STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003A Reactor Coolant System Valve Leakage Test		0420	XVD-8033 (S)*						
			XVD-8047 (S)						
		0422	XVD-8028 (S)						
			XVC-8046 (S)						
			TOTAL LEAKAGE (THIS PAGE)						

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SIGNATURE/DATE

(1) APPLICABLE FOR PENETRATIONS ISOLATED WITH ONE OR MORE VALVES.
* DENOTES TEST PATH (ENCLOSURE 7.6)

TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

TESTING DATES

FROM: ______ TO: ______
DATE DATE

RFO________ TO RFO________ (CYCLE)
CYCLE ASSESSMENT REVISION NUMBER __________
PAGE REVISION NUMBER __________

STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN) AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003A Chemical and Volume Coolant System Valve Leakage Test		0318	XVR-8117(S)(PS)						
			PVT-8152(S)						
			PVT-8149A(S)(SP)(PS)						
			PVT-8149B(SP)						
			PVT-8149C(SP)						
		0409	MVG-8107(S)						
			XVC-8381(S)						
		0410	MVT-8100(S)						
			XVC-8103(SP)						
			MVT-8112(S)(SP)						
			TOTAL LEAKAGE (THIS PAGE)						

(1) APPLICABLE FOR PENETRATIONS ISOLATED WITH ONE OR MORE VALVES.

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

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CYCLE ASSESSMENT REVISION NUMBER ________
PAGE REVISION NUMBER ________

STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003A Safety Injection System Valve Leakage Test.		0317	PVT-8860 (S)						
			XVC-8861(S)						
		0320	PVT-8880(S)						
			XVC-8947(S)						
		0321	PVT-8871(S)						
			PVT-8961(S)						
		0329	MVG-8811A(SV)						
		0425	MVG-8811B(SV)						
TOTAL LEAKAGE (THIS PAGE)									

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

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PAGE REVISION NUMBER ______

STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003A Waste Processing System Valve Leakage Test.		0418	XVD-7126(S)						
			XVD-7150(S)						
		0423	XVD-7170(S)						
			XVD-7136(S)						
TOTAL LEAKAGE (THIS PAGE)									

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

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STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.004 Service Water System Valve Leakage Test.		0304	MVB-3106A(PS)						
			MVB-3110A(PS)						
		0305	MVG-3103A(SV)						
		0403	MVB-3106B(PS)						
			MVB-3110B(PS)						
		0102	MVB-3103B(SV)						
TOTAL LEAKAGE (THIS PAGE)									

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT									
TESTING DATES FROM: ______ TO: ______ DATE DATE				RFO ________ TO RFO ________ (CYCLE) CYCLE ASSESSMENT REVISION NUMBER ________ PAGE REVISION NUMBER ________					
STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.002A Service Air System Valve Leakage Test.		0310	XVT-2912(S)						
			XVT-2913(S)						
TOTAL LEAKAGE (THIS PAGE)									

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.002 Instrument Air System Valve Leakage Test.		0311	PVT-2660(S)						
			XVC-2661(S)						
		0319	PVT-2662A(S)						
			PVT-2662B(S)						
		0324	XVT-2679(S)						
			XVT-2680(S)						
			TOTAL LEAKAGE (THIS PAGE)						

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.002A Nuclear Plant Gas System Valve Leakage Test.		0313	XVT-6587(S)						
			XVC-6588(S)						
TOTAL LEAKAGE (THIS PAGE)									

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.004 Component Cooling System Valve Leakage Test		0204	MVG-9600(S)						
			XVC-9602(S)						
		0312	MVG-9568(S)						
			XVC-9570(S)						
		0330	XVC-9689(SP)						
			MVG-9605(S)(SP)						
			MVG-9606(S)						
TOTAL LEAKAGE (THIS PAGE)									

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STP-215.003A Reactor Building Spray System Valve Leakage Test.		0303	MVG-3003B(S)						
			XVC-3009B(S)						
		0327	MVG-3004A(SV)						
		0328	MVG-3004B(SV)						
		0401	MVG-3003A(S)						
			XVC-3009A(S)						
			TOTAL LEAKAGE (THIS PAGE)						

