

ATTACHMENT 3

Revision 2  
09/19/89

FLORIDA POWER and LIGHT COMPANY  
NUCLEAR ENERGY SERVICES  
700 Universe Boulevard  
Juno Beach, Florida 33408

SECOND TEN-YEAR INSERVICE INSPECTION INTERVAL  
INSERVICE TESTING PROGRAM

FOR

PUMPS AND VALVES

TURKEY POINT NUCLEAR POWER PLANT  
UNIT NO'S. 3 & 4  
P.O. BOX 3088  
FLORIDA CITY, FLORIDA 33034

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

NRC DOCKET NUMBERS: 50-250 / 50-251

DOCUMENT NUMBER: JNS-PTN-200 REVISION 2

ADMINISTRATIVE APPROVALS:

PREPARED BY: *John Zudo* DATE: 9/28/89  
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APPROVED BY: *John H. [Signature]* DATE: 10/2/89  
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APPROVED BY: *[Signature]* DATE: 10/2/89  
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REVIEWED BY: *[Signature]* DATE: 10-2-89  
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PLT. MGR. APPROVAL	<u><i>[Signature]</i></u>	DATE <u>10-2-89</u>



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RECORD OF REVISIONS

<u>REVISION NUMBER</u>	<u>DESCRIPTION OF REVISION REASON FOR THE CHANGE</u>	<u>DATE REVISED</u>	<u>APPROVALS</u>
0	ORIGINAL ISSUE OF PTN 3/4 IST PUMP AND VALVE PROGRAM	06-01-85	
1	TURKEY POINT PLANT, UNIT 3/4 PUMP AND VALVE TESTING PROGRAM	12-12-88	
2	GENERAL REVISION - RESPONSE TO NRC GENERIC LTR 89-04	09-19-89	



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

1.0 INTRODUCTION

Revision 2 of the Turkey Point (Units 3 & 4) ASME Inservice Inspection (IST) Program will be in effect through the end of the second 120-month (10-year) interval unless changed and reissued for reasons other than the routine update required at the start of the third interval per 10 CFR 50.55a(g). The second inspection intervals are defined as follows:

	<u>Begins</u>	<u>Ends</u>
Unit 3	February 22, 1984	February 21, 1994
Unit 4	April 15, 1984	April 14, 1994

This document outlines the IST Program for Turkey Point Plant, Units 3 and 4, based on the requirements of Section XI of the ASME Boiler and Pressure Vessel Code, 1983 Edition, including all addenda thereto through Summer, 1983 (the Code). References in this document to "IWP" or "IWV" correspond to Subsections IWP and IWV, respectively, of the ASME Section XI, 1983 Edition, unless otherwise noted.

The inservice testing identified in this Plan are to be performed specifically to verify the operational readiness of pumps and valves which have a specific function in mitigating the consequences of an accident or in bringing the reactor to a safe shutdown.

## 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
- 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 Unit 3 Technical Specifications
- 2.6 Turkey Point Plant Unit 4 Technical Specifications
- 2.7 ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition and Addenda through Winter, 1981
- 2.8 NRC Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs"





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### 3.0 INSERVICE TESTING PROGRAM FOR PUMPS

#### 3.1 Code Compliance

This IST Program for pumps meets the requirements of Subsection IWP of the Code and any interpretations or additional requirements imposed by Reference 2.8. 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 2.8.

#### 3.2 Allowable Ranges of Test Quantities

The allowable ranges for test parameters as specified in Table IWP-3100-2 will be used for all measurements of pressure, flow, and vibrations except as provided for in specific relief requests. In some cases the performance of a pump may be adequate to fulfill its safety function even though there may be a value of an operating parameter that falls outside the allowable ranges as set forth in Table IWP-3100-2. Should such a situation arise, an expanded allowable may be determined, on a case-by-case basis, in accordance with IWP-3210 and ASME Code Interpretation XI-1-79-19.

#### 3.3 Testing Intervals

The test frequency for pumps included in the Program will be as set forth in IWP-3400 and related relief requests. A band of +25 percent of the test interval may be applied to a test schedule as allowed by the Turkey Point Technical Specifications to provide for operational flexibility.

