FLORIDA POWER and LIGHT COMPANY
TURKEY POINT NUCLEAR POWER PLANT
UNIT NOS. 3&4
P.O. BOX 3088
FLORIDA CITY, FLORIDA 33034

THIRD TEN-YEAR INSERVICE INSPECTION INTERVAL INSERVICE TESTING PROGRAM

FOR

PUMPS AND VALVES

NRC DOCKET NUMBERS: 50-250 / 50-251

COMMERCIAL SERVICE DATE: PTN-3 DECEMBER 14, 1972
COMMERCIAL SERVICE DATE: PTN-4 SEPTEMBER 14, 1973

TURKEY POINT PLANT REVIEWS AND APPROVALS:

PREPARED BY: Paul Fallon DATE: 10-17-95
PTN PLANT IST COORDINATOR

APPROVED BY: [signature] DATE: 10-17-95
PTN SYSTEM PERFORMANCE SUPERVISOR

APPROVED BY: Karl Banazek for D.R. Powell DATE: 10/17/95
PTN TECHNICAL DEPT. MANAGER

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RECORD OF REVISIONS

REVISION NUMBER	DESCRIPTION OF REVISION REASON FOR THE CHANGE	DATE REVISED
0	Turkey Point Plant, Unit 3&4 Third Ten Year Pump and Valve Testing Program	10-28-93
1	Provide response to questions obtained from the NRC in regards to implementation of the Third Ten Year IST Program/Periodic update	10-16-95

Revision 1
10/16/95

INSERVICE TESTING (IST) PROGRAM PLAN
TURKEY POINT UNITS 3&4

1.0 INTRODUCTION

This document outlines the Turkey Point Plant, Units 3 and 4, Inservice Test (IST) Program for the third 10-year interval based on the requirements of Section XI of the ASME Boiler and Pressure Vessel Code, 1989 Edition. Subsections IWP and IWV thereof refer to implementing ASME/ANSI OM-6 and OM-10, respectively. In accordance with Title 10, Part 50 of the Code of Federal Regulations, paragraph 50.55a, the Turkey Point IST Program is based on the applicable requirements set forth in ASME/ANSI OM-1987, Operation and Maintenance of Nuclear Power Plants, including ASME/ANSI OMa-1988 Addenda.

The third 10-year IST Program will be in effect through the end of the third 120-month (10-year) interval unless changed and reissued for reasons other than the routine update required at the start of the fourth interval per 10 CFR 50.55a(g). The third inspection intervals are defined as follows:

	Begins	Ends
Unit 3	February 22, 1994	February 21, 2004
Unit 4	April 15, 1994	April 14, 2004

2.0 APPLICABLE DOCUMENTS

This Program Plan was developed per the requirements and guidance provided by the following documents:

2.1 Title 10, Code of Federal Regulations, Part 50.55a.
2.2 NRC Regulatory Guides - Division 1
2.3 Standard Review Plan 3.9.6, Inservice Testing of Pumps and Valves.
2.4 Final Safety Analysis Report, Turkey Point Units 3 & 4
2.5 Turkey Point Plant Units 3&4 Technical Specifications
2.6 ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition
2.7 NRC Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing Programs.
2.8 ASME/ANSI OM-1987, Operation and Maintenance of Nuclear Power Plants including ASME/ANSI OMa-1988 Addenda.

3.0 PROGRAM DEVELOPMENT

ASME B&PV Code, Section XI (hereby referred to as the 'Code') requires that the owner of each nuclear power plant prepare and submit a plan for testing and inspection of systems and components under the jurisdiction of the Code and in compliance with Title 10, Part 50 of the Code of Federal Regulations (Para. 50.55.a). With respect to the elements of that plan related to the testing of pumps and valves, Section XI, Subsections IWP and IWV direct each licensee to comply with the applicable portions of ASME/ANSI OM-6 and OM-10. In response to this, the NRC directed that pump and valve testing should be performed in accordance with Parts 6 and 10 of ASME/ANSI OM-1987 with OMa-1988 Addenda. Specifically, Part 1 of OM-1987 and Paragraphs 1.1 of OMa-1988 Addenda, Parts 6 and 10, establish the Program scope with the provision that the rules apply only to ISI Class 1,2, and 3 as stated by the NRC via Federal Register, Vol. 56, No. 21 dated January 31, 1991.

The IST Program must include those pumps and valves that perform a specific function in shutting down a reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident. During development of the Program, each of the systems within the ISI Class 1,2, or 3 boundaries were evaluated taking into account the function of each component and the need for its operability as it relates to the scope of applicability as defined in ASME Section XI Code. The following guidelines are set forth for evaluation of system components (pumps and valves) with respect to their inclusion in the Turkey Point IST Program and to what extent testing will be performed.

3.1 Components performing redundant functions are included in the testing program only if, in the process of analysis or licensing justification, they are relied upon to be operable during the design basis accident (ie. containment isolation valves, redundant pumps, valves with alternate power supplies, etc.)

3.2 Valves installed primarily for the purpose of providing convenient operational flexibility are not included in the Program.

3.3 For pumps and valves that are not categorized as ISI Class 1,2, or 3 but included in the IST Program, specific relief from Code requirements is not required as stated therein 10CFR50.55a(f)(5)(iv).

3.4 Valves that are actuated as a result of a safety system automatic response are included in the Program to the extent that the testing shall verify valve operational readiness as defined by the Code.

3.5 Valves whose sole function is to provide system or component redundancy related to failure of passive components are not included if a set of all of the active components (pumps and valves) needed to fulfill the specified system (train) function are tested - i.e. double or unrelated simultaneous failures need not be assumed.

3.6 System safety/relief valves are included to the extent that a valve protects a system (or portions thereof) that performs a required function in shutting down the reactor to the cold shutdown condition, maintaining the cold shutdown condition, or mitigating the consequences of an accident.

3.7 All valves included in the Turkey Point leakrate testing program complying with 10CFR50, Appendix J are included in the Program as Category A valves. (Reference 2.7, Position 10)

3.8 All pressure isolation valves identified in Plant Technical Specification 4.4.6.2.2 are included in the Program as Category A valves. (Reference 2.7, Position 4)

3.9 Pumps and valves whose only safety function is predicated on plant shutdown and recovery from a fire per commitments made as a result of 10CFR50, Appendix R are not included in the IST Program.

3.10 All active Category A valves are designated for testing (exercising) to the closed direction.

3.11 Valves whose normal position during operation is the position required to perform the designated safety function, where valve movement may be required due to normal plant evolutions or possible repositioning during accident response or recovery operations, are included (ie. the valve cannot be considered passive).

3.12 Where an air-operated valve is provided with a simple air-pilot valve, the pilot valve is not specifically included in the Program provided that the testing performed on the main valve verifies the proper operation of the pilot valve.

3:13 Control valves are specifically excluded from testing provided they are used only for system control (eg. pressure regulating valves). If a control valve must change position to support a safety-related function and it has a fail-safe position, then it is included in the Program.

3.14 Where a valve performs a safety function in both directions (open and closed), exercising in both directions is included. For power-operated valves, stroke time measurements in both directions is required.

3.15 As stated in NUREG 1482, Section 2.2, Turkey Point was not licensed for a safe shutdown condition of cold shutdown. The term "safe shutdown" as used at Turkey Point was based on the requirement specified in the 1967 version of GDC 28 which only established the need for achieving and maintaining hot shutdown conditions. Although attempts have been made to include testing of all components required to achieve cold shutdown conditions, this testing is considered an enhancement to the IST Program.

Based upon the rules outlined above, all pumps and valves which have been determined to be within the scope of 10 CFR 50.55a and the applicable version of ASME Section XI Code, and their respective testing requirements, have been included in the IST Program.

During the third 10-year interval, it is expected that the scope of the Program will be modified in response to unrelated activities including, but not limited to, plant design changes, changes in operating practices, and changes in accident mitigating procedures or philosophy. To ensure the continued maintenance of the Program, the plant staff has assigned designated engineers who are responsible for revisions to the Program Plan and the respective plant procedures.

4.0 INSERVICE TESTING PROGRAM FOR PUMPS

4.1 Code Compliance

This IST Program for pumps meets the requirements of Part 6 of Reference 2.8 and any interpretations or additional requirements imposed by Reference 2.7. Paragraph and table references in this section refer to specific paragraphs and tables in Reference 2.8, Part 6. Where these requirements have been determined to be impractical, conformance would cause unreasonable hardship without any compensating increase in safety, or an alternative test provides an acceptable level of quality and safety, relief from Code requirements is requested pursuant to the requirements of 10 CFR 50.55a(g)(iii) and Reference 2.7.

4.2 Allowable Ranges of Test Quantities

The allowable ranges for test parameters as specified in Table 3 of Reference 2.8 will be used for all measurements of pressure, flow, and vibrations except as provided for in specific relief requests.

4.3 Testing Intervals

The test frequency for pumps included in the Program will be as set forth in Part 6 of Reference 2.8 and related relief requests. An allowable extension, not to exceed +25 percent of the surveillance interval, may be applied to a test schedule as allowed by the Turkey Point Technical Specifications to provide for operational flexibility.

4.4 Pump Program Tables

Appendices A and B list those pumps included in the IST Program with references to parameters to be measured and applicable requests for relief.

4.5 Relief Requests for Pump Testing

Relief requests PR-1 through PR-5 are initiated per 10CFR50.55a where appropriate.

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RELIEF REQUEST NO. PR-1

COMPONENTS:

Boric Acid Transfer Pumps *-P203 A&B

PART 6 REQUIREMENT:

An inservice test shall be conducted with the pump operating at specified test reference conditions. Pressure, flow rate and vibration shall be determined and compared with corresponding reference values. (Paragraph 5.2(d))

BASIS FOR RELIEF:

The normal test loops for these pumps consist of fixed resistance circuits sized to limit flow but with no flow measuring devices installed. Since the system resistance is fixed and can be assumed to be a constant, pump degradation can be monitored by comparing successive measurements of pump differential pressure.

An alternative test circuit is available in which pump flowrate can be measured, however it requires injection of highly concentrated boric acid solution into the reactor coolant system. During plant operation, this is not practical since it would adversely effect reactor power level and create a potential plant transient. If injection were to be performed during cold shutdown periods the result would be excessive boration of the reactor coolant system and associated potential difficulties during the subsequent plant startup. This is especially significant near the end of core life.

ALTERNATE TESTING:

During quarterly testing of these pumps, differential pressure and vibration measurements will be taken utilizing the fixed resistance flowpath and evaluated in accordance with Table 3. At each reactor refueling these pumps will be tested and all appropriate measurements taken in accordance with Paragraph 5.2. This satisfies the requirements of Reference 2.7, Position 9.

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RELIEF REQUEST NO. PR-2

COMPONENTS:

Residual Heat Removal (RHR) Pumps *-P210 A&B

PART 6 REQUIREMENT:

The resistance of the system shall be varied until the flowrate equals the reference value. Alternatively, the flowrate may be varied until the differential pressure equals the reference value. (Para. 5.2(b))

BASIS FOR RELIEF:

During quarterly testing of the RHR Pumps, flow is routed through a minimum flow recirculation line leading to the suction of the pump being tested. This recirculation flowpath is capable of passing a flowrate somewhat less than 10 percent of that at the pump design operating point. A flow instrument is installed in this recirculation piping, however there is concern regarding the practice of throttling under minimum flow conditions with the potential for causing pump damage. In addition, hydraulic pump test data at or near a pump's shutoff head provides little information as to the mechanical condition of a pump.

NRC Generic Letter 89-04, Position 9, (Reference 2.7) allows elimination of minimum flow test line flowrate measurements providing inservice tests are performed during cold shutdowns or refueling under full or substantial flow conditions where pump flowrate is recorded and evaluated. The proposed alternate testing is consistent with this philosophy and the intent of this position.

These pumps are standby pumps and little degradation is expected with respect to hydraulic performance during operational periods when the pumps are idle. Thus, the alternate testing will provide adequate monitoring of these pumps with respect to the applicable Code requirements to ensure continued operability and availability for accident mitigation.

ALTERNATE TESTING:

During quarterly testing of the RHR pumps, a fixed- resistance test circuit will be used and pump differential pressure, vibration and flowrate will be determined and compared to their respective reference values per Paragraph 5.2(c).

During testing performed at cold shutdown or refueling, pump differential pressure, flowrate, and vibration will be recorded and evaluated per Paragraph 5.2(b). Testing during cold shutdowns will be on a frequency determined by intervals between shutdowns as follows:

For intervals of 3 months or longer - each shutdown.

For intervals of less than 3 months - testing is not required unless 3 months have passed since the last shutdown test.

RELIEF REQUEST NO. PR-3

COMPONENTS:

Residual Heat Removal Pumps *-P210 A&B

PART 6 REQUIREMENT:

The full-scale range of each analog instrument shall be not greater than three times the reference value. (Para. 4.6.1.2(a))

BASIS FOR RELIEF:

The installed suction and discharge pressure gauges of the RHR pumps are sized to accommodate the pressure range of 4 to 600 psig expected under standby and cold shutdown testing conditions (instrument range is 0-600 psig). As a result, the instrument range exceeds the Code requirement since, under some test conditions, the pump suction and/or discharge pressures can be considerably less than 200 psig. or 1/3 times the pressure gauge range.

In this particular case, the specification for the installed gauges is as follows:

Range: Compound gauge: 1st revolution 0-300 psig;
2nd revolution 300-600 psig.

Accuracy: $\pm$0.25 percent of full scale ($\pm$1.5 psig)

Suction Pressure

Suction pressure measurements are used primarily to derive the pump differential pressure through calculation. The accuracy of the suction pressure measurement normally has little or no effect on the results of this calculation since, generally, the pump discharge pressure exceeds the suction pressure by 2 or 3 orders of magnitude. When determining pump differential pressure (Dp), where typically RHR Pump Dp is approximately 100 psig (discharge and suction pressures approximately 120 and 20 psig, respectively) the maximum effect of suction pressure inaccuracy is $\pm$1.5 psig, or $\pm$1.5 percent of the calculated Dp. This compares reasonably with the maximum allowable accuracy (per Code) of the suction pressure gauge of $\pm$2 percent of 60 psig, or $\pm$1.2 psig.

RELIEF REQUEST NO. PR-3 (cont.)

BASIS FOR RELIEF (cont.):

Discharge Pressure

Discharge pressure measurements are also used to derive the pump differential pressure through calculation. When determining pump differential pressure (Dp), where typically RHR Pump Dp is approximately 100 psig. (discharge and suction pressures approximately 120 and 20 psig., respectively) the maximum effect of the discharge pressure inaccuracy is ±1.5 psig, or ±1.5 percent of the calculated Dp. This is considered to be negligible when compared to the maximum allowable accuracy (per Code) of the discharge pressure gauge of ±2 percent of 360 psig, or ±7.2 psig.

Combination

Based on the inaccuracies of the suction and discharge pressure gauges (±1.5 psig), the largest possible error in the differential pressure calculation is ±3 psig (assuming a conservative simple arithmetical method). Thus the maximum inaccuracy is approximately three times better (5.4 psig) than the "allowable" combined Code inaccuracy of 8.4 psig.

ALTERNATE TESTING:

When measuring the suction and discharge pressures of the RHR pumps, in lieu of satisfying the specified instrument range requirement of Paragraph 4.6.1.2.(a), the instruments used for measuring pressure will meet the following specifications:

Accuracy: ±0.25 percent of Full Scale (or better)

Range: Compound Gauge: 1st revolution 0-300 psig.
2nd revolution 300-600 psig. (or better)

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RELIEF REQUEST NO. PR-4

COMPONENTS:

High Head Safety Injection Pumps *-P215 A&B
Component Cooling Water Pumps *-P211 A,B,C
Spent Fuel Pit Cooling Pumps *-P212 A&B
Boric Acid Transfer Pumps *-P203 A&B

PART 6 REQUIREMENT:

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

BASIS FOR RELIEF:

When this requirement is applied to low measured pressures the 0.25% limit many times results in complicated venting procedures and related health physics risks associated with the disposal of radioactive contaminated water with no commensurate improvement of test reliability.