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.005 Sampling System Valve Leakage Test.		0223	SVX-9364C(S)						
			SVX-9365C(S)						
		0314	SVX-9364B(S)						
			SVX-9365B(S)						
		0323	SVX-9387(SV)						
		0405	SVX-9356A(PS)						
			SVX-9356B(S)(PS)						
			SVX-9357(S)						
		0407A	PVA-9311A(S)						
			PVA-9311B(S)						
		0407B	PVA-9312A(S)						
			PVA-9312B(S)						
		0417	SVX-9341(S)						
			SVX-9339(S)						
TOTAL LEAKAGE (THIS PAGE)									

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003A Nuclear Drains System Valve Leakage Test		0424	PVD-6242A(S)						
			PVD-6242B(S)						
TOTAL LEAKAGE (THIS PAGE)									

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.005 Hydrogen Removal System Valve Leakage Test.		0103	PVB-6056(S)						
			PVB-6057(S)						
		0105A	SVX-6051B(S)						
			SVX-6053B(S)						
		0105B	SVX-6050B(S)						
			SVX-6052B(S)						
		0301A	SVX-6051A(S)(PS)						
			SVX-6051C(S)(PS)						
			SVX-6053A(S)						
		0301B	SVX-6050A(S)(PS)						
			SVX-6052A(S)(PS)						
			SVX-6054(S)						
		0302	PVB-6066(S)						
			PVB-6067(S)						
			TOTAL LEAKAGE (THIS PAGE)						

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.002A Air Handling System Valve Leakage Test		0101	XVB-0002A(SS)						
			XVB-0002B(SS)						
		0402	XVB-0001A(SS)						
			XVB-0001B(SS)						
TOTAL LEAKAGE (THIS PAGE)									

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.004 Fire Service System Valve Leakage Test		0404	XVG-6772(S)						
			XVG-6773(S)						
		0427	MVG-6797(S)						
			XVC-6799(S)						
			TOTAL LEAKAGE (THIS PAGE)						

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STP-215.004 Demineralized Water System Valve Leakage Test.		0231	XVD-8767(S)						
			XVD-8768(S)						
TOTAL LEAKAGE (THIS PAGE)									

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003A Spent Fuel System Valve Leakage Test.		0419	XVD-6671(SS)						
			XVD-6672(SS)						
		0421	XVD-6698(SS)						
			XVD-6697(SS)						
			TOTAL LEAKAGE (THIS PAGE)						

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PAGE REVISION NUMBER _____

STP NUMBER	STTS NO.	PENETRATION NUMBERS	NOZZLE(S), NO.(S)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.006 Penetration Leakage Type B Test.		0001	0504						
		0003	0601						
		0006	0710						
		0007	0501						
		0010	0726						
		0011	0727						
		0014	0808						
		0015	0805						
		0016	0503						
		0017	0704						
		0018	0722						
		0019	0717						
		0020	0809						
		0021	0810						
		0022	0815						
TOTAL LEAKAGE (THIS PAGE)									

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

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STP NUMBER	STTS NO.	PENETRATION NUMBERS	NOZZLE(S), NO.(S)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.006 Penetration Leakage Type B Test.		0023	0700						
		0024	0701						
		0025	0707						
		0026	0708						
		0028	0705						
		0030	0723						
		0031	0712						
		0032	0714						
		0033	0725						
		0034	0812						
		0035	0800						
		0036	0715						
		0037	0711						
		0039	0716						
		0040	0718						
TOTAL LEAKAGE (THIS PAGE)									

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.006 Penetration Leakage Type B Test.		0042	0607						
		0043	0605						
		0044	0606						
		0045	0721						
		0046	0814						
		0048	0604						
		0051	0702						
		0052	0502						
		0053	0802						
		0054	0706						
		0055	0723						
		0056	0803						
		0057	0804						
		0107	FH						
		0201	LR						
TOTAL LEAKAGE (THIS PAGE)									