#### 3.4 Pump Program Table

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

#### 3.5 Relief Requests for Pump Testing

Appendix C includes all relief requests related to pump testing.



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#### 4.0 INSERVICE TESTING PROGRAM FOR VALVES

##### 4.1 Code Compliance

This IST Program for valves meets the requirements of Subsection IWV of the Code and any interpretations or additional requirements imposed by Reference 2.8. 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 2.8.

##### 4.2 Testing Intervals

The test frequency for valves included in the Program will be as set forth in IWP-3400 and related relief requests. A band of +25 percent of the test interval may be applied to a test schedule as allowed by the Turkey Point Technical Specifications to provide for operational flexibility. Where quarterly testing of valves is impractical or otherwise undesirable, testing may be performed during cold shutdown periods as permitted by IWV-3412(a). Justifications for this deferred testing are provided in Appendix G.

##### 4.3 Stroke Time Acceptance Criteria

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



#### 4.4 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. Any deviation to this requirement must satisfy the requirements of Reference 2.8, Position 1.

#### 4.5 Valve Program Table

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

#### 4.6 Relief Requests for Valve Testing

Appendix F includes all relief requests related to valve testing.



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Appendix A  
Pump Program Tables  
Unit 3





Florida Power & Light Company  
SERVICE TESTING - PUMP TABLES  
Key Point Nuclear Plant - Unit 3

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PUMP NUMBER	DESCRIPTION	CL	COORD	SPEED	INLET PRES.	DIFF. PRES.	FLOW RATE	VIBRA.	BEARING TEMP.	REMARKS
3-P10A	DIESEL OIL TRANSFER	3	D-10	NA	N:PR-3	N:PR-3	N:PR-2	Y	N:PR-4	
3-P201A	CHARGING	2	G-8	Y	N:PR-10	N:PR-10	Y	Y	Y	
3-P201B	CHARGING	2	E-8	Y	N:PR-10	N:PR-10	Y	Y	Y	
3-P201C	CHARGING	2	D-8	Y	N:PR-10	N:PR-10	Y	Y	Y	
3-P203A	BORIC ACID TRANSFER	2	G-2	NA	N:PR-3	N:PR-3	N:PR-1	Y	N:PR-4	
3-P203B	BORIC ACID TRANSFER	2	F-2	NA	N:PR-3	N:PR-3	N:PR-1	Y	N:PR-4	
3-P210A	RESIDUAL HEAT REMOVAL	2	C-6	NA	Y:PR-11	Y	N:PR-9	Y	N:PR-4	
3-P210B	RESIDUAL HEAT REMOVAL	2	B-6	NA	Y:PR-11	Y	N:PR-9	Y	N:PR-4	
3-P211A	COMPONENT COOLING	3	E-7	NA	Y	Y	Y	Y	N:PR-4	
3-P211B	COMPONENT COOLING	3	E-8	NA	Y	Y	Y	Y	N:PR-4	
3-P211C	COMPONENT COOLING	3	E-8	NA	Y	Y	Y	Y	N:PR-4	
3-P212A	SPENT FUEL PIT COOLING	3	F-5	NA	Y	Y	Y	Y	N:PR-4	
3-P212B	SPENT FUEL PIT COOLING	3	E-5	NA	Y	Y	Y	Y	N:PR-4	
3-P214A	CONTAINMENT SPRAY	2	E-4	NA	Y	Y	Y	Y	N:PR-4	
3-P214B	CONTAINMENT SPRAY	2	E-4	NA	Y	Y	Y	Y	N:PR-4	
3-P215A	HIGH HEAD SAFETY	2	D-8	NA	Y	Y	Y	Y	N:PR-4	
3-P215B	HIGH HEAD SAFETY	2	D-8	NA	Y	Y	Y	Y	N:PR-4	
3-P9A	INTAKE COOLING WATER	3	D-3	NA	N:PR-6	N:PR-6	Y	Y	N:PR-4	
3-P9B	INTAKE COOLING WATER	3	D-4	NA	N:PR-6	N:PR-6	Y	Y	N:PR-4	
3-P9C	INTAKE COOLING WATER	3	D-6	NA	N:PR-6	N:PR-6	Y	Y	N:PR-4	
P2A	AUXILIARY FEED	3	F-4	Y	Y	Y	Y	Y	N:PR-4	COMMON TO BOTH
P2B	AUXILIARY FEED	3	F-6	Y	Y	Y	Y	Y	N:PR-4	COMMON TO BOTH
P2C	AUXILIARY FEED	3	F-8	Y	Y	Y	Y	Y	N:PR-4	COMMON TO BOTH