The typical area of concern involves the suction pressure measurement. For the applicable pumps, discharge pressure exceeds suction pressure by at least a factor of six, for which a .25% error introduced into the suction pressure measurement typically results in an error of .05% in the differential pressure calculation. This is insignificant in light of the potential 6% error allowance applied to both the suction and discharge pressure instruments (Paragraph 4.6.1.1).

ALTERNATE TESTING:

For gauges which are not vented and do not meet the Code requirement that presence or absence of liquid in the gauge line that could affect the indicated value of the measured pressure by greater than 0.25%, the introduced error in conjunction with the specific range and accuracy of the gauges utilized will be verified to comply with the minimum Code required accuracy for calculation of differential pressure. This calculation verifies that the square root of the sum of the errors of the specific gauges utilized, including a term to account for the error associated with the presence or absence of liquid, is less than the square root of the sum of the squares of six percent of the associated suction and discharge pressures.

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RELIEF REQUEST NO. PR-5

COMPONENTS:

Intake Cooling Water Pumps *-P9A thru *-P9C

PART 6 REQUIREMENT:

The frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 Hz. (Paragraph 4.6.1.6)

BASIS FOR RELIEF:

The speed of the intake cooling water (ICW) pumps is approximately 900 rpm relating to a rotational frequency of 15 Hz. In order to satisfy the requirements of Paragraph 4.6.1.6, a vibration measurement system capable of measuring vibration to a lower limiting frequency of 5 Hz. would be required.

The instruments currently being used at Turkey Point have a lower frequency limit of 420 CPM or 7 Hz. This instrumentation is "state-of-the-art" industrial grade, high quality equipment. Satisfying the Code requirements with respect to frequency response would require the unnecessary procurement of new and more sophisticated equipment beyond that intended by the Code.

Monitoring lower frequencies (less than rotational speed) is performed primarily for the purpose of detecting oil whirl in the pump bearings. Other conditions that could result in low frequency vibration (less than shaft speed) are included in the general category of mechanical "rub" which is not considered to be significant from the aspect of pump degradation.

The use of the existing instrumentation as specified by the alternate testing will adequately provide for monitoring pump condition for the following reasons:

a) For vertical shaft equipment rotating at these speeds oil whirl is an unlikely phenomenon; and

b) If oil whirl were to occur, it would be manifested at a frequency equal to one-half of the rotational frequency, or, in this case, approximately 7.5 Hz., which is well within the range of the proposed instrumentation.

Vibration measurements taken on these pumps with instruments capable of monitoring frequencies to 7 Hz. are adequate for assessing the operational readiness of these pumps as required by the Code.

ALTERNATE TESTING:

The instruments used for measuring vibration on the ICW pumps will have a frequency response range that extends to a lower limiting frequency of 7 Hz. or less.

5.0 INSERVICE TESTING PROGRAM FOR VALVES

5.1 Code Compliance

This IST Program for valves meets the requirements of Reference 2.8, Parts 1 and 10 and any interpretations or additional requirements imposed by Reference 2.7. Paragraph and table references in this section refer to specific paragraphs and tables in Reference 2.8, Part 10. Where these requirements have been determined to be impractical, conformance would cause unreasonable hardship without any compensating increase in safety, or an alternative test provides an acceptable level of quality and safety, relief from Code requirements is requested pursuant to the requirements of 10 CFR 50.55a(g)(iii) and Reference 2.7.

5.2 Stroke Time Acceptance Criteria

When required, the acceptance criteria for the stroke times of power-operated valves will be as set forth in References 2.7 and 2.8.

5.3 Check Valve Testing

Where required, full-stroke exercising of check valves to the open position using system flow requires that a test be performed whereby the predicted full accident condition flowrate through the valve be verified and measured or full stroke of the obturator is verified by appropriate non-obtrusive methods. Any deviation to this requirement must satisfy the requirements of Reference 2.7, Position 1.

5.4 Testing Intervals

The test frequency for valves included in the Program will be as set forth in Parts 1 and 10 of Reference 2.8, and related relief requests. An allowable extension, not to exceed +25 percent of the surveillance interval, may be applied to the test schedule as allowed by the Turkey Point Technical Specifications to provide for operational flexibility.

5.5 Valve Program Tables

Appendices C and D list those valves included in the IST Program with references to required testing, respective test intervals, and requests for relief.

5.6 Deferred Testing

Where quarterly testing of valves is impractical or otherwise undesirable, testing may be deferred and performed during cold shutdown or refueling periods as permitted by Paragraphs 4.2.1.2 and 4.3.2.2.

It should be noted that there are two conditions of cold shutdown identified in the program tables (Appendices C and D). For the purpose of this requirement, the term 'cold shutdown' refers to the respective condition as noted in the tables. The program tables identify those valves to which deferred testing applies. Justification for such testing (arranged by system) follows:

5.6.1 COLD SHUTDOWN TESTING JUSTIFICATION

Component Cooling - (5613(4)-M-3030-5(4))

MOV-3-0626,MOV-3-0716A&B and MOV-3-0730
MOV-4-0626,MOV-4-0716A&B and MOV-4-0730
Component Cooling Water Supply/Return Isolation Valves

These valves are required to be open to ensure continued cooling of reactor coolant pump auxiliary components including the controlled seal leakage system, the pump seals, and the main drive motors. Closing these valves during pump operation could result in degradation of the RCP seals and motors, eventually resulting in potential RCP damage and subsequent plant shutdown.

MOV-3-1417and MOV-3-1418
MOV-4-1417and MOV-4-1418
Component Cooling Cont. Supply/Return Isolation Valves

These valves provide normal cooling to the normal containment coolers, control rod drive mechanism coolers, and the primary shield cooling coils. Exercising any of these valves during plant operation at power could cause overheating of the associated components. Should any one of these valves fail to reopen after closure serious damage to equipment could occur necessitating an immediate plant shutdown and cooldown.

3-0738
4-0738
Excess Letdown Heat Exchanger CCW Supply Check Valves

These valves are simple check valves located inside the containment building with no external or remote position indication; thus the only practical method of determining disc position is via a backflow or backleakage test. During the performance of such a test, a considerable length of piping (and potentially the heat exchanger) is drained. Since the CCW water is treated with a chemical corrosion inhibitor, this would create a significant waste disposal problem, whereby performance of this test on a quarterly basis would prove to be an unwarranted burden on the plant staff.

Reactor Coolant (5613(4)-M-3041-2)

PCV-3-0455Cand PCV-3-0456
PCV-4-0455Cand PCV-4-0456
Power-Operated Relief Valves

Exercising these valves at power has the potential for causing seat damage that could result in unacceptable RCS leakage. Consequently, this could necessitate isolation of the affected PORV(s).

SV-3-6318A&B,SV-3-6611and SV-3-6612
SV-4-6318A&B,SV-4-6611and SV-4-6612
Reactor Coolant System Vents

These valves are administratively controlled in the key-locked closed position to prevent inadvertent operation. Since these are Class 1 isolation valves for the reactor coolant system, failure of a valve to close or leakage following closure could result in a loss of coolant in excess of the limits imposed by the Plant Technical Specifications. Furthermore, failure of the valve to indicate a return to the fully closed position following exercising, could likely result in a containment entry at power or a plant shutdown.

Chemical & Volume Control - (5613(4)-M-3047-1)

CV-3-0204
CV-4-0204
Letdown Line Outboard Isolation Valves

Closing these valves during operation would result in undesirable pressurizer level or CVCS system transients with the potential for a plant trip. If a valve failed to reopen, then an expedited plant shutdown would be required.

Chemical & Volume Control - (5613(4)-M-3047-2)

3-0357
4-0357
RWST Discharge Valves

Exercising these check valves during operation would require injection of RWST borated water into the reactor coolant system. This would, in turn, result in boration of the reactor coolant system with an adverse reaction in reactor power and the potential of a power transient.

HCV-3-0121
HCV-4-0121
Charging Line Flow Control Valves

These valves provide the primary flow path to the RCS via the Charging Pumps. Measuring valve opening stroke time would first necessitate valve closure. Closing these valves during operation could result in oscillations in RCP seal injection flow and undesirable pressurizer level transients with the potential for a plant trip.

LCV-3-0115B
LCV-4-0115B
RWST Outlet Valves

Opening these valves during operation would result in injection of RWST borated water into the reactor coolant system. This would, in turn, result in boration of the reactor coolant system with an adverse reaction in reactor power and the potential for a power transient.

LCV-3-0115C
LCV-4-0115C
Volume Control Tank Outlet Valves

Closing these valves during operation would necessitate configuring the Charging Pump suction from the VCT to the RWST in order to maintain charging flow. Injection of RWST borated water into the RCS would result in overboration with an adverse reaction in reactor power level and a potential for a reactor power transient.

Chemical & Volume Control (5613(4)-M-3047-3)

MOV-3-0381and MOV-3-6386
MOV-4-0381and MOV-4-6386
RCP Seal Water Return Isolation Valves

Exercising these valves to the closed position when the reactor coolant pumps (RCP's) are in operation would interrupt flow from the RCP seals and may result in damage to the pumps' seals.

Residual Heat Removal (5613(4)-M-3050-1)

3-0753 A&B
4-0753 A&B
Residual Heat Removal (RHR) Pump Discharge Check Valves

The only flowpath available for full-flow exercising these valves to the open position requires pumping from each RHR pump to the reactor coolant system. The residual heat removal system is designed and interlocked so as to make it impossible to pump to the reactor coolant system at elevated pressures. Note that these valves will be partial-stroke exercised open on a quarterly basis via the minimum flow test lines.

In regards to closure testing, the only practical method for testing of these valves on a quarterly basis involves isolation of the idle pump suction to the refueling water storage tank while the other pump is being tested. Testing these check valves in this manner will expose the pumps to unnecessary risk of failure should they be required as the suction valves are reach rod operated, requiring approximately one thousand turns to change state. In the event of a safety injection signal, other complications already are present in the existing pump test procedure requiring restoration of the pump recirculation line up. Addition of the requirement to reopen this suction valve in conjunction with the realignment of the recirculation complicates and extends the duration required to restore the system to operable status.

MOV-3-0750and MOV-3-0751
MOV-4-0750and MOV-4-0751
RHR Supply From the Reactor Coolant System Isolation Valves

These valves are provided with electrical interlocks that prevent opening when any one of the following conditions exists (in the corresponding unit):

* Reactor coolant system pressure exceeds 525 psig;
* MOV-*-862 A or B is open; or
* MOV-*-863 A or B is open.

This precludes exercising these valves in any other plant condition than cold shutdown.

HCV-3-0758
HCV-4-0758
RHR Heat Exchanger Flow Control Valves

These valves are normally open while in modes 1, 2 and 3. Plant Technical Specification 4.5.2 require that at least once per twelve hours, these valves be verified to be open with power (instrument air) to the valve operators removed. Fail safe testing of these valves would require power to be restored, the valves closed and observation of the actuator response upon loss of instrument air. Testing in this manner would conflict with the aforementioned Technical Specification requirement and would also result in both trains of low head safety injection being inoperable for the period of time required to complete this testing.

MOV-3-0862A&B
MOV-4-0862A&B
RHR Pump Suction Isolation Valves

Exercising and failure of either of these valves in the closed position during testing will isolate both unit's residual heat removal pumps from the respective refueling water storage tank rendering them inoperable and losing all capability of low-pressure safety injection.

MOV-3-0863A&B
MOV-4-0863A&B
Safety Injection Pump Recirculation Phase Suction Stop Valves

Failure of either of these valves in the open position during testing will open a recirculation path from the discharge of the RHR heat exchangers to the RWST or suction of the RHR pumps. In the event of a safety injection signal, this would result in diverting flow from the injection flowpath and thus adversely impact the effectiveness of the LP safety injection system function.

Containment Purge System (5613(4)-M-3053-1)

POV-3-2600and POV-3-2602
POV-4-2600and POV-4-2602
Containment Bldg. Purge Supply/Exhaust Otbd. Isolation Valves

Due to the history of these valves with respect to operational-related seat leakage, the plant staff has imposed restrictions on their operation whereby unnecessary cycling of the valves is to be avoided. In addition, typically these valves are closed (their safety-related position) during plant operation and are usually opened only for containment ventilation during extended shutdown periods.

POV-3-2601and POV-3-2603
POV-4-2601and POV-4-2603
Containment Bldg. Purge Supply/Exhaust Inbd. Isolation Valves

Due to the history of these valves with respect to operational-related seat leakage, the plant staff has imposed restrictions on their operation whereby unnecessary cycling of the valves is to be avoided. In addition, typically these valves are closed (their safety-related position) during plant operation and are usually opened only for containment ventilation during extended shutdown periods.

Safety Injection (5613(4)-M-3062-1)

MOV-0878A&B
SIS Pump Discharge Unit Cross-Tie

These normally open valves allow flow from all four of the shared safety injection pumps to the affected unit in the event of an accident. Once two pumps are verified to be operating on the affected unit, MOV-878 A&B are closed and remain closed for the duration of the accident. Closing these valves isolates two pumps from each unit. Isolating the shared pumps constitutes an unnecessary increased risk for the convenience of testing.

MOV-3-0856A&B
MOV-4-0856A&B
Minimum Flow Line Isolation Valves

Exercising or failure of either of these valves in the closed position during testing will prohibit flow through the minimum flow recirculation lines for the associated safety injection and containment spray pumps. Due to the probability of damage should these pumps be started and operated in this condition (no flow), exercising of these valves will only be performed during cold shutdown periods when these pumps are not required to be operable.

MOV-3-864A&B
MOV-4-864A&B
RWST Outlet Isolation Valves

Failure of these valves in the closed position isolates the associated RWST rendering the associated safety injection and containment spray systems inoperable. Thus, closing any of these valves while the associated unit is not in a cold shutdown or refueling mode is considered imprudent.

MOV-3-866A&B
MOV-4-866A&B
Hot Leg Safety Injection (SI) Isolation Valves

Opening either of these valves while the RCS is at operating pressure subjects the SI system to a situation where the only isolation between the RCS and SI systems is established by a single check valve. Because of this, opening these motor-operated valves while the RCS is at pressures above 600 psig is considered to be imprudent.

Safety Injection (5613/4-M-3064-1)

3-0876A
4-0876A
Low-head Safety Injection/RHR Injection Check Valves

The only flowpath available for full-flow exercising these valves is via the RHR pumps to the reactor coolant system. The residual heat removal system is designed and interlocked to preclude injection into the reactor coolant system at elevated pressures.

Verifying closure of these valves would require establishing a test boundary which could only be obtained via isolation of the RWST, thereby rendering the Low Head Safety Injection System capability inoperative.

3-0876 B&C
4-0876 B&C
Low-Head Safety Injection/RHR Injection Check Valves

Verifying closure of these valves would require establishing a test boundary which could only be obtained via isolation of the RWST, thereby rendering the Low Head Safety Injection System inoperative.

3-0875 A,B,&C
4-0875 A,B,&C
SIS Cold Leg Injection Check Valves

Verifying closure of these valves during power operation would require establishing a test boundary which could only be obtained via isolation or de-pressurization of the SIS Accumulators, and is therefore considered imprudent.

MOV-3-0744A&B
MOV-4-0744A&B
RHR/Low-Head Cold Leg Injection/Isolation Valves

Opening these valves while the RCS is at operating pressure results in a situation where the only isolation between the RCS and RHR systems is established by two check valves. Failure of these check valves to seat could subject the RHR system to pressures above its design pressure. Therefore, opening these motor-operated valves while the RCS is at pressures above 600 psig is considered imprudent.

MOV-3-0865Athru MOV-3-0865C
MOV-4-0865Athru MOV-4-0865C
Safety Injection Accumulator Isolation Valves

During plant operation these valves are required to be locked open to ensure availability of the safety injection accumulators. Intentionally isolating an accumulator during operation is considered to be imprudent. Furthermore, if a valve were to fail in the closed position during testing, a plant shutdown would be required.

Main Steam (5613(4)-M-3072-1)

3-10-0004thru 3-10-0006
4-10-0004thru 4-10-0006
Main Steam Non-Return Valves

During plant operation at power, closure of any one of these valves is not practical as it would require isolating a steam generator which would result in a severe transient on the steam and reactor systems and result in a probable plant trip.