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				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.006 Penetration Leakage Type B Test.		0210	LR						
		0211	LR						
		0212	LR						
		0216	LR						
		0329	SI						
		0425	SI						
		0327	SP						
		0328	SP						
		602	18						
		104	720						
		106	806						
		505	18						
		600	12						
TOTAL LEAKAGE (THIS PAGE)									

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				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.004 Control Rod Drive Mechanism Cooling System Valve Leakage Test		0208	MVG-7501(S)						
			MVG-7502(S)(SP)						
			XVC-7541(SP)						
		0209	MVG-7504(S)						
			MVG-7503(S)(SP)						
			XVC-7544(SP)						
TOTAL LEAKAGE (THIS PAGE)									

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TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT									
TESTING DATES FROM: ______ TO: ______ DATE DATE				RFO________ TO RFO________(CYCLE) CYCLE ASSESSMENT REVISION NUMBER ______ PAGE REVISION NUMBER ______					
STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003B Safety Injection and Chemical and Volume Control System Valve Leakage Test.		0227	MVG-8888B(SV)						
		0325	MVG-8889(SV)						
		0322	MVG-8888A(SV)						
TOTAL LEAKAGE (THIS PAGE)									

(1) APPLICABLE FOR PENETRATIONS ISOLATED WITH ONE OR MORE VALVES.

PREPARED BY: ________________
SIGNATURE/DATE

REVIEWED BY: ________________
SIGNATURE/DATE

TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

TESTING DATES

FROM: ______ TO: ______
DATE DATE

RFO ________ TO RFO ________ (CYCLE)
CYCLE ASSESSMENT REVISION NUMBER ______
PAGE REVISION NUMBER ______

STP NUMBER	STTS NO.	PENETRATION NUMBERS (1)	VALVE(S) NO.(S) & ALIGNMENT	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.001A&B RB Airlocks Leakage Test (47.1 PSI Test)		Pers. Acc. Airlock	N/A						
		Oper. Test Escape Air-lock opera-bility Test.	N/A						
TOTAL LEAKAGE (THIS PAGE)									

(1) RECORD LEAKAGE VALUE IN MINIMUM AND MAXIMUM COLUMN.

PREPARED BY: ________________
SIGNATURE/DATE

REVIEWED BY: ________________
SIGNATURE/DATE

TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

TESTING DATES

FROM: ______ TO: ______
DATE DATE

RFO ________ TO RFO ________ (CYCLE)
CYCLE ASSESSMENT REVISION NUMBER ______
PAGE REVISION NUMBER ______

STP NUMBER	STTS NO.	PENETRATION NUMBERS (1)	VALVE(S) NO.(S) & ALIGNMENT	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.001C Equipment Hatch Leak Rate Test.		Equip. Hatch	N/A						
TOTAL LEAKAGE (THIS PAGE)									

(1) RECORD LEAKAGE VALUE IN MINIMUM AND MAXIMUM COLUMN.

PREPARED BY: ________________
SIGNATURE/DATE

REVIEWED BY: ________________
SIGNATURE/DATE

TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

TESTING DATES

FROM: ______ TO: ______
DATE DATE

RFO ________ TO RFO ________ (CYCLE)
CYCLE ASSESSMENT REVISION NUMBER ______
PAGE REVISION NUMBER ______

STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003C Hi Head Safety Injection System Valve Leakage Test.		0426	MVG-8801A(SP)						
			MVG-8801B(SP)						
		0412	MVG-8886(S)						
		0415	MVG-8884(S)						
		0222	MVG-8885(S)						
TOTAL LEAKAGE (THIS PAGE)									

(1) APPLICABLE FOR PENETRATIONS ISOLATED WITH ONE OR MORE VALVES.