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INSERVICE TESTING - PUMP TABLES  
Turkey Point Nuclear Plant - Unit 3

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LEGEND

PUMP NUMBER	Numerical designator indicated on the respective flow diagram.
DESCRIPTION	Generic name/function of the pump.
CL	ISI Classification per the associated ISI boundary drawing(s)
COORD	Corresponds to the flow diagram 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.
PR-XX	Where indicated this refers to the specific relief request (See Appendix C) related to any deviation regarding the measurement or analysis of a parameter.



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Appendix B  
Pump Program Tables  
Unit 4



Florida Power & Light Company  
SERVICE TESTING - PUMP TABLES  
Key Point Nuclear Plant - Unit 4

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PUMP NUMBER	DESCRIPTION	CL	COORD	SPEED	INLET PRES.	DIFF. PRES.	FLOW RATE	VIBRA.	BEARING TEMP.	REMARKS
4-P10B	DIESEL OIL TRANSFER	3	B-9	NA	N:PR-3	N:PR-3	N:PR-2	Y	N:PR-4	
4-P201A	CHARGING	2	G-3	Y	N:PR-10	N:PR-10	Y	Y	Y	
4-P201B	CHARGING	2	E-3	Y	N:PR-10	N:PR-10	Y	Y	Y	
4-P201C	CHARGING	2	D-3	Y	N:PR-10	N:PR-10	Y	Y	Y	
4-P203A	BORIC ACID TRANSFER	2	D-2	NA	N:PR-3	N:PR-3	N:PR-1	Y	N:PR-4	
4-P203B	BORIC ACID TRANSFER	2	C-2	NA	N:PR-3	N:PR-3	N:PR-1	Y	N:PR-4	
4-P210A	RESIDUAL HEAT REMOVAL	2	C-6	NA	Y:PR-11	Y	N:PR-9	Y	N:PR-4	
4-P210B	RESIDUAL HEAT REMOVAL	2	B-6	NA	Y:PR-11	Y	N:PR-9	Y	N:PR-4	
4-P211A	COMPONENT COOLING	3	E-7	NA	Y	Y	Y	Y	Y:PR-4	
4-P211B	COMPONENT COOLING	3	E-8	NA	Y	Y	Y	Y	N:PR-4	
4-P211C	COMPONENT COOLING	3	E-8	NA	Y	Y	Y	Y	N:PR-4	
4-P212A	SPENT FUEL PIT COOLING	3	F-5	NA	Y	Y	Y	Y	N:PR-4	
4-P212B	SPENT FUEL PIT COOLING	3	E-5	NA	Y	Y	Y	Y	N:PR-4	
4-P214A	CONTAINMENT SPRAY	2	E-4	NA	Y	Y	N:PR-8	Y	N:PR-4	
4-P214B	CONTAINMENT SPRAY	2	E-4	NA	Y	Y	N:PR-8	Y	N:PR-4	
4-P215C	HIGH HEAD SAFETY	2	D-9	NA	Y	Y	Y	Y	N:PR-4	
4-P215D	HIGH HEAD SAFETY	2	D-9	NA	Y	Y	Y	Y	N:PR-4	
4-P9A	INTAKE COOLING WATER	3	D-5	NA	N:PR-6	N:PR-6	Y	Y	N:PR-4	
4-P9B	INTAKE COOLING WATER	3	D-6	NA	N:PR-6	N:PR-6	Y	Y	N:PR-4	
4-P9C	INTAKE COOLING WATER	3	D-7	NA	N:PR-6	N:PR-6	Y	Y	N:PR-4	





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INSERVICE TESTING - PUMP TABLES  
Turkey Point Nuclear Plant - Unit 4

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LEGEND

PUMP NUMBER	Numerical designator indicated on the respective flow diagram.
DESCRIPTION	Generic name/function of the pump.
CL	ISI Classification per the associated ISI boundary drawing(s)
COORD	Corresponds to the flow diagram 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.
PR-XX	Where indicated this refers to the specific relief request (See Appendix C) related to any deviation regarding the measurement or analysis of a parameter.