CV-3-1606thru CV-3-1608
CV-4-1606thru CV-4-1608
Main Steamline Atmospheric Steam Dump Valves

Opening these valves during power operation would result in unacceptable power transients unless the valves are isolated prior to opening. Isolation of one of these lines will reduce the related plant capability to limit a pressure transient and prevent lifting of a safety valve in the event of such an occurrence.

POV-3-2604,POV-3-2605and POV-3-2606
POV-4-2604,POV-4-2605and POV-4-2606
Main Steam Isolation Valves

During plant operation at power, closure of any one of these valves is not practical as it would require isolating a steam generator which would result in a severe transient on the steam and reactor systems and result in a plant trip.

Feedwater (5613(4)-M-3074-3)

FCV-3-0478,FCV-3-0488and FCV-3-0498
FCV-4-0478,FCV-4-0488and FCV-4-0498
Main Feedwater Flow Control Valves

Testing of these valves to the closed position during plant operation above 20% reactor power would result in severe steam generator level transients and a plant trip.

FCV-3-0479,FCV-3-489and FCV-3-499
FCV-4-0479,FCV-4-489and FCV-4-499
Main Feedwater Regulating Valve Bypass Valves

Opening these normally closed valves in order to exercise them to the closed position would result in possible steam generator level transients with the potential of a plant trip. In addition, testing requires installation of electrical jumpers in various safeguard relay racks which provides the potential for an inadvertent plant trip. These valves are normally closed and remain so except for low-power periods associated with startup and shutdown.

Auxiliary Feedwater (5613(4)-M-3075-1)

3-10-0381, 3-10-0382 and 3-10-0383
4-10-0381, 4-10-0382 and 4-10-0383
Aux. Feedwater Steam Supply Non-Return Valves

Verification of closure capability for these valves requires isolation of the respective steam supply line from its associated steam generator and depressurization of the line on the upstream side of the associated check valves. While the associated unit is in modes 1, 2, or 3, this testing represents a personnel safety concern as steam in excess of 800 psig is required to be vented. Testing of these valves in mode 4, 5, or 6 utilizes auxiliary steam at approximately 250 psig, which still poses a safety concern, however is significantly less than that presented by performance of the surveillance at full system pressure. Additionally, considering the importance of the auxiliary feedwater system and the undesirability of altering system lineups while the plant is operating, it would be imprudent to perform such a test at plant conditions other than in modes 4, 5 or 6.

5.6.2 REFUELING OUTAGE TESTING JUSTIFICATION

Plant Service Air (5610-M-3013-1)

3-40-0205
4-40-0205
Service Air Containment Isolation Check Valves

These are simple check valves with no external position indication, thus the only means of verifying closure is by performing a leaktest or backflow test. The only practical method for this testing involves performance of a seat leakage test in accordance with the requirements 10 CFR 50 Appendix J. For this particular case, testing in this fashion involves set up of the local leak rate test rig inside containment and is therefore considered impractical during power operation and cold shutdown outages. (Ref: NUREG-1482, position 4.1.4)

Component Cooling - (5613(4)-M-3030-5(4))

3-0721A,B,&C
4-0721A,B,&C
CCW Supply to RCP Thermal Barrier Cooling Coil

These piston check valves are located inside the containment building with no external or remote position indication; thus the only practical method of verifying closure is via a backflow or backleakage test. Performance of such a test during shutdowns would require draining a considerable length of piping. Since the CCW water is treated with a chemical corrosion inhibitor, this would create a significant waste disposal problem, which would prove to be an unwarranted burden on the plant staff.

Chemical and Volume Control (CVCS) (5610-M-3046-1)

3-0397 A&B
4-0397 C&D
Boric Acid Transfer Pump Discharge Check Valves

During plant operation the boric acid pumps are tested via a recirculation flowpath that is not provided with flow indication. At cold shutdown conditions, the pumps can be aligned to the suction of the charging pumps and thus through an instrumented line. However, testing these valves in this manner would result in the introduction of highly concentrated boric acid solution to the RCS, and thus cause considerable operational difficulty during the ensuing startup. This would be especially true near the end of core life (EOL).

Residual Heat Removal (5613(4)-M-3050-1)

3-2052
4-2052
Containment Spray Suction Relief Discharge Check Valves

These valves are located between the containment recirculation sump and the innermost containment isolation valve located outside containment. The only feasible method of exercising these valves to the open position is to induce flow in the line via an alternate medium such as air or water. Opening the drain connection valve during power operation would constitute a breach of containment integrity and therefore is considered imprudent. The injection of air or water into this system during cold shutdowns could ultimately result airborne contamination or drainage to the containment sump, thereby creating a significant clean-up effort which would prove to be an unwarranted burden on the plant staff.

Nitrogen and Hydrogen (5610-M-3065-1)

3-0518
4-0518
Nitrogen Supply To PRT Containment Isolation Check Valves

These are simple check valves with no external means of position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. This would require entry into the containment building and thus is impractical to perform during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdown.

3-0519
4-0519
Nitrogen Supply To PRT Containment Isolation Check Valves

These valves are normally closed with the valve operating shaft for 3-0519 (stop check) in the open position. The only effective method of verifying closure of these valves is to perform a reverse flow (leak test). This would require entry into the containment building and thus is impractical to perform during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdown.

Auxiliary Feedwater (5610-M-3075-2)

AFWU-3-0017
AFWU-4-0016
AFW Pump Bearing Cooling Water Return Check Valves

Full-stroke exercising of these valves would require simultaneous operation of all three auxiliary feedwater pumps. Operation in such a mode during a test is not practical nor desirable.

It is unlikely that the 8-18 gpm developed by one operating auxiliary feedwater pump is sufficient to fully open these valves. Thus, the use of non-intrusive methods of verifying full stroke is impractical.

Instrument Air (5613(4)-M-3013-7)

3-40-0336
4-40-0336
Instrument Air Supply Containment Isolation Check Valves

These valves are simple check valves with no external means of position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. This would require entry into the containment building and thus is impractical to perform during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdown.

3-40-340A
4-40-340A
Instrument Air Supply Containment Isolation Check Valves

Stop-check valve 3-40-340A is normally closed with the valve operating shaft in the open direction while 4-40-340A is a simple, normally closed, check valve. The only effective method of verifying closure of either of these valves is to perform a reverse flow (leak test). This would require entry into the containment building and thus is impractical to perform during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdowns.

Primary Makeup Water (5613(4)-M-3020-2)

3-10-0567
4-10-0567
Primary Makeup Water Containment Isolation Check Valves

These are simple check valves with no external means of position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. This would require a considerable effort, including bleeding down the pressure in the primary water supply system, which is undesirable during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdown.

In addition, these valves are normally closed during plant operation with the inboard manual valves (*-10-0582) also closed. Thus, in effect, they are passive valves and essentially, need not be exercised.

Chemical & Volume Control (CVCS) (5613(4)-M-3047-2)

3-0312C
4-0312C
Charging Header Containment Isolation Check Valves

These are simple check valves with no external means of position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. During plant operation, the valves are normally open supplying charging water to the reactor coolant system. Interruption of this flow during operation could result in a CVCS flow imbalance and a possible plant trip as a result of pressurizer level fluctuations. Performing leaktests of these valves involves a considerable effort such that testing at each cold shutdown outage would constitute an unreasonable burden on the plant staff.

3-0351
4-0351
Emergency Boration Check Valves

Testing these valves requires the introduction of highly concentrated boric acid solution from the boric acid tanks to the suction of the charging pumps. This, in turn, would result in the addition of excess boron to the RCS which adversely affects plant power level and operational parameters with the potential for an undesirable plant transient and a plant trip or shutdown. During cold shutdown, the additional boric acid introduced into the RCS would cause considerable operational difficulty during the ensuing startup.

Chemical & Volume Control (CVCS) (5613(4)-M-3047-3)

3-0298A thru 3-0298C
4-0298A thru 4-0298C
RCP Seal Water Containment Isolation Check Valves

These are simple check valves with no external means of position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. During plant operation, the valves are normally opened supplying seal water to the RCP's. Interruption of this flow during pump operation could result in RCP seal failure. Performing leaktests of these valves involves a considerable effort such that testing at each cold shutdown outage would constitute an unreasonable burden on the plant staff.

Safety Injection (5613(4)-M-3062-1)

3-0874 A&B
4-0874 A&B
Safety Injection Hot-Leg Injection Check Valves

Exercising these valves (open) requires operating a safety injection pump and injecting into the reactor coolant system. At power operation this is not possible because the SIS pumps cannot develop sufficient discharge pressure to overcome reactor coolant system pressure. During normal cold shutdown conditions, injection via the SIS pumps is precluded by operational restrictions related to low-temperature over-pressurization protection concerns and Technical Specifications.

In regards to exercise closure testing of these valves, these are simple acting check valves with no provision for determining disk position and therefore the only practical means of verifying closure involves performance of a leaktest. Performance of such a test at each cold shutdown would constitute an unreasonable burden on the plant staff. The frequency for leakage testing of these valves is currently governed by Plant Technical Specification 4.4.6.2.2 for pressure isolation valves, which requires that these valves be tested as follows:

* At least once every 18 months;

* Prior to entering Mode 2 whenever the plant has been in cold shutdown for 7 days or more and if leakage testing has not been performed in the previous 9 months;

* Prior to returning a valve to service following maintenance, repair, or replacement work on the valve; and

* Following valve actuation due to automatic or manual action or flow through the valve:

    1. Within 24 hours by verifying valve closure, and

    2. Prior to entering Mode 2 by verifying valve leakrate

Additionally, leakage testing of these valves under the requirements of Technical Specifications has been verified to meet or exceed the intent of OM-10, paragraph 4.2.2.3.

3-0879 A&B
4-0879 C&D
Safety Injection Pump Discharge Check Valves

Full stroke exercising of these valves would require operating each safety injection pump at nominal accident flowrate. At power operation the only flowpath available for such operation would necessitate injecting into the reactor coolant system since the full flow recirculation path is located upstream of the pump discharge check valves. During cold shutdown conditions, injection via the SIS pumps is precluded by operational restrictions related to low-temperature over-pressurization protection concerns and Turkey Point Technical Specifications, Section 3.4.9.3.

Safety Injection (SIS) (5613(4)-M-3064-1)

3-0873A thru 3-0873C
4-0873A thru 4-0873C
SIS Cold Leg Branch Injection Line Check Valves

Full stroke exercising of these valves would require operating a safety injection pump at nominal accident flowrate and injecting into the reactor coolant system. At power operation this is not possible because the safety injection pumps can not develop sufficient discharge pressure to overcome reactor coolant system pressure. During normal cold shutdown conditions, injection via the safety injection pumps is precluded by operational restrictions related to low-temperature over-pressurization protection concerns.

In regards to exercise closure testing of these valves, these are simple acting check valves with no provision for determining disk position and therefore the only practical means of verifying closure involves performance of a leaktest. Performance of such a test at each cold shutdown would constitute an unreasonable burden on the plant staff. The frequency for leakage testing of these valves is currently governed by Plant Technical Specification 4.4.6.2.2 for pressure isolation valves, which requires that these valves be tested as follows:

* At least once every 18 months;

* Prior to entering Mode 2 whenever the plant has been in cold shutdown for 7 days or more and if leakage testing has not been performed in the previous 9 months;

* Prior to returning a valve to service following maintenance, repair, or replacement work on the valve; and

* Following valve actuation due to automatic or manual action or flow through the valve:

    1. Within 24 hours by verifying valve closure, and
    2. Prior to entering Mode 2 by verifying valve leakrate

Additionally, leakage testing of these valves under the requirements of Technical Specifications has been verified to meet or exceed the intent of OM-10, paragraph 4.2.2.3.

3-0875A thru 3-0875C
4-0875A thru 4-0875C
SIS Cold Leg Injection Check Valves

Partial-flow testing of these valves requires injecting fluid into the RCS. At power operation this is not possible because neither the RHR or the SIS pumps can develop sufficient discharge pressure to overcome reactor coolant system pressure. During normal cold shutdown conditions, however, injection via the RHR pumps can be accomplished.

With respect to full stroke exercising of these valves to the open position, in order to satisfy the requirements of Generic Letter 89-04, a demonstration of the maximum accident flow must be performed or some other indication of full-stroke of the obturator must be provided. For these valves the maximum accident flowrate is defined as that flowrate resulting from a fully pressurized SIS accumulator injecting into a de-pressurized RCS loop. Achieving this flowrate during power operation is not practical due to limitations associated with the reactor coolant system pressure.

It has been demonstrated, by past testing, that these valves can be opened by blowdown from a partially pressurized (~130 psi) accumulator to the associated RCS loop. Performing such a test during plant operation is not possible due to the limitations associated with reactor coolant system pressure. The extensive preparations (including insulation removal, erection of scaffolding, etc.) required to perform such a test make it impractical to perform during cold shutdown periods.

Since this testing is performed at flow rates less than the maximum required accident flowrate, the following six items are required to be discussed as stated in Generic Letter 89-04, Position 1:

1) The impracticality of performing a full flow test

Full flow testing of theses valves is impractical in that it requires discharge of a fully pressurized accumulator at approximately 650 psig into the depressurized reactor coolant system. Periodic testing in this fashion subjects the accumulator and components in the flowpath to numerous, periodic stresses and flowrates not taken into account in their original design. In addition, it has been demonstrated that discharging the accumulator at a reduced pressure of approximately 130 psig is sufficient to cause the associated check valves to achieve the position required to perform their safety function (i.e. fully open). The extensive preparations (including insulation removal, erection of scaffolding, etc.) required to perform such a test make it impractical to perform during cold shutdown periods.

2) A description of the alternative technique used and a summary of the procedures being followed

The exercising test is performed with the unit in mode 6, head removed, fuel and upper internals inplace, cavity level greater than 55 feet, accumulator pressure at approximately 130 psig and level at approximately 123 inches above the centerline of the lower instrument tap utilized for normal level indication. The check valves being tested are mounted with acoustic/magnetic diagnostic instrumentation, which are utilized to verify disk movement and subsequent check valve back stop impacts. One at a time, each accumulator's motor operated isolation valve is opened to establish flow through the valves with the diagnostic instrumentation utilized to verify that each valve fully strokes open. Additionally, the accumulator is instrumented with level and pressure transmitters which may, in the future, be utilized to establish full stroke criteria for each valve.

3) A description of the method and results of the program to qualify the alternative technique for meeting the ASME Code

The diagnostics equipment utilized verifies disk movement and subsequent check valve back stop impacts. Currently, testing utilizing this diagnostic equipment satisfies the Code requirements as it verifies that the associated valves are exercised to the position required to perform their safety function (i.e. fully open). The quantitative accumulator level/pressure changes and valve differential pressures recorded during the test may, in the future, be utilized to establish full-stroke criteria for each valve, eliminating the need to install the diagnostics on all three trains, each refueling outage.

4) A description of the instrumentation used and the maintenance and calibration of the instrumentation

The diagnostics currently utilized in this testing are Checkmate III units supplied and controlled by ITI MOVATS in accordance with 10CFR 50 Appendix B and ANSI N45.2. The quantitative instruments are calibrated to $\pm$ 1% and installed prior to the test by plant I&C Journeymen.

5) A description of the basis used to verify that the baseline data has been generated when the valve is known to be in good working order, such as recent inspection and maintenance of the valve internal [components]

Testing performed in the manner described above has been implemented shortly following disassembly and inspection of all of the associated valves in response to another industry problem regarding cracking of the retaining block studs. During these internal inspections, after a minimum of at least fifteen years of service, all valves were found to be in excellent condition, with no major deficiencies noted.

6) A description of the basis for the acceptance criteria for the alternative testing and a description of the corrective actions to be taken if the acceptance criteria are not met

Present acceptance criteria confirms the valve is exercised to the position required to perform its safety function. Failure of a valve to demonstrate full-stroke open based on backstop impact would require valve disassembly and repair. Following the valve's repair, an inspection would determine positive full-stroke open capability of the associated valve.