PREPARED BY: ____________________
SIGNATURE/DATE

REVIEWED BY: ____________________
SIGNATURE/DATE

TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

TESTING DATES

FROM: ______ TO: ______
DATE DATE

RFO ________ TO RFO ________ (CYCLE)
CYCLE ASSESSMENT REVISION NUMBER _____
PAGE REVISION NUMBER _____

STP NUMBER (2)	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT (IF APPLICABLE)(1)	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003C RHR Loop Suction Valve Leakage Test.		0226	MVG-8701B(S)						
		0316	MVG-8701A(S)						
TOTAL LEAKAGE (THIS PAGE)									

PREPARED BY: ________________
SIGNATURE/DATE

REVIEWED BY: ________________
SIGNATURE/DATE

(1) APPLICABLE FOR PENETRATIONS ISOLATED WITH ONE OR MORE VALVES.

(2) TO BE PERFORMED UPON 30 DAY WATER SEAL TEST FAILURE.

TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT

TESTING DATES

FROM: ______ TO: ______
DATE DATE

RFO ________ TO RFO ________ (CYCLE)
CYCLE ASSESSMENT REVISION NUMBER ______
PAGE REVISION NUMBER ______

STP NUMBER	STTS NO.	PENETRATION NUMBERS	VALVE(S) NO.(S) & ALIGNMENT	MEASURED LEAKAGE (SCC/MIN)					
				AS FOUND			AS LEFT		
				MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	DATE
STP-215.003C RCP Seal Supply Valve Leakage Test		0408	MVG-8102A(S)						
		0229	MVG-8102B(S)						
		0221	MVG-8102C(S)						
TOTAL LEAKAGE (THIS PAGE)									

(1) APPLICABLE FOR PENETRATIONS ISOLATED WITH ONE OR MORE VALVES.

PREPARED BY: ________________
SIGNATURE/DATE

REVIEWED BY: ________________
SIGNATURE/DATE

TOTAL TYPE B AND C CONTAINMENT PENETRATION LEAKAGE TEST ASSESSMENT "TOTAL"

TESTING DATES

FROM: ______ TO: ______
DATE DATE

RFO________ TO RFO________(CYCLE)
CYCLE ASSESSMENT REVISION NUMBER ______
PAGE REVISION NUMBER ______

	TOTAL AFFECTED BY		TOTAL MEASURED LEAKAGE (SCC/MIN)					
			AS FOUND			AS LEFT		
	PAGE NO.	STTS NO.	MINIMUM	MAXIMUM	DATE	MINIMUM	MAXIMUM	INITIAL/DATE
Total Type B and C Leakage $< .6\ L_a = 182{,}700$ scc/min Is the Total Leakage less than $.6\ L_a$ (Acceptance Criteria Satisfied)? YES/NO ______								
TOTAL LEAKAGE (THIS PAGE)								

SHEET ____ OF ____

EVALUATION/CORRECTIVE ACTION FOR POWER OPERATED VALVES EXCEEDING STROKE TIME ACCEPTANCE CRITERIA

I. Valve ID No. ______________________________

II. Initial Test Data:

Open: ________________ Seconds   Closed: ________________ Seconds

III. First Retest Data:

Open: ________________ Seconds   Closed: ________________ Seconds

IV. First retest within acceptance criteria?

YES [ ]; If "YES", complete Step V.

NO [ ]; If "NO", declare the valve inoperable and complete Step VI.

V. Evaluation of Initial Test Data Exceeding Acceptance Criteria (check one or more of the following as applicable):

A.	STEM	Lubrication	[ ]	Alignment	[ ]	Bent	[ ]
B.	PACKING	Dry	[ ]	Missing	[ ]	Tight	[ ]
C.	ACTUATOR	Alignment	[ ]	Adjustment	[ ]	Power source	[ ]

D. Other: ____
____
____

VI. Evaluation Of First Retest Data Exceeding Acceptance Criteria (check one or more of the following as applicable):

A.	STEM	Lubrication	[ ]	Alignment	[ ]	Bent	[ ]
B.	PACKING	Dry	[ ]	Missing	[ ]	Tight	[ ]
C.	ACTUATOR	Alignment	[ ]	Adjustment	[ ]	Power source	[ ]

D. Other: ____
____
____

E. Action taken (MWR, NCN, LCO, etc) ______________________________