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Appendix C  
Pump Program  
Requests for Relief  
Units 3 & 4

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RELIEF REQUEST NO. PR-1

COMPONENTS:

Boric Acid Transfer Pumps \*-P203 A&B

SECTION XI REQUIREMENT:

Flow rate shall be measured using a rate or quantity meter installed in the pump test circuit. (IWP-4600)

An inservice test shall be run on each pump nominally every 3 months during normal plant operation. (IWP-3400)

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.

A 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 upset the reactor coolant boric acid balance and adversely effect reactor power and create a plant power transient. If injection were to be performed during cold shutdown periods (other than refueling) the result would be over-boration of the RCS and associated potential difficulties during the subsequent plant startup.

ALTERNATE TESTING:

During quarterly testing of these pumps, differential pressure and vibration measurements will be taken and evaluated in accordance with IWP-3100. At each reactor refueling these pumps will be tested and all appropriate measurements taken in accordance with IWP-3300. This satisfies the requirements of Reference 2.8, Position 9.



RELIEF REQUEST NO. PR-2

COMPONENTS:

Diesel Fuel Oil Transfer Pumps \*-P10 A&B

SECTION XI REQUIREMENTS:

When measurement of bearing temperature is not required, each pump shall be run at least 5 min under conditions as stable as the system permits. At the end of this time at least one measurement or observation of each of the quantities specified shall be made and recorded. (IWP-3500(a))

Flow rate shall be measured using a rate or quantity meter installed in the pump test circuit. (IWP-4600)

BASIS FOR RELIEF:

The only available test circuit for these pumps consists of the normal day tank fill lines from the diesel oil storage tanks. There are no recirculation lines nor is any flow instrumentation installed. Therefore, the only practical method of determining pump flowrate is by calculating the fill rate of the day tanks. Furthermore, due to the capacity of the fuel oil pumps and the available volume of oil from the low-level pump start point to the high-level setpoint, the run time for a pump is limited, precluding the Code required 5-minute minimum runtime before taking readings.

ALTERNATIVE TESTING:

When testing these pumps, the flowrate will be calculated based on the measured change in the diesel fuel oil day tank level over an elapsed period of pump run time.

The starting point for taking measurements will be when the system conditions have stabilized.



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RELIEF REQUEST NO. PR-3

COMPONENTS:

Boric Acid Transfer Pumps \*-P203 A&B  
Diesel Fuel Oil Transfer Pumps \*-P10 A&B

SECTION XI REQUIREMENTS:

Each inservice test shall include the measurement and observation of all quantities in Table IWP-3100-1 except bearing temperatures, which shall be measured during at least one inservice test each year. (IWP-3300)

BASIS FOR RELIEF:

The system installations do not provide any mechanism for measuring pump suction pressures, and thus, the requirement for measuring suction pressure and pump differential pressures cannot be satisfied. A measure of pump suction pressure can, however, be determined by calculation using the height of liquid in the boric acid and diesel oil storage tanks. Since there is essentially fixed resistances between the tanks and the pumps this will provide a consistent value for suction pressures.

Since the tank levels are not expected to vary significantly during the tests, tank levels and associated calculations will only be taken once during each test instead of prior to pump operation and during operation as required by Table IWP-3100-1.

ALTERNATE TESTING:

Boric Acid Transfer and Diesel Fuel Oil Transfer Pump suction pressures will be calculated based on the height of liquid in the associated tanks once during each inservice test. Subsequently, these calculated values will be used to determine pump differential pressures for evaluation of pump parameters.



RELIEF REQUEST NO. PR-4

COMPONENTS:

All centrifugal pumps in the Program

SECTION XI REQUIREMENT:

The temperature