3-0875 D-F
4-0875 D-F
SI Accumulator Discharge Check Valves

Full stroke exercising of these valves to the open position, based on the maximum accident flowrate resulting from SIS accumulator injection to a de-pressurized RCS loop, is not practical due to limitations associated with the effects of such a test on system components.

It has been demonstrated, by past testing, that these valves can be fully opened by blowdown from a partially pressurized (~130 psig.) accumulator to the associated RCS loop. Performing such a test during plant operation is not possible due to the limited pressure capability of the SI tanks. During cold shutdown periods the extensive preparations required to perform an accumulator discharge test make it impractical.

Since this testing is performed at flow rates less than the maximum required accident flowrate, the following six items are required to be discussed as stated in Generic Letter 89-04, Position 1:

1) The impracticality of performing a full flow test

Full flow testing of theses valves is impractical in that it requires discharge of a fully pressurized accumulator at approximately 650 psig into the depressurized reactor coolant system. Periodic testing in this fashion subjects the accumulator and components in the flowpath to numerous, periodic stresses and flowrates not taken into account in their original design. In addition, it has been demonstrated that discharging the accumulator at a reduced pressure of approximately 130 psig is sufficient to cause the associated check valves to achieve the position required to perform their safety function (i.e. fully open). The extensive preparations (including insulation removal, erection of scaffolding, etc.) required to perform such a test make it impractical to perform during cold shutdown periods.

2) A description of the alternative technique used and a summary of the procedures being followed

The exercising test is performed with the unit in mode 6, head removed, fuel and upper internals inplace, cavity level greater than 55 feet, accumulator pressure at approximately 130 psig and level at approximately 123 inches above the centerline of the lower instrument tap utilized for normal level indication. The check valves being tested are mounted with acoustic/magnetic diagnostic instrumentation, which are utilized to verify disk movement and subsequent check valve back stop impacts. One at a time, each accumulator's motor operated isolation valve is opened to establish flow through the valves with the diagnostic instrumentation utilized to verify that each valve fully strokes open. Additionally, the accumulator is instrumented with level and pressure transmitters which may, in the future, be utilized to establish full stroke criteria for each valve.

3) A description of the method and results of the program to qualify the alternative technique for meeting the ASME Code

The diagnostics equipment utilized verifies disk movement and subsequent check valve back stop impacts. Currently, testing utilizing this diagnostic equipment satisfies the Code requirements as it verifies that the associated valves are exercised to the position required to perform their safety function (i.e. fully open). The quantitative accumulator level/pressure changes and valve differential pressures recorded during the test may, in the future, be utilized to establish full-stroke criteria for each valve, eliminating the need to install the diagnostics on all three trains, each refueling outage.

4) A description of the instrumentation used and the maintenance and calibration of the instrumentation

The diagnostics currently utilized in this testing are Checkmate III units supplied and controlled by ITI MOVATS in accordance with 10CFR 50 Appendix B and ANSI N45.2. The quantitative instruments are calibrated to $\pm$ 1% and installed prior to the test by plant I&C Journeymen.

5) A description of the basis used to verify that the baseline data has been generated when the valve is known to be in good working order, such as recent inspection and maintenance of the valve internal [components]

Testing performed in the manner described above has been implemented shortly following disassembly and inspection of all of the associated valves in response to another industry problem regarding cracking of the retaining block studs. During these internal inspections, after a minimum of at least fifteen years of service, all valves were found to be in excellent condition, with no major deficiencies noted.

6) A description of the basis for the acceptance criteria for the alternative testing and a description of the corrective actions to be taken if the acceptance criteria are not met

Present acceptance criteria confirms the valve is exercised to the position required to perform its safety function. Failure of a valve to demonstrate full-stroke open based on backstop impact would require valve disassembly and repair. Following the valve's repair, an inspection would determine positive full-stroke open capability of the associated valve.

In regards to performing a closure test the only practical means of verifying closure involves performing a leakage test. Performance of such a test would necessitate closure of the upstream motor operated valve or de-pressurization of the associated SIS acumulator, which is not practical during power operation and would constitute an unwarranted burden on plant staff during cold shutdowns.

3-0876 B&C
4-0876 B&C
Low Head Injection Line Check Valves

Since no recirculation path exists, exercising these valves requires operating an RHR pump and injecting into the reactor coolant system. At power operation this is not possible due to system design pressure and interlocks that prevent operation of the RHR system in cooldown alignment when RCS pressure exceeds 515 psig.

During normal cold shutdown conditions, injection via the RHR pumps is practical and these valves can be full-stroke exercised. Since they have no position indicators and are installed such that the only lineup available causes them to form a parallel path, full accident flow through each valve cannot be confirmed and thus full stroke verification by simple means is not possible. Employing non-obtrusive methods for verifying full stroke would require extensive preparations including containment entry, insulation removal, erection of scaffolding, etc. and thus is not practical during cold shutdown periods.

3-0876 D&E
4-0876 D&E
Alternate Low Head Injection Line Check Valves

These are simple acting check valves with no provision for determining disk position and therefore the only practical means of verifying closure involves performance of a leaktest. Performance of such a test at each cold shutdown would constitute an unreasonable burden on the plant staff. The frequency for leakage testing of these valves is currently governed by Plant Technical Specification 4.4.6.2.2 for pressure isolation valves, which requires that these valves be tested as follows:

* At least once every 18 months;

* Prior to entering Mode 2 whenever the plant has been in cold shutdown for 7 days or more and if leakage testing has not been performed in the previous 9 months;

* Prior to returning a valve to service following maintenance, repair, or replacement work on the valve; and

* Following valve actuation due to automatic or manual action or flow through the valve:

    1. Within 24 hours by verifying valve closure, and

    2. Prior to entering Mode 2 by verifying valve leakrate

Additionally, leakage testing of these valves under the requirements of Technical Specifications has been verified to meet or exceed the intent of OM-10, paragraph 4.2.2.3.

3-0945E
4-0945E
Safety Injection Nitrogen Supply Check Valve

These are check valves with no external means of position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. This would require entry into the containment building and thus is impractical to perform during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdown.

Containment Spray (5613(4)-M-3068-1)

3-0890 A&B
4-0890 A&B
Containment Spray Pump Discharge Check Valves

Since these are simple-acting check valves with no provision for determining disc position, the only practical means of verifying closure involves performing a leaktest. Performance of such a test would require considerable effort, including isolation and draining of the containment spray piping, system reconfiguration, hooking up and disconnecting leak testing equipment, and pressurizing the downstream piping with air or nitrogen while venting the upstream piping. Such a test is not practical during plant operation and could result in delays in the return to power operation during cold shutdown periods to the extent that it would be an unreasonable burden on the plant staff. These valves remain closed at all times except during an MHA in which the containment spray system operates for containment cooling and de-pressurization.

Containment Post-Accident Evaluation (5613(4)-M-3094-1)

3-11-0003
4-11-0003
Containment Atmosphere Sample Return Isolation Check Valves

These are simple check valves with no external means of position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. This would require entry into the containment building and thus is impractical to perform during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdown.

Breathing Air System (5613(4)-M-3101-1)

3-BA-0201
4-BA-0201
Breathing Air Supply Containment Isolation Check Valves

These are simple check valves with no external means of position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. This would require entry into the containment building and thus is impractical to perform during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdown.

5.7 Relief Requests for Valve Testing

Relief request VR-1, provided in the following pages, is initiated per 10CFR50.55a where appropriate.

Revision 1
10/16/95

RELIEF REQUEST NO. VR-1

SYSTEM:

Containment Spray (5613(4)-M-3068-1)

COMPONENTS:

3-0890 A&B
4-0890 A&B

CATEGORY:

A/C

FUNCTION:

These check valves open to provide flowpaths from the containment spray pumps to the containment spray headers in containment. They are required to close for containment isolation.

PART 10 REQUIREMENT:

Check valves shall be exercised nominally every 3 months, except as provided by Paragraph 4.3.2.2, 4.3.2.3, 4.3.2.4, and 4.3.2.5. (Paragraph 4.3.2)

As an alternative to the testing in (a) or (b) above, disassembly every refueling outage to determine operability of check valves may be used. (Paragraph 4.3.2.4(c))

BASIS FOR RELIEF:

Full-stroke exercising these valves to the open position would require operating each containment spray pump at nominal accident flowrate. Since no recirculation flowpath exists downstream of these valves, the only flowpath available for such a test would result in injecting radioactive-contaminated borated water into the containment spray headers and thence into the containment building via the spray nozzles. Dousing personnel and equipment in this manner is obviously undesirable.

RELIEF REQUEST NO. VR-1 (cont.)

BASIS FOR RELIEF (cont.)

Partial stroking of the valves can be achieved by pressurizing the upstream piping with air or nitrogen via the air test connection. Performing partial flow exercising by this method during any mode of plant operation (at power or cold shutdown), however, has the potential of creating an airborne contamination personnel hazard in the auxiliary building and containment.

The alternate testing proposed below meets the intent of Reference 2.7, Position 2 for sample inspection programs.

Background

Each of these valves has been disassembled and inspected in the past and they have not displayed any indication of degradation that would impede their capability to perform their safety function to open. Past inspections were conducted as follows with no indication of a valve in-operability with respect to its capability to full open:

3-0890A	4-7-90 and 11-28-92
3-0890B	3-24-90 and 11-28-92
4-0890A	3-18-89 and 3-8-91
4-0890B	3-18-89, 3-8-91 and 5-18-93

ALTERNATE TESTING:

During each reactor refueling outage at least one of these valves will be disassembled, inspected, and manually exercised on a sequential and rotating schedule. If, in the course of this inspection a valve is found to be inoperable with respect to its function to fully open, then the other valve will be inspected during the same outage. During activities associated with valve disassembly and inspection and prior to system closure, appropriate precautions will be applied and inspections performed to ensure internal cleanliness standards are maintained and foreign materials are excluded from valve and system internals. These measures may include creating controlled work areas, maintaining a tool and equipment accounting system, installation of covers during non-work periods, and final close-out inspections.

Following valve re-assembly, the subject valve will be partial-stroked in the open direction and a seat leakage test will be performed. These functional testing activities will ensure that the subject valve has been re-assembled and aligned properly.

LEGEND A

LEGEND FOR PUMP PROGRAM TABLES

PUMP NUMBER	**Numerical designator indicated on the respective flow diagram.**
PUMP NUMBER, C/D	**Refers to system test configuration during cold shutdown or refueling outage conditions.**
DESCRIPTION	**Generic name/function of the pump.**
CL	**ISI Classification per the associated ISI boundary drawing(s)**
DRAWING #/COORD	**Corresponds to the flow diagram and drawing coordinates of the pump.**
Test Parameters	**The table indicates by a "Y" (yes) or "N" (no) that the specific parameter is measured, evaluated, and recorded per the applicable Code requirement. If a "N" is indicated, the associated relief request number is also noted in the same column. "NA" indicates that the specific parameter is not applicable to this pump.**
PR-XX	**Where indicated this refers to the specific relief request where there is a deviation regarding the measurement or analysis of a parameter.**

LEGEND B

LEGEND FOR VALVE PROGRAM TABLES

VALVE NUMBER	The plant alpha-numerical designator for the subject valve
COORD	The coordinate location of the valve on the designated drawing
CL	The ISI Classification of the valve
CAT	The valve category per Paragraph 1.4
SIZE	The valve's nominal size in inches
TYPE	The valve type
A/P	The active (A) or passive (P) determination for the valve
ACT. TYPE	The valve actuator type as follows: A/O Air-operated MAN Manual valve MO Electric motor-operated S/A Self-actuated SO Solenoid-operated
NORM POS.	Designates the normal position of the valve during plant operation at power
REM IND	Notes if a valve has remote position indication
FAIL MODE	Identifies the failure mode (open or closed) for a valve. FAI indicates the valve fails "as is".

LEGEND B (Continued)

LEGEND FOR VALVE PROGRAM TABLES

EXAM — Identifies the test requirements for a valve as follows:

EO	Exercise to the open position-stroke time will not be measured.
EC	Exercise to the closed position-stroke time will not be measured.
FS	Fail safe test
INSP	Disassembly and inspection of check valves
PEO	Partial-stroke test to the open position of check valves
S/R	Safety/relief valve setpoint test
SLT-1	Seat leakrate test per 10 CFR 50, App J
SLT-2	Seat leakrate test for pressure isolation valves
TC	Exercise to closed position-stroke time will be measured.
TO	Exercise to open position-stroke time will be measured
V	Position indication verification

TEST FREQ — Identifies the required test interval as follows:

1	Each reactor refueling outage (cycle)
2	Cold shutdown as defined by Tech. Specs.
3	Quarterly (during plant operation)
4	During cold shutdown with the reactor coolant system cooled down and vented
5	Every 2 years
6	Prior to placing a system or component in operable status
7	Other (See applicable Request for Relief or Applicable Notation)
8	5 Years
9	10 Years

RELIEF REQ — Refers to the specific relief request associated with the indicated test requirement.

Appendix A

Pump Program Tables
Unit 3

PUMP NUMBER	DESCRIPTION	CL	DRAWING #/COORD	SPEED	DISCH. PRES.	DIFF. PRES.	FLOW RATE	VIBRA.	REMARKS
3-P10A	DIESEL OIL TRANSFER	NA	5613-M-3022-3/D-5	NA	NA	Y	Y	Y	
3-P10B	DIESEL OIL TRANSFER	NA	5613-M-3022-4/C-4	NA	NA	Y	Y	Y	
3-P201A	CHARGING	2	5613-M-3047-2/G-5	Y	Y	NA	Y	Y	
3-P201B	CHARGING	2	5613-M-3047-2/F-5	Y	Y	NA	Y	Y	
3-P201C	CHARGING	2	5613-M-3047-2/D-5	Y	Y	NA	Y	Y	
3-P203A	BORIC ACID TRANSFER	2	5610-M-3046-1/D-6	NA	NA	Y:PR-4	N:PR-1	Y	
3-P203A,C/D	BORIC ACID TRANSFER	2	5610-M-3046-1/D-6	NA	NA	Y:PR-4	Y	Y	
3-P203B	BORIC ACID TRANSFER	2	5610-M-3046-1/E-5	NA	NA	Y:PR-4	N:PR-1	Y	
3-P203B,C/D	BORIC ACID TRANSFER	2	5610-M-3046-1/E-5	NA	NA	Y:PR-4	Y	Y	
3-P210A	RESIDUAL HEAT REMOVAL	2	5613-M-3050-1/C-3	NA	NA	Y:PR-3	Y:PR-2	Y	
3-P210A,C/D	RESIDUAL HEAT REMOVAL	2	5613-M-3050-1/C-3	NA	NA	Y:PR-3	Y	Y	
3-P210B	RESIDUAL HEAT REMOVAL	2	5613-M-3050-1/E-3	NA	NA	Y:PR-3	Y:PR-2	Y	
3-P210B,C/D	RESIDUAL HEAT REMOVAL	2	5613-M-3050-1/E-3	NA	NA	Y:PR-3	Y	Y	
3-P211A	COMPONENT COOLING	3	5613-M-3030-1/F-4	NA	NA	Y	Y	Y	
3-P211B	COMPONENT COOLING	3	5613-M-3030-1/F-3	NA	NA	Y:PR-4	Y	Y	
3-P211C	COMPONENT COOLING	3	5613-M-3030-1/F-2	NA	NA	Y:PR-4	Y	Y	
3-P212A	SPENT FUEL PIT COOLING	3	5613-M-3033-1/F-5	NA	NA	Y:PR-4	Y	Y	
3-P212B	SPENT FUEL PIT COOLING	3	5613-M-3033-1/E-5	NA	NA	Y:PR-4	Y	Y	
3-P214A	CONTAINMENT SPRAY	2	5613-M-3068-1/D-3	NA	NA	Y	Y	Y	
3-P214B	CONTAINMENT SPRAY	2	5613-M-3068-1/G-3	NA	NA	Y	Y	Y	
3-P215A	HIGH HEAD SAFETY INJECT	2	5613-M-3062-1/E-3	NA	NA	Y:PR-4	Y	Y	
3-P215B	HIGH HEAD SAFETY INJECT	2	5613-M-3062-1/G-3	NA	NA	Y:PR-4	Y	Y	
3-P9A	INTAKE COOLING WATER	3	5613-M-3019-1/F-2	NA	NA	Y	Y	Y:PR-5	
3-P9B	INTAKE COOLING WATER	3	5613-M-3019-1/D-2	NA	NA	Y	Y	Y:PR-5	

PUMP NUMBER	DESCRIPTION	CL	DRAWING #/COORD	SPEED	DISCH. PRES.	DIFF. PRES.	FLOW RATE	VIBRA.	REMARKS
3-P9C	INTAKE COOLING WATER	3	5613-M-3019-1/B-2	NA	NA	Y	Y	Y:PR-5	
P2A	AUXILIARY FEED	3	5610-M-3075-2/B-3	Y	NA	Y	Y	Y	COMMON
P2B	AUXILIARY FEED	3	5610-M-3075-2/E-3	Y	NA	Y	Y	Y	COMMON
P2C	AUXILIARY FEED	3	5610-M-3075-2/G-3	Y	NA	Y	Y	Y	COMMON

Appendix B

Pump Program Tables
Unit 4

PUMP NUMBER	DESCRIPTION	CL	DRAWING #/COORD	SPEED	DISCH. PRES.	DIFF. PRES.	FLOW RATE	VIBRA.	REMARKS
4-P201A	CHARGING	2	5614-M-3047-2/G-5	Y	Y	NA	Y	Y	
4-P201B	CHARGING	2	5614-M-3047-2/F-5	Y	Y	NA	Y	Y	
4-P201C	CHARGING	2	5614-M-3047-2/D-5	Y	Y	NA	Y	Y	
4-P203A	BORIC ACID TRANSFER	2	5610-M-3046-1/E-4	NA	NA	Y:PR-4	N:PR-1	Y	
4-P203A,C/D	BORIC ACID TRANSFER	2	5610-M-3046-1/E-4	NA	NA	Y:PR-4	Y	Y	
4-P203B	BORIC ACID TRANSFER	2	5610-M-3046-1/F-3	NA	NA	Y:PR-4	N:PR-1	Y	
4-P203B,C/D	BORIC ACID TRANSFER	2	5610-M-3046-1/F-3	NA	NA	Y:PR-4	Y	Y	
4-P210A	RESIDUAL HEAT REMOVAL	2	5614-M-3050-1/C-3	NA	NA	Y:PR-3	Y:PR-2	Y	
4-P210A,C/D	RESIDUAL HEAT REMOVAL	2	5614-M-3050-1/C-3	NA	NA	Y:PR-3	Y	Y	
4-P210B	RESIDUAL HEAT REMOVAL	2	5614-M-3050-1/E-3	NA	NA	Y:PR-3	Y:PR-2	Y	
4-P210B,C/D	RESIDUAL HEAT REMOVAL	2	5614-M-3050-1/E-3	NA	NA	Y:PR-3	Y	Y	
4-P211A	COMPONENT COOLING	3	5614-M-3030-1/F-4	NA	NA	Y:PR-4	Y	Y	
4-P211B	COMPONENT COOLING	3	5614-M-3030-1/F-3	NA	NA	Y:PR-4	Y	Y	
4-P211C	COMPONENT COOLING	3	5614-M-3030-1/F-2	NA	NA	Y:PR-4	Y	Y	
4-P212A	SPENT FUEL PIT COOLING	3	5614-M-3033-1/F-5	NA	NA	Y:PR-4	Y	Y	
4-P212B	SPENT FUEL PIT COOLING	3	5614-M-3033-1/E-5	NA	NA	Y:PR-4	Y	Y	
4-P214A	CONTAINMENT SPRAY	2	5614-M-3068-1/C-3	NA	NA	Y	Y	Y	
4-P214B	CONTAINMENT SPRAY	2	5614-M-3068-1/G-3	NA	NA	Y	Y	Y	
4-P215A	HIGH HEAD SAFETY INJECT	2	5614-M-3062-1/E-3	NA	NA	Y:PR-4	Y	Y	
4-P215B	HIGH HEAD SAFETY INJECT	2	5614-M-3062-1/G-3	NA	NA	Y:PR-4	Y	Y	
4-P241A	DIESEL OIL TRANSFER	3	5614-M-3022-3/C-5	NA	Y	NA	Y	Y	
4-P241B	DIESEL OIL TRANSFER	3	5614-M-3022-4/C-5	NA	Y	NA	Y	Y	
4-P9A	INTAKE COOLING WATER	3	5614-M-3019-1/F-2	NA	NA	Y	Y	Y:PR-5	
4-P9B	INTAKE COOLING WATER	3	5614-M-3019-1/D-2	NA	NA	Y	Y	Y:PR-5	

PUMP NUMBER	DESCRIPTION	CL	DRAWING #/COORD	SPEED	DISCH. PRES.	DIFF. PRES.	FLOW RATE	VIBRA.	REMARKS
4-P9C	INTAKE COOLING WATER	3	5614-M-3019-1/B-2	NA	NA	Y	Y	Y:PR-5	

Appendix C

Valve Program Tables
Unit 3

P & ID: 5610-M-3013-1 SYSTEM: INSTRUMENT AIR/SERVICE AIR DIST.

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-40-0204	C-6	2	A	2.000	GATE	P	MAN	LC	NO		SLT-1	5		
3-40-0205	C-7	2	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
HV-3-0017	C-6	2	A	2.000	GLOBE	P	MAN	LC	NO		SLT-1	5		

P & ID: 5610-M-3046-1 SYSTEM: CVCS - BORIC ACID

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0397A	D-7	2	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	1		
											PEO	3		
3-0397B	E-6	2	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	1		
											PEO	3		

P & ID: 5610-M-3065-1 SYSTEM: NITROGEN AND HYDROGEN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0518	D-7	2	A/C	0.750	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
3-0519	D-6	2	A/C	0.750	S/CHK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
3-4639	C-6	2	A	0.750	DIAPH	P	MAN	LC	NO		SLT-1	5		
3-4656	D-7	2	A	1.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
CV-3-0855	E-6	2	A	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5610-M-3075-1 SYSTEM: AFW - TURBINE DRIVE FOR AFW PUMPS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
AFSS-0003B	D-4	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
AFSS-0003C	F-4	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
MOV-6459A	B-5	3	B	3.000	GATE	A	MO	NO	YES	FAI	TO	3		
											V	5		
MOV-6459B	D-5	3	B	3.000	GATE	A	MO	NO	YES	FAI	TO	3		
											V	5		
MOV-6459C	F-5	3	B	3.000	GATE	A	MO	NO	YES	FAI	TO	3		
											V	5		

P & ID: 5610-M-3075-2 SYSTEM: AFW - AUX. FEEDWATER SUPPLY TO STM GEN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	*TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
20-0143	B-7	3	C	6.000	CHECK	A	S/A	NC	NO		EC	6		NOTE 1
											EO	3		
20-0243	D-7	3	C	6.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	3		
20-0343	G-7	3	C	6.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	3		
AFWU-0013	A-4	3	C	1.000	CHECK	A	S/A	NC	NO		EO	3		
AFWU-0014	D-4	3	C	1.000	CHECK	A	S/A	NC	NO		EO	3		
AFWU-0015	F-4	3	C	1.000	CHECK	A	S/A	NC	NO		EO	3		
AFWU-3-0017	A-6	3	C	2.000	CHECK	A	S/A	NC	NO		INSP	1		
											PEO	3		
RV-6401A	B-4	3	C	1.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-6401B	D-4	3	C	1.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-6401C	F-4	3	C	1.000	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3013-7 SYSTEM: INSTRUMENT AIR

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-40-0336	B-3	2	A/C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
3-40-0340A	B-3	2	A/C	2.000	S/CHK	A	S/A	NO	NO		EC	1		
											SLT-1	5		

P & ID: 5613-M-3018-1 SYSTEM: CONDENSATE STORAGE

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-20-0401	D-3	3	C	8.000	CHECK	A	S/A	NC	NO		EO	3		

P & ID: 5613-M-3019-1 SYSTEM: INTAKE COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-50-0311	F-3	3	C	24.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
3-50-0321	D-3	3	C	24.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
3-50-0331	B-3	3	C	24.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
POV-3-4882	B-4	3	B	30.000	BUTFY	A	A/O	NO	YES	FC	FS	3		
											TC	3		
											V	5		
POV-3-4883	F-4	3	B	30.000	BUTFY	A	A/O	NO	YES	FC	FS	3		
											TC	3		
											V	5		

P & ID: 5613-M-3020-2 SYSTEM: PRIMARY MAKEUP WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-10-0567	D-5	2	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
3-10-0582	D-6	2	A	2.000	GATE	P	MAN	NC	NO		SLT-1	5		

P & ID: 5613-M-3022-1 SYSTEM: EDG 3A AIR STARTING

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-70-0274A	C-3	NC	C	2.000	CHECK	A	S/A	NC	NO		EC	3		NOTE 2
3-70-0276A	D-3	NC	C	2.000	CHECK	A	S/A	NC	NO		EC	3		NOTE 2
RV-3-0210A	B-4	NC	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		NOTE 2
RV-3-0211A	B-4	NC	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		NOTE 2
RV-3-0212A	B-3	NC	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		NOTE 2
RV-3-0213A	B-3	NC	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		NOTE 2

P & ID: 5613-M-3022-2 SYSTEM: EDG 3B AIR STARTING

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-70-0274B	C-3	NC	C	2.000	CHECK	A	S/A	NC	NO		EC	3		NOTE 2
3-70-0276B	D-3	NC	C	2.000	CHECK	A	S/A	NC	NO		EC	3		NOTE 2
RV-3-0210B	B-4	NC	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		NOTE 2
RV-3-0211B	B-4	NC	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		NOTE 2
RV-3-0212B	B-3	NC	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		NOTE 2
RV-3-0213B	B-3	NC	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		NOTE 2

P & ID: 5613-M-3022-3 SYSTEM: EDG 3A FUEL SYSTEM

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-70-0006A	C-5	NC	C	2.000	CHECK	A	S/A	NC	NO		EO	3		
CV-3-2046A	D-6	NC	B	2.000	GLOBE	A	A/O	NC	NO	FC	EO	3		NOTE 3
SV-3-2051A	C-4	NC	B	2.000	GLOBE	A	SO	NC	NO	FC	EO	3		NOTE 3
SV-3-3522A	F-4	NC	B	1.500	GLOBE	A	SO	NC	NO	FC	EO	3		NOTE 3

P & ID: 5613-M-3022-4 SYSTEM: EDG 3B FUEL SYSTEM

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-70-0006B	C-4	NC	C	2.000	CHECK	A	S/A	NC	NO		EO	3		
CV-3-2046B	C-6	NC	B	2.000	GLOBE	A	A/O	NC	NO	FC	EO	3		NOTE 3
SV-3-2051B	C-2	NC	B	2.000	GLOBE	A	SO	NC	NO	FC	EO	3		NOTE 3
SV-3-3522B	E-4	NC	B	1.500	GLOBE	A	SO	NC	NO	FC	EO	3		NOTE 3

P & ID: 5613-M-3030-1 SYSTEM: COMPONENT COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0702A	E-4	3	C	16.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
3-0702B	E-3	3	C	16.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
3-0702C	E-2	3	C	16.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
CWST VAC BKR	C-6	3	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	3		
RV-3-0707	C-7	3	C	3.000	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3030-2 SYSTEM: COMPONENT COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-3-0749A	F-7	3	B	16.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-3-0749B	F-7	3	B	16.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		

P & ID: 5613-M-3030-4 SYSTEM: COMPONENT COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-3-2903	D-3	2	B	10.000	BUTFY	P	A/O	NO	YES	FO	V	5		
CV-3-2904	C-3	2	B	10.000	BUTFY	P	A/O	NO	YES	FO	V	5		
CV-3-2905	B-3	2	B	10.000	BUTFY	P	A/O	NO	YES	FO	V	5		
CV-3-2906	G-3	2	B	10.000	BUTFY	A	A/O	NC	YES	FO	FS	3		
											TO	3		
											V	5		
CV-3-2907	F-3	2	B	10.000	BUTFY	A	A/O	NC	YES	FO	FS	3		
											TO	3		
											V	5		
CV-3-2908	E-3	2	B	10.000	BUTFY	A	A/O	NC	YES	FO	FS	3		
											TO	3		
											V	5		

P & ID: 5613-M-3030-5 SYSTEM: COMPONENT COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0721A	E-6	3	C	1.500	CHECK	A	S/A	NO	NO		EC	1		
3-0721B	A-6	3	C	1.500	CHECK	A	S/A	NO	NO		EC	1		
3-0721C	C-6	3	C	1.500	CHECK	A	S/A	NO	NO		EC	1		
3-0738	D-3	2	C	3.000	CHECK	A	S/A	NC	NO		EC	2		
CV-3-0739	C-2	2	B	3.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											TC	3		
											V	5		
MOV-3-0626	H-3	2	B	3.000	GATE	A	MO	NO	YES	FAI	TC	4		
											V	5		
MOV-3-0716A	E-2	3	B	6.000	GATE	A	MO	NO	YES	FAI	TC	4		
											V	5		
MOV-3-0716B	E-2	2	B	6.000	GATE	A	MO	NO	YES	FAI	TC	4		
											V	5		
MOV-3-0730	G-3	2	B	6.000	GATE	A	MO	NO	YES	FAI	TC	4		
											V	5		
MOV-3-1417	B-2	2	B	10.000	GATE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-3-1418	F-2	2	B	10.000	GATE	A	MO	NO	YES	FAI	TC	2		
											V	5		
RV-3-0715	C-3	3	C	3.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-0729	F-7	3	C	3.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-1426	E-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-1427	E-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-1428	C-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-1429	A-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-1430	D-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-1431	B-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3032-1 SYSTEM: STEAM GENERATOR BLOWDOWN RECOVERY

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-3-1425	D-2	2	B	1.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		
MOV-3-1426	C-2	2	B	1.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		
MOV-3-1427	B-2	2	B	1.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		

P & ID: 5613-M-3033-1 SYSTEM: SPENT FUEL POOL COOLING

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0911	F-5	3	C	8.000	CHECK	A	S/A	NO	NO		EO	3		
3-0914	E-5	3	C	8.000	CHECK	A	S/A	NO	NO		EO	3		

P & ID: 5613-M-3036-1 SYSTEM: SAMPLE SYSTEM - NSSS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-3-0951	A-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0953	B-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0955C	D-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0955D	E-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0955E	E-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0956A	A-3	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0956B	B-3	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0956D	E-3	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-3-6427A	C-2	2	A	0.375	GLOBE	A	SO	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5613-M-3036-1 (cont) SYSTEM: SAMPLE SYSTEM - NSSS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
SV-3-6427B	D-2	2	A	0.375	GLOBE	A	SO	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-3-6428	C-3	2	A	0.375	GLOBE	A	SO	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5613-M-3041-2 SYSTEM: REACTOR COOLANT (RCS)

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-3-0516	G-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
MOV-3-0535	B-6	1	B	3.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		
MOV-3-0536	C-6	1	B	3.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		
PCV-3-0455C	C-7	1	B	2.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
											V	5		
PCV-3-0456	B-7	1	B	2.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
											V	5		
RV-3-0551A	B-5	1	C	4.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-0551B	C-4	1	C	4.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-0551C	C-3	1	C	4.000	SAFE	A	S/A	NC	NO		S/R	8		
SV-3-6318A	E-7	2	B	1.000	GLOBE	A	SO	LC	YES	FC	TO	4		
											V	5		
SV-3-6318B	E-7	2	B	1.000	GLOBE	A	SO	LC	YES	FC	TO	4		
											V	5		
SV-3-6385	G-2	2	A	0.375	GLOBE	A	SO	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-3-6611	F-7	2	B	1.000	GLOBE	A	SO	LC	YES	FC	TO	4		
											V	5		
SV-3-6612	F-6	2	B	1.000	GLOBE	A	SO	LC	YES	FC	TO	4		
											V	5		

P & ID: 5613-M-3041-3 SYSTEM: RCS - REACTOR COOLANT PUMPS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-3-0519A	A-8	2	A	3.000	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0519B	A-3	2	A	3.000	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0522A	B-7	2	A	0.750	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0522B	B-7	2	A	0.750	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0522C	C-7	2	A	0.750	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5613-M-3047-1 SYSTEM: CVCS - CHARGING AND LETDOWN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-3-0200A	A-2	1	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0200B	B-2	1	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0200C	C-2	1	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-0204	C-4	2	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		
RV-3-0203	A-3	2	A/C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
											SLT-1	5		

P & ID: 5613-M-3047-2 SYSTEM: CVCS - CHARGING AND LETDOWN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0312A	C-8	1	C	3.000	CHECK	A	S/A	NO	NO		EO	3		
3-0312B	A-8	1	C	3.000	CHECK	A	S/A	NC	NO		EO	3		
3-0312C	E-7	1	C	3.000	CHECK	A	S/A	NO	NO		EC	1		
											EO	3		
											SLT-1	5		
3-0351	F-1	2	C	2.000	CHECK	A	S/A	NC	NO		EO	1		
3-0357	F-3	2	C	4.000	CHECK	A	S/A	NC	NO		EO	2		
CV-3-0310A	C-7	1	B	3.000	GLOBE	A	A/O	NO	YES	FO	FS	3		
											TO	3		
											V	5		
CV-3-0310B	A-7	1	B	3.000	GLOBE	A	A/O	NC	YES	FO	FS	3		
											TO	3		
											V	5		
HCV-3-0121	F-7	2	B	3.000	GLOBE	A	A/O	NO	NO	FO	FS	2		
											TO	2		
LCV-3-0115B	F-4	2	B	4.000	BUTFY	A	A/O	NC	YES	FC	TO	2		
											V	5		
LCV-3-0115C	C-4	2	B	4.000	GATE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-3-0350	F-1	2	B	2.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
RV-3-0283A	G-5	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-0283B	E-5	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-0283C	C-5	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-0311	E-8	1	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3047-3 SYSTEM: CVCS - SEAL WATER INJECTION TO RCP

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0298A	F-4	1	C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
3-0298B	B-4	1	C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
3-0298C	D-4	1	C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
MOV-3-0381	H-3	2	A	3.000	GATE	A	MO	NO	YES	FAI	SLT-1	5		
											TC	4		
											V	5		
MOV-3-6386	H-4	2	A	3.000	GATE	A	MO	NO	YES	FAI	SLT-1	5		
											TC	4		
											V	5		
RV-3-0382	G-5	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3050-1 SYSTEM: RESIDUAL HEAT REMOVAL

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0741A	D-7	2	B	2.000	GATE	A	MAN	NC	NO		EC	3		
											EO	3		
3-0752A	C-2	2	B	14.000	GATE	A	MAN	NO	NO		EC	3		
											EO	3		
3-0752B	E-2	2	B	14.000	GATE	A	MAN	NO	NO		EC	3		
											EO	3		
3-0753A	C-4	2	C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	2		
											PEO	3		
3-0753B	E-4	2	C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	2		
											PEO	3		
3-2052	A-7	2	C	1.000	CHECK	A	S/A	NC	NO		EO	1		
HCV-3-0758	C-6	2	B	12.000	BUTFY	P	A/O	NO	NO	FO	FS	2		
MOV-3-0750	F-8	1	A	14.000	GATE	A	MO	LC	YES	FAI	SLT-2	5		
											TC	2		
											TO	2		
											V	5		
MOV-3-0751	F-7	1	A	14.000	GATE	A	MO	LC	YES	FAI	SLT-2	5		
											TC	2		
											TO	2		
											V	5		
MOV-3-0860A	A-6	2	B	14.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-3-0860B	B-6	2	B	14.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-3-0861A	A-5	2	B	14.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-3-0861B	B-5	2	B	14.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-3-0862A	E-1	2	B	14.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		

P & ID: 5613-M-3050-1 (cont) SYSTEM: RESIDUAL HEAT REMOVAL

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-3-0862B	D-1	2	B	14.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-3-0863A	F-5	2	B	8.000	GATE	A	MO	LC	YES	FAI	TO	2		
											V	5		
MOV-3-0863B	F-5	2	B	8.000	GATE	A	MO	LC	YES	FAI	TO	2		
											V	5		
MOV-3-0872	G-6	2	B	8.000	GATE	P	MO	NC	YES	FAI	V	5		

P & ID: 5613-M-3053-1 SYSTEM: CONTAINMENT PURGE AND PENETRATION CLG

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-2024	H-6	2	A	0.375	GATE	P	MAN	NC	NO		SLT-1	5		
3-2025	A-6	2	A	0.375	GLOBE	P	MAN	NC	NO		SLT-1	5		
3-2026	B-6	2	A	0.375	GLOBE	P	MAN	NC	NO		SLT-1	5		
CV-3-2819	E-7	2	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-2826	E-6	2	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
POV-3-2600	C-6	2	A	48.000	BUTFY	A	A/O	NC	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		
POV-3-2601	C-7	2	A	48.000	BUTFY	A	A/O	NC	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		
POV-3-2602	D-6	2	A	54.000	BUTFY	A	A/O	NC	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		
POV-3-2603	D-7	2	A	54.000	BUTFY	A	A/O	NC	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		

P & ID: 5613-M-3061-1 SYSTEM: WASTE DISPOSAL LIQUID - RCDT AND PUMPS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-3-2821	H-6	2	A	3.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-2822	H-5	2	A	3.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-4658A	B-6	2	A	1.000	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-4658B	B-6	2	A	1.000	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-4659A	D-6	2	A	0.750	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-4659B	D-6	2	A	0.750	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-4668A	G-5	2	A	3.000	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-3-4668B	G-6	2	A	3.000	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5613-M-3062-1 SYSTEM: SAFETY INJECTION

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0874A	C-7	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
3-0874B	F-7	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
3-0874C	F-2	2	C	2.000	CHECK	A	S/A	NC	NO		EO	3		
3-0879A	G-5	2	C	3.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	1		
											PEO	3		
3-0879B	D-4	2	C	3.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	1		
											PEO	3		
3-0893A	F-4	2	C	0.750	CHECK	A	S/A	NC	NO		EO	3		
3-0893B	E-4	2	C	0.750	CHECK	A	S/A	NC	NO		EO	3		
MOV-0878A	D-5	2	B	4.000	GATE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-0878B	D-5	2	B	4.000	GATE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-3-0856A	B-1	2	B	2.000	GLOBE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-3-0856B	B-2	2	B	2.000	GLOBE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-3-0864A	B-4	2	B	16.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-3-0864B	B-4	2	B	16.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-3-0866A	D-7	1	B	2.000	GLOBE	A	MO	LC	YES	FAI	TC	2		
											TO	2		
											V	5		

P & ID: 5613-M-3062-1 (cont) SYSTEM: SAFETY INJECTION

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-3-0866B	F-7	1	B	2.000	GLOBE	A	MO	LC	YES	FAI	TC	2		
											TO	2		
											V	5		
MOV-3-0869	E-6	2	B	3.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
RV-3-6511	E-8	2	C	0.250	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3062-2 SYSTEM: SAFETY INJECTION

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-3-0843A	B-6	2	B	4.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
MOV-3-0843B	C-6	2	B	4.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
RV-3-0857	D-4	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3064-1 SYSTEM: SAFETY INJECTION ACCUMULATOR INSIDE CTMT

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0873A	B-2	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
3-0873B	B-2	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
3-0873C	B-2	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
3-0875A	D-8	1	A/C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		
3-0875B	E-8	1	A/C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		
3-0875C	E-8	1	A/C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		
3-0875D	G-7	1	C	10.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
3-0875E	G-5	1	C	10.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
3-0875F	G-3	1	C	10.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
3-0876A	H-7	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	2		
											SLT-2	5		
3-0876B	G-5	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		

P & ID: 5613-M-3064-1 (cont) SYSTEM: SAFETY INJECTION ACCUMULATOR INSIDE CTMT

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0876C	G-3	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		
3-0876D	G-5	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-2	5		
3-0876E	G-3	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-2	5		
3-0945E	C-2	2	A/C	1.000	S/CHK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
CV-3-0850A	F-7	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-3-0850B	F-7	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-3-0850C	F-5	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-3-0850D	F-5	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-3-0850E	F-3	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-3-0850F	F-3	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-3-0851A	C-7	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-3-0851B	C-5	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-3-0851C	C-3	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-3-0852A	F-6	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-3-0852B	F-4	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-3-0852C	F-2	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		

P & ID: 5613-M-3064-1 (cont) SYSTEM: SAFETY INJECTION ACCUMULATOR INSIDE CTMT

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-3-0853A	C-6	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-3-0853B	C-4	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-3-0853C	C-2	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
MOV-3-0744A	H-3	2	B	10.000	GATE	A	MO	NC	YES	FAI	TC	2		
											TO	2		
											V	5		
MOV-3-0744B	G-3	2	B	10.000	GATE	A	MO	NC	YES	FAI	TC	2		
											TO	2		
											V	5		
MOV-3-0865A	F-6	2	B	10.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-3-0865B	F-4	2	B	10.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-3-0865C	F-2	2	B	10.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
RV-3-0706	G-2	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-0858A	D-6	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-0858B	D-4	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-0858C	D-2	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-3-0859	A-2	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3068-1 SYSTEM: CONTAINMENT SPRAY

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-0883M	C-5	2	A	1.000	GLOBE	P	MAN	NC	NO		SLT-1	5		
3-0883N	E-5	2	A	1.000	GLOBE	P	MAN	NC	NO		SLT-1	5		
3-0890A	D-5	2	A/C	6.000	CHECK	A	S/A	NC	NO		EC	5		
											INSP	7	VR-1	
											PEO	7	VR-1	
											SLT-1	5		
3-0890B	G-5	2	A/C	6.000	CHECK	A	S/A	NC	NO		EC	5		
											INSP	7	VR-1	
											PEO	7	VR-1	
											SLT-1	5		
MOV-3-0880A	D-5	2	A	6.000	GATE	A	MO	NC	YES	FAI	SLT-1	5		
											TC	3		
											TO	3		
											V	5		
MOV-3-0880B	G-5	2	A	6.000	GATE	A	MO	NC	YES	FAI	SLT-1	5		
											TC	3		
											TO	3		
											V	5		
RV-3-0871	C-2	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5613-M-3072-1 SYSTEM: MAIN STEAM

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-10-0004	G-6	NC	C	26.000	S/CHK	A	S/A	NO	NO		EC	2		NOTE 4
											INSP	7		
3-10-0005	E-6	NC	C	26.000	S/CHK	A	S/A	NO	NO		EC	2		NOTE 4
											INSP	7		
3-10-0006	B-6	NC	C	26.000	S/CHK	A	S/A	NO	NO		EC	2		NOTE 4
											INSP	7		
CV-3-1606	F-4	2	B	6.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
CV-3-1607	D-4	2	B	6.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
CV-3-1608	B-4	2	B	6.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
MOV-3-1400	F-6	2	B	2.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											V	5		
MOV-3-1401	D-6	2	B	2.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											V	5		
MOV-3-1402	B-6	2	B	2.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											V	5		
POV-3-2604	G-6	2	B/C	26.000	PA/CHK	A	A/O	NO	YES	FAI	TC	2		
											V	5		
POV-3-2605	E-6	2	B/C	26.000	PA/CHK	A	A/O	NO	YES	FAI	TC	2		
											V	5		
POV-3-2606	B-6	2	B/C	26.000	PA/CHK	A	A/O	NO	YES	FAI	TC	2		
											V	5		
RV-3-1400	G-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1401	G-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1402	H-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		

P & ID: 5613-M-3072-1 (cont) SYSTEM: MAIN STEAM

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
RV-3-1403	F-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1405	E-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1406	D-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1407	E-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1408	D-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1410	B-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1411	B-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1412	C-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-3-1413	A-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		

P & ID: 5613-M-3074-3 SYSTEM: FEEDWATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-20-0137	G-6	2	C	0.500	CHECK	A	S/A	NO	NO		EC	3		
3-20-0237	E-6	2	C	0.500	CHECK	A	S/A	NO	NO		EC	3		
3-20-0337	B-6	2	C	0.500	CHECK	A	S/A	NO	NO		EC	3		
FCV-3-0478	G-4	2	B	14.000	GLOBE	A	A/O	NO	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-3-0479	H-3	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-3-0488	D-4	2	B	14.000	GLOBE	A	A/O	NO	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-3-0489	E-3	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-3-0498	B-4	2	B	14.000	GLOBE	A	A/O	NO	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-3-0499	C-3	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	FS	2		
											TC	2		
											V	5		

P & ID: 5613-M-3074-4 SYSTEM: STEAM GENERATOR BLOWDOWN RECOVERY

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-3-6275A	G-2	2	B	6.000	GLOBE	A	A/O	NO	YES	FAI	TC	3		
											V	5		
CV-3-6275B	E-2	2	B	6.000	GLOBE	A	A/O	NO	YES	FAI	TC	3		
											V	5		
CV-3-6275C	C-2	2	B	6.000	GLOBE	A	A/O	NO	YES	FAI	TC	3		
											V	5		
SV-3-6275A-1	G-3	2	B	0.750	GLOBE	A	SO	NO	YES	FC	FS	3		
											TC	3		
											V	5		
SV-3-6275B-1	D-3	2	B	0.750	GLOBE	A	SO	NO	YES	FC	FS	3		
											TC	3		
											V	5		
SV-3-6275C-1	B-3	2	B	0.750	GLOBE	A	SO	NO	YES	FC	FS	3		
											TC	3		
											V	5		

P & ID: 5613-M-3075-1 SYSTEM: AFW STEAM TO AUX. FEEDWATER PUMP TURBINE

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-10-0083	C-7	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
3-10-0087	F-7	3	C	4.000	CHECK	A	S/A	NC	NO		EO	6		NOTE 1
3-10-0375	G-3	2	C	3.000	CHECK	A	S/A	NC	NO		EO	3		
3-10-0376	E-3	2	C	3.000	CHECK	A	S/A	NC	NO		EO	3		
3-10-0377	C-3	2	C	3.000	CHECK	A	S/A	NC	NO		EO	3		
3-10-0381	G-4	3	C	4.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	3		
3-10-0382	E-4	3	C	4.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	3		
3-10-0383	C-4	3	C	4.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	3		
AFSS-3-0005	B-6	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
MOV-3-1403	G-3	2	B	4.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
MOV-3-1404	E-3	2	B	4.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
MOV-3-1405	C-3	2	B	4.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		

P & ID: 5613-M-3075-2 SYSTEM: AFW - AUXILIARY FEEDWATER TO STM GEN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-20-0140	F-7	2	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
3-20-0240	D-7	2	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
3-20-0340	B-7	2	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
AFPD-3-0010	H-3	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
AFPD-3-0012	E-3	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
AFPD-3-0014	C-3	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
CV-3-2816	F-7	3	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-3-2817	D-7	3	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-3-2818	B-7	3	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-3-2831	G-7	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-3-2832	E-7	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-3-2833	C-7	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		

P & ID: 5613-M-3094-1 SYSTEM: CONTAINMENT POST-ACCIDENT EVALUATION.

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-11-0003	B-2	2	A/C	1.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
HV-3-0001	H-2	2	A	2.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
HV-3-0002	H-4	2	A	2.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
HV-3-0003	G-2	2	A	2.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
HV-3-0004	G-4	2	A	2.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
PAHM-3-0001A	B-3	2	A	0.750	GLOBE	P	MAN	NC	NO		SLT-1	5		
PAHM-3-0001B	B-2	2	A	0.750	GLOBE	P	MAN	NC	NO		SLT-1	5		
PAHM-3-0002A	D-4	2	A	0.750	GLOBE	P	MAN	NC	NO		SLT-1	5		
PAHM-3-0002B	D-3	2	A	0.750	GLOBE	P	MAN	NC	NO		SLT-1	5		
SV-3-2911	A-3	2	A	1.000	GLOBE	A	SO	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-3-2912	B-3	2	A	1.000	GLOBE	A	SO	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-3-2913	A-3	2	A	1.000	GLOBE	A	SO	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5613-M-3101-1 SYSTEM: BREATHING AIR SYSTEM (BA)

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-BA-0201	D-3	2	A/C	2.500	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
CV-3-6165	D-2	2	A	2.500	GATE	P	A/O	LC	YES		SLT-1	5		
											V	5		

P & ID: VARIOUS SYSTEM: TEST CONNECTION

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
3-2023		2	A	0.375	GLOBE	P	MAN	NC	NO		SLT-1	5		

NOTES

Pg 53,90 1. Auxiliary Feedwater (AFW) Pump "A" Discharge Check Valve, 20-143, will be exercised closed whenever "A" AFW Pump is lined up to operate in parallel with either of the other AFW Pumps. Auxiliary Feedwater Steam Supply Valve, 3-10-087 will be exercised open whenever AFW Pump "C" is aligned to Train 1.

Pg 58,59 2. Valves 3-70-274 A&B, 3-70-276 A&B, RV-3-210 A&B, RV-3-211 A&B, RV-3-212 A&B, and RV-3-213 A&B are not included within the ISI class boundaries and, as such, are exempt from the inclusive requirements of the Code. These valves will be tested in accordance with Code requirements, except where determined impractical, in which case specific relief from the Code is not required.

Pg 60,61 3. Valves CV-3-2046 A&B, SV-3-2051 A&B, SV-3-3522 A&B are not included within the ISI class boundaries and, as such, are exempt from the inclusive requirements of the Code. These valves have been included in the Program to ensure that inservice testing is adequate to demonstrate their continued operability. These valves will be tested in accordance with Code requirements, except where determined impractical, in which case specific relief from the Code is not required.

These valves will be tested in conjunction with testing of the emergency diesel generators and the associated fuel oil transfer pumps. However, valve stroke time will not be measured. The satisfactory response of the associated diesel generator and the fuel oil transfer pumps will demonstrate valve operability.

Pg 86 4. Valves 3-10-004 through 3-10-006 are not included within the ISI class boundaries and, as such, are exempt from the inclusive requirements of the Code. These components have been included in the Program to ensure that inservice testing is adequate to demonstrate their continued operability. These valves will be tested in accordance with Code requirements, except where determined impractical, in which case specific relief from the Code is not required.

These are large stop check valves in the main steam lines leading to the main turbine generator. There is no practical way of verifying closure of these valves by way of a back seat or reverse flow test. Exercising a valve manually using the hand wheel provides some assurance that the disc moves freely within the valve body. Furthermore, the valves are disassembled, inspected, and manually exercised at least once during each 10-year inspection interval.

Appendix D

Valve Program Tables
Unit 4

P & ID: 5610-M-3013-1 SYSTEM: INSTRUMENT AIR/SERVICE AIR DIST.

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-40-0204	F-6	2	A	2.000	GATE	P	MAN	LC	NO		SLT-1	5		
4-40-0205	F-7	2	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
HV-4-0017	E-6	2	A	2.000	GLOBE	P	MAN	LC	NO		SLT-1	5		

P & ID: 5610-M-3046-1 SYSTEM: CVCS - BORIC ACID

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0397C	E-5	2	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	1		
											PEO	3		
4-0397D	F-4	2	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	1		
											PEO	3		

P & ID: 5610-M-3065-1 SYSTEM: NITROGEN AND HYDROGEN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0518	D-7	2	A/C	0.750	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
4-0519	D-6	2	A/C	0.750	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
4-4639	B-6	2	A	0.750	DIAPH	P	MAN	LC	NO		SLT-1	5		
4-4656	C-7	2	A	1.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
CV-4-0855	E-3	2	A	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5610-M-3075-2 SYSTEM: AUX FEEDWATER SUPPLY TO STM GEN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
AFWU-4-0016	G-6	3	C	2.000	CHECK	A	S/A	NC	NO		INSP	1		
											PEO	3		

P & ID: 5614-M-3013-7 SYSTEM: INSTRUMENT AIR

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-40-0336	D-3	2	A/C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
4-40-0340A	C-3	2	A/C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		

P & ID: 5614-M-3018-1 SYSTEM: CONDENSATE STORAGE

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-20-0401	E-6	3	C	8.000	CHECK	A	S/A	NC	NO		EO	3		

P & ID: 5614-M-3019-1 SYSTEM: INTAKE COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-50-0311	F-3	3	C	24.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
4-50-0321	D-3	3	C	24.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
4-50-0331	B-3	3	C	24.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
POV-4-4882	F-4	3	B	30.000	BUTFY	A	A/O	NO	YES	FC	FS	3		
											TC	3		
											V	5		
POV-4-4883	B-4	3	B	30.000	BUTFY	A	A/O	NO	YES	FC	FS	3		
											TC	3		
											V	5		

P & ID: 5614-M-3020-2 SYSTEM: PRIMARY MAKEUP WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-10-0567	C-5	2	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
4-10-0582	C-6	2	A	2.000	GATE	P	MAN	NC	NO		SLT-1	5		

P & ID: 5614-M-3022-1 SYSTEM: EMERGENCY DIESEL 4A AIR STARTING

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-70-0530A	D-2	3	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
4-70-0531A	D-3	3	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
RV-4-1456A	B-2	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1457A	B-3	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1458A	B-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1459A	B-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3022-2 SYSTEM: EMERGENCY DIESEL 4B AIR STARTING

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-70-0530B	D-2	3	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
4-70-0531B	D-3	3	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
RV-4-1456B	B-2	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1457B	B-3	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1458B	B-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1459B	B-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3022-3 SYSTEM: EDG 4A FUEL SYSTEM

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-70-0349A	C-7	3	C	2.000	CHECK	A	S/A	NC	NO		EO	3		
RV-4-1450A	B-6	3	C	1.000	SAFE	A	S/A	NC	NO		S/R	9		
SV-4-3434A	F-5	3	B	1.500	GATE	A	SO	NC	NO	FC	TO	3		

P & ID: 5614-M-3022-4 SYSTEM: EDG 4B FUEL SYSTEM

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-70-0349B	C-7	3	C	2.000	CHECK	A	S/A	NC	NO		EO	3		
RV-4-1450B	B-6	3	C	1.000	SAFE	A	S/A	NC	NO		S/R	9		
SV-4-3434B	D-7	3	B	1.500	GATE	A	SO	NC	NO	FC	TO	3		

P & ID: 5614-M-3030-1 SYSTEM: COMPONENT COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0702A	E-4	3	C	16.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
4-0702B	E-3	3	C	16.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
4-0702C	E-2	3	C	16.000	CHECK	A	S/A	NO	NO		EC	3		
											EO	3		
CWST VAC BKR	C-6	3	C	2.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	3		
RV-4-0707	C-7	3	C	3.000	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3030-2 SYSTEM: COMPONENT COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-4-0749A	F-6	3	B	16.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-4-0749B	F-7	3	B	16.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		

P & ID: 5614-M-3030-3 SYSTEM: COMPONENT COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-4-2903	D-3	2	B	10.000	BUTFY	P	A/O	NO	YES	FO	V	5		
CV-4-2904	C-3	2	B	10.000	BUTFY	P	A/O	NO	YES	FO	V	5		
CV-4-2905	B-3	2	B	10.000	BUTFY	P	A/O	NO	YES	FO	V	5		
CV-4-2906	G-3	2	B	10.000	BUTFY	A	A/O	NC	YES	FO	FS	3		
											TO	3		
											V	5		
CV-4-2907	F-3	2	B	10.000	BUTFY	A	A/O	NC	YES	FO	FS	3		
											TO	3		
											V	5		
CV-4-2908	E-3	2	B	10.000	BUTFY	A	A/O	NC	YES	FO	FS	3		
											TO	3		
											V	5		

P & ID: 5614-M-3030-4 SYSTEM: COMPONENT COOLING WATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0721A	E-6	3	C	1.500	CHECK	A	S/A	NO	NO		EC	1		
4-0721B	B-6	3	C	1.500	CHECK	A	S/A	NO	NO		EC	1		
4-0721C	D-6	3	C	1.500	CHECK	A	S/A	NO	NO		EC	1		
4-0738	D-3	2	C	3.000	CHECK	A	S/A	NC	NO		EC	2		
CV-4-0739	C-2	2	B	3.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											TC	3		
											V	5		
MOV-4-0626	H-3	2	B	3.000	GATE	A	MO	NO	YES	FAI	TC	4		
											V	5		
MOV-4-0716A	E-2	3	B	6.000	GATE	A	MO	NO	YES	FAI	TC	4		
											V	5		
MOV-4-0716B	E-2	2	B	6.000	GATE	A	MO	NO	YES	FAI	TC	4		
											V	5		
MOV-4-0730	G-3	2	B	6.000	GATE	A	MO	NO	YES	FAI	TC	4		
											V	5		
MOV-4-1417	B-2	2	B	10.000	GATE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-4-1418	F-2	2	B	10.000	GATE	A	MO	NO	YES	FAI	TC	2		
											V	5		
RV-4-0715	C-3	3	C	3.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-0729	F-7	3	C	3.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1426	E-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1427	D-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1428	B-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1429	A-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1430	D-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-1431	C-4	3	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3032-1 SYSTEM: STEAM GENERATOR BLOWDOWN RECOVERY

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-4-1425	D-2	2	B	1.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		
MOV-4-1426	C-2	2	B	1.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		
MOV-4-1427	A-2	2	B	1.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		

P & ID: 5614-M-3033-1 SYSTEM: SPENT FUEL POOL COOLING

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0911	F-5	3	C	8.000	CHECK	A	S/A	NO	NO		EO	3		
4-0914	E-5	3	C	8.000	CHECK	A	S/A	NO	NO		EO	3		

P & ID: 5614-M-3036-1 SYSTEM: SAMPLE SYSTEM - NSSS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-4-0951	A-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0953	B-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0955C	D-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0955D	E-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0955E	E-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0956A	A-3	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0956B	B-3	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0956D	E-3	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-4-6427A	C-2	2	A	0.375	GLOBE	A	SO	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5614-M-3036-1 (cont) SYSTEM: SAMPLE SYSTEM - NSSS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
SV-4-6427B	C-2	2	A	0.375	GLOBE	A	SO	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-4-6428	C-3	2	A	0.375	GLOBE	A	SO	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5614-M-3041-2 SYSTEM: REACTOR COOLANT (RCS)

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-4-0516	G-2	2	A	0.375	GLOBE	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
MOV-4-0535	B-6	1	B	3.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		
MOV-4-0536	C-6	1	B	3.000	GATE	A	MO	NO	YES	FAI	TC	3		
											V	5		
PCV-4-0455C	C-7	1	B	2.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
											V	5		
PCV-4-0456	B-7	1	B	2.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
											V	5		
RV-4-0551A	B-5	1	C	4.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-0551B	B-4	1	C	4.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-0551C	B-3	1	C	4.000	SAFE	A	S/A	NC	NO		S/R	8		
SV-4-6318A	D-6	2	B	1.000	GLOBE	A	SO	LC	YES	FC	TO	4		
											V	5		
SV-4-6318B	E-6	2	B	1.000	GLOBE	A	SO	LC	YES	FC	TO	4		
											V	5		
SV-4-6385	G-2	2	A	0.375	GLOBE	A	SO	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-4-6611	F-7	2	B	1.000	GLOBE	A	SO	LC	YES	FC	TO	4		
											V	5		
SV-4-6612	F-6	2	B	1.000	GLOBE	A	SO	LC	YES	FC	TO	4		
											V	5		

P & ID: 5614-M-3041-3 SYSTEM: RCS - REACTOR COOLANT PUMPS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-4-0519A	A-8	2	A	3.000	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0519B	A-2	2	A	3.000	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0522A	B-7	2	A	0.750	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0522B	B-7	2	A	0.750	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0522C	B-7	2	A	0.750	DIAPH	A	A/O	NC	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5614-M-3047-1 SYSTEM: CVCS - CHARGING AND LETDOWN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-4-0200A	A-2	1	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0200B	B-2	1	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0200C	C-2	1	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-0204	C-4	2	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		
RV-4-0203	A-3	2	A/C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
											SLT-1	5		

P & ID: 5614-M-3047-2 SYSTEM: CVCS - CHARGING AND LETDOWN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0312A	C-8	1	C	3.000	CHECK	A	S/A	NO	NO		EO	3		
4-0312B	A-7	1	C	3.000	CHECK	A	S/A	NC	NO		EO	3		
4-0312C	E-7	1	C	3.000	CHECK	A	S/A	NO	NO		EC	1		
											EO	3		
											SLT-1	5		
4-0351	F-2	2	C	2.000	CHECK	A	S/A	NC	NO		EO	1		
4-0357	F-3	2	C	4.000	CHECK	A	S/A	NC	NO		EO	2		
CV-4-0310A	C-7	1	B	3.000	GLOBE	A	A/O	NO	YES	FO	FS	3		
											TO	3		
											V	5		
CV-4-0310B	A-7	1	B	3.000	GLOBE	A	A/O	NC	YES	FO	FS	3		
											TO	3		
											V	5		
HCV-4-0121	F-7	2	B	3.000	GLOBE	A	A/O	NO	NO	FO	FS	2		
											TO	2		
LCV-4-0115B	F-4	2	B	4.000	BUTFY	A	A/O	NC	YES	FC	TO	2		
											V	5		
LCV-4-0115C	C-4	2	B	4.000	GATE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-4-0350	F-1	2	B	2.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
RV-4-0283A	G-5	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-0283B	E-5	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-0283C	C-5	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3047-3 SYSTEM: CVCS - SEAL WATER INJECTION TO RCP

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0298A	F-4	1	C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
4-0298B	D-4	1	C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
4-0298C	B-4	1	C	2.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
MOV-4-0381	H-2	2	A	3.000	GATE	A	MO	NO	YES	FAI	SLT-1	5		
											TC	4		
											V	5		
MOV-4-6386	H-4	2	A	3.000	GATE	A	MO	NO	YES	FAI	SLT-1	5		
											TC	4		
											V	5		
RV-4-0382	G-5	2	B	2.000	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3050-1 SYSTEM: RESIDUAL HEAT REMOVAL

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0741A	D-7	2	B	2.000	GATE	A	MAN	NC	NO		EC	3		
											EO	3		
4-0752A	C-2	2	B	14.000	GATE	A	MAN	NO	NO		EC	3		
											EO	3		
4-0752B	E-2	2	B	14.000,	GATE	A	MAN	NO	NO		EC	3		
											EO	3		
4-0753A	E-4	2	C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	2		
											PEO	3		
4-0753B	E-4	2	C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	2		
											PEO	3		
4-2052	A-7	2	C	1.000	CHECK	A	S/A	NC	NO		EO	1		
HCV-4-0758	C-6	2	B	12.000	BUTFY	P	A/O	NO	NO	FO	FS	2		
MOV-4-0750	F-8	1	A	14.000	GATE	A	MO	LC	YES	FAI	SLT-2	5		
											TC	2		
											TO	2		
											V	5		
MOV-4-0751	F-7	1	A	14.000	GATE	A	MO	LC	YES	FAI	SLT-2	5		
											TC	2		
											TO	2		
											V	5		
MOV-4-0860A	A-6	2	B	14.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-4-0860B	B-6	2	B	14.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-4-0861A	A-5	2	B	14.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-4-0861B	B-5	2	B	14.000	GATE	A	MO	NC	YES	FAI	TO	3		
											V	5		
MOV-4-0862A	E-1	2	B	14.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		

P & ID: 5614-M-3050-1 (cont) SYSTEM: RESIDUAL HEAT REMOVAL

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-4-0862B	D-1	2	B	14.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-4-0863A	F-5	2	B	8.000	GATE	A	MO	LC	YES	FAI	TO	2		
											V	5		
MOV-4-0863B	F-5	2	B	8.000	GATE	A	MO	LC	YES	FAI	TO	2		
											V	5		
MOV-4-0872	G-6	2	B	8.000	GATE	P	MO	NC	YES	FAI	V	5		

P & ID: 5614-M-3053-1 SYSTEM: CONTAINMENT PURGE AND PENETRATION CLG

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-2024	H-3	2	A	0.375	GATE	P	MAN	NC	NO		SLT-1	5		
4-2025	A-3	2	A	0.375	GLOBE	P	MAN	NC	NO		SLT-1	5		
4-2026	B-3	2	A	0.375	GLOBE	P	MAN	NC	NO		SLT-1	5		
CV-4-2819	F-2	2	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-2826	F-3	2	A	2.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
POV-4-2600	B-3	2	A	48.000	BUTFY	A	A/O	NC	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		
POV-4-2601	B-2	2	A	48.000	BUTFY	A	A/O	NC	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		
POV-4-2602	D-3	2	A	54.000	BUTFY	A	A/O	NC	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		
POV-4-2603	D-2	2	A	54.000	BUTFY	A	A/O	NC	YES	FC	FS	2		
											SLT-1	5		
											TC	2		
											V	5		

P & ID: 5614-M-3061-1 SYSTEM: WASTE DISPOSAL - LIQUID - RCDT AND PUMPS

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-4-2821	H-6	2	A	3.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-2822	H-5	2	A	3.000	GLOBE	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-4658A	B-6	2	A	1.000	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-4658B	B-7	2	A	1.000	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-4659A	D-6	2	A	0.750	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-4659B	D-7	2	A	0.750	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-4668A	G-5	2	A	3.000	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
CV-4-4668B	G-6	2	A	3.000	DIAPH	A	A/O	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5614-M-3062-1 SYSTEM: SAFETY INJECTION

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0874A	C-7	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
4-0874B	F-7	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
4-0874C	F-2	2	C	2.000	CHECK	A	S/A	NC	NO		EO	3		
4-0879C	E-4	2	C	3.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	1		
											PEO	3		
4-0879D	G-5	2	C	3.000	CHECK	A	S/A	NC	NO		EC	3		
											EO	1		
											PEO	3		
4-0893C	E-4	2	C	0.750	CHECK	A	S/A	NC	NO		EO	3		
4-0893D	F-4	2	C	0.750	CHECK	A	S/A	NC	NO		EO	3		
MOV-4-0856A	B-1	2	B	2.000	GLOBE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-4-0856B	B-1	2	B	2.000	GLOBE	A	MO	NO	YES	FAI	TC	2		
											V	5		
MOV-4-0864A	B-4	2	B	16.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-4-0864B	B-4	2	B	16.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-4-0866A	C-7	1	B	2.000	GLOBE	A	MO	LC	YES	FAI	TC	2		
											TO	2		
											V	5		
MOV-4-0866B	F-7	1	B	2.000	GLOBE	A	MO	LC	YES	FAI	TC	2		
											TO	2		
											V	5		
MOV-4-0869	E-6	2	B	3.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		

P & ID: 5614-M-3062-1 (cont) SYSTEM: SAFETY INJECTION THERMAL RELIEF PEN-18

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
RV-4-6511	F-7	2	C	0.250	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3062-2 SYSTEM: SAFETY INJECTION

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
MOV-4-0843A	B-6	2	B	4.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
MOV-4-0843B	C-6	2	B	4.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
RV-4-0857	D-4	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3064-1 SYSTEM: SAFETY INJECTION ACCUMULATOR INSIDE CTMT

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0873A	B-2	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
4-0873B	B-2	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
4-0873C	B-2	1	A/C	2.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
											SLT-2	5		
4-0875A	D-8	1	A/C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		
4-0875B	E-8	1	A/C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		
4-0875C	E-8	1	A/C	10.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		
4-0875D	G-7	1	C	10.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
4-0875E	G-5	1	C	10.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
4-0875F	G-3	1	C	10.000	CHECK	A	S/A	NC	NO		EC	1		
											EO	1		
4-0876A	H-7	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	2		
											SLT-2	5		
4-0876B	G-5	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		

P & ID: 5614-M-3064-1 (cont) SYSTEM: SAFETY INJECTION ACCUMULATOR INSIDE CTMT

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0876C	G-3	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	1		
											PEO	2		
											SLT-2	5		
4-0876D	G-5	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-2	5		
4-0876E	G-6	1	A/C	8.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-2	5		
4-0945E	B-2	2	A/C	1.000	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
CV-4-0850A	F-7	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-4-0850B	F-7	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-4-0850C	F-5	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-4-0850D	F-5	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-4-0850E	F-3	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-4-0850F	F-3	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-4-0851A	C-7	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-4-0851B	C-5	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-4-0851C	C-3	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-4-0852A	F-6	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-4-0852B	F-4	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		
CV-4-0852C	F-2	2	B	0.750	GLOBE	P	A/O	NC	YES	FC	V	5		

P & ID: 5614-M-3064-1 (cont) SYSTEM: SAFETY INJECTION ACCUMULATOR INSIDE CTMT

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-4-0853A	C-6	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-4-0853B	C-4	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
CV-4-0853C	C-2	2	B	1.000	GLOBE	A	A/O	NC	YES	FC	FS	3		
											TC	3		
											V	5		
MOV-4-0744A	H-3	2	B	10.000	GATE	A	MO	NC	YES	FAI	TC	2		
											TO	2		
											V	5		
MOV-4-0744B	G-3	2	B	10.000	GATE	A	MO	NC	YES	FAI	TC	2		
											TO	2		
											V	5		
MOV-4-0865A	F-6	2	B	10.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-4-0865B	F-4	2	B	10.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
MOV-4-0865C	F-2	2	B	10.000	GATE	A	MO	LO	YES	FAI	TC	2		
											V	5		
RV-4-0706	G-2	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-0858A	D-6	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-0858B	D-4	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-0858C	D-2	2	C	2.000	SAFE	A	S/A	NC	NO		S/R	9		
RV-4-0859	A-2	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3068-1 SYSTEM: CONTAINMENT SPRAY

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-0883M	C-5	2	A	1.000	GLOBE	P	MAN	NC	NO		SLT-1	5		
4-0883N	D-5	2	A	1.000	GLOBE	P	MAN	NC	NO		SLT-1	5		
4-0890A	C-6	2	A/C	6.000	CHECK	A	S/A	NC	NO		EC	5		
											INSP	7	VR-1	
											PEO	7	VR-1	
											SLT-1	5		
4-0890B	F-6	2	A/C	6.000	CHECK	A	S/A	NC	NO		EC	5		
											INSP	7	VR-1	
											PEO	7	VR-1	
											SLT-1	5		
MOV-4-0880A	C-4	2	A	6.000	GATE	A	MO	NC	YES	FAI	SLT-1	5		
											TC	3		
											TO	3		
											V	5		
MOV-4-0880B	F-4	2	A	6.000	GATE	A	MO	NC	YES	FAI	SLT-1	5		
											TC	3		
											TO	3		
											V	5		
RV-4-0871	G-2	2	C	0.750	SAFE	A	S/A	NC	NO		S/R	9		

P & ID: 5614-M-3072-1 SYSTEM: MAIN STEAM

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-10-0004	G-7	NC	C	26.000	S/CHK	A	S/A	NO	NO		EC	2		NOTE 1
											INSP	7		
4-10-0005	D-7	NC	C	26.000	S/CHK	A	S/A	NO	NO		EC	2		NOTE 1
											INSP	7		
4-10-0006	B-7	NC	C	26.000	S/CHK	A	S/A	NO	NO		EC	2		NOTE 1
											INSP	7		
CV-4-1606	F-4	2	B	6.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
CV-4-1607	D-4	2	B	6.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
CV-4-1608	B-4	2	B	6.000	GLOBE	A	A/O	NC	YES	FC	FS	2		
											TC	2		
											TO	2		
MOV-4-1400	F-6	2	B	2.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											V	5		
MOV-4-1401	D-6	2	B	2.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											V	5		
MOV-4-1402	B-6	2	B	2.000	GLOBE	A	MO	NC	YES	FAI	TC	3		
											V	5		
POV-4-2604	G-6	2	B/C	26.000	PA/CHK	A	A/O	NO	YES	FAI	TC	2		
											V	5		
POV-4-2605	D-6	2	B/C	26.000	PA/CHK	A	A/O	NO	YES	FAI	TC	2		
											V	5		
POV-4-2606	B-6	2	B/C	26.000	PA/CHK	A	A/O	NO	YES	FAI	TC	2		
											V	5		
RV-4-1400	G-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1401	G-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1402	H-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		

P & ID: 5614-M-3072-1 (cont) SYSTEM: MAIN STEAM

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
RV-4-1403	F-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1405	E-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1406	D-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1407	E-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1408	D-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1410	B-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1411	B-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1412	C-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		
RV-4-1413	A-5	2	C	6.000	SAFE	A	S/A	NC	NO		S/R	8		

P & ID: 5614-M-3074-3 SYSTEM: FEEDWATER

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-20-0137	G-6	2	C	0.500	CHECK	A	S/A	NO	NO		EC	3		
4-20-0237	E-6	2	C	0.500	CHECK	A	S/A	NO	NO		EC	3		
4-20-0337	B-6	2	C	0.500	CHECK	A	S/A	NO	NO		EC	3		
FCV-4-0478	G-4	2	B	14.000	GLOBE	A	A/O	NO	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-4-0479	H-3	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-4-0488	D-4	2	B	14.000	GLOBE	A	A/O	NO	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-4-0489	E-3	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-4-0498	B-4	2	B	14.000	GLOBE	A	A/O	NO	NO	FC	FS	2		
											TC	2		
											V	5		
FCV-4-0499	C-3	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	FS	2		
											TC	2		
											V	5		

P & ID: 5614-M-3074-4 SYSTEM: STEAM GEN BLOWDOWN RECOVERY

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
CV-4-6275A	G-2	2	B	6.000	GLOBE	A	A/O	NO	YES	FAI	TC	3		
											V	5		
CV-4-6275B	E-2	2	B	6.000	GLOBE	A	A/O	NO	YES	FAI	TC	3		
											V	5		
CV-4-6275C	C-2	2	B	6.000	GLOBE	A	A/O	NO	YES	FAI	TC	3		
											V	5		
SV-4-6275A-1	F-3	2	B	0.750	GLOBE	A	SO	NO	YES	FC	FS	3		
											TC	3		
											V	5		
SV-4-6275B-1	D-3	2	B	0.750	GLOBE	A	SO	NO	YES	FC	FS	3		
											TC	3		
											V	5		
SV-4-6275C-1	B-3	2	B	0.750	GLOBE	A	SO	NO	YES	FC	FS	3		
											TC	3		
											V	5		

P & ID: 5614-M-3075-1 SYSTEM: AFW-STEAM TO AUX. FEEDWATER PUMP TURBINE

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-10-0083	A-7	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
4-10-0087	D-7	3	C	4.000	CHECK	A	S/A	NC	NO		EO	6		NOTE 2
4-10-0375	F-3	2	C	3.000	CHECK	A	S/A	NC	NO		EO	3		
4-10-0376	D-3	2	C	3.000	CHECK	A	S/A	NC	NO		EO	3		
4-10-0377	B-3	2	C	3.000	CHECK	A	S/A	NC	NO		EO	3		
4-10-0381	F-4	3	C	4.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	3		
4-10-0382	D-4	3	C	4.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	3		
4-10-0383	B-4	3	C	4.000	CHECK	A	S/A	NC	NO		EC	2		
											EO	3		
AFSS-4-0005	F-5	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
MOV-4-1403	F-3	2	B	3.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
MOV-4-1404	D-3	2	B	3.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		
MOV-4-1405	B-3	2	B	3.000	GATE	A	MO	NC	YES	FAI	TC	3		
											TO	3		
											V	5		

P & ID: 5614-M-3075-2 SYSTEM: AFW - AUXILIARY FEEDWATER TO STM GEN

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-20-0140	F-7	2	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
4-20-0240	D-7	2	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
4-20-0340	B-7	2	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
AFPD-4-0009	H-3	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
AFPD-4-0011	E-3	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
AFPD-4-0013	C-3	3	C	4.000	CHECK	A	S/A	NC	NO		EO	3		
CV-4-2816	F-7	3	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-4-2817	D-7	3	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-4-2818	B-7	3	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-4-2831	G-7	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-4-2832	E-7	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		
CV-4-2833	C-7	2	B	4.000	GLOBE	A	A/O	NC	NO	FC	TO	3		

P & ID: 5614-M-3094-1 SYSTEM: CONTAINMENT POST-ACCIDENT EVALUATION

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-11-0003	B-2	2	A/C	1.000	CHECK	A	S/A	NO	NO		EC	1		
											SLT-1	5		
HV-4-0001	H-2	2	A	2.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
HV-4-0002	H-4	2	A	2.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
HV-4-0003	G-2	2	A	2.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
HV-4-0004	G-4	2	A	2.000	DIAPH	P	MAN	LC	NO		SLT-1	5		
PAHM-4-0001A	B-2	2	A	0.750	GLOBE	P	MAN	NC	NO		SLT-1	5		
PAHM-4-0001B	B-3	2	A	0.750	GLOBE	P	MAN	NC	NO		SLT-1	5		
PAHM-4-0002A	D-4	2	A	0.750	GLOBE	P	MAN	NC	NO		SLT-1	5		
PAHM-4-0002B	D-3	2	A	0.750	GLOBE	P	MAN	NC	NO		SLT-1	5		
SV-4-2911	A-3	2	A	1.000	GLOBE	A	SO	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-4-2912	B-3	2	A	1.000	GLOBE	A	SO	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		
SV-4-2913	A-3	2	A	1.000	GLOBE	A	SO	NO	YES	FC	FS	3		
											SLT-1	5		
											TC	3		
											V	5		

P & ID: 5614-M-3101-1 SYSTEM: BREATHING AIR SYSTEM (BA)

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-BA-0201	D-3	2	A/C	2.500	CHECK	A	S/A	NC	NO		EC	1		
											SLT-1	5		
CV-4-6165	D-2	2	A	2.500	GATE	P	A/O	LC	YES	FAI	SLT-1	5		
											V	5		

P & ID: VARIOUS SYSTEM: TEST CONNECTION

VALVE NUMBER	COORD.	CL	CAT.	SIZE	TYPE	A/P	ACT. TYPE	NORM POS.	REM IND	FAIL MODE	EXAM	TEST FREQ	RELIEF REQ.	REMARKS
4-10-0879		2	A	0.375	GLOBE	P	MAN	NC	NO		SLT-1	5		

NOTES

Pg 133 1. Valves 4-10-004 through 4-10-006 are not included within the ISI class boundaries and, as such, are exempt from the inclusive requirements of the Code. These components have been included in the Program to ensure that inservice testing is adequate to demonstrate their continued operability. These valves will be tested in accordance with Code requirements, except where determined impractical, in which case specific relief from the Code is not required.

These are large stop check valves in the main steam lines leading to the main turbine generator. There is no practical way of verifying closure of these valves by way of a back seat or reverse flow test. Exercising a valve manually using the hand wheel provides some assurance that the disc moves freely within the valve body. Furthermore, the valves are disassembled, inspected, and manually exercised at least once during each 10-year inspection interval.

Pg 137 2. Auxiliary Feedwater Steam Supply Valve, 4-10-087 will be tested whenever AFW Pump "C" is aligned to Train 1.

ATTACHMENT 3 TO L-95-277

PUMP AND VALVE RELIEF REQUEST SUMMARY

RELIEF REQUEST NUMBER	STATUS	SUMMARY OF CHANGES
PR-1	Approved (1)	No changes
PR-2	Approved (1)	Revised to address NRC Recommended Action Item 5.3.
PR-3	Approved (1)	No changes
PR-4	Approved with provisions (1)	Revised to address NRC Recommended Action Item 5.2. Resubmitted for NRC review and approval.
PR-5	Approved (2)	Revised to address frequency response of new vibration measuring device. Resubmitted for NRC review and approval.
VR-1	Approved (1)	No changes
VR-2	Withdrawn Accepted as a deferral with limitations(1)	IST program revised to address VR-2 related items listed under NRC Recommended Action Items 5.4 and 5.5.

(1) NRC letter to J. H. Goldberg dated October 27, 1994
(2) NRC letter to J. H. Goldberg dated May 19, 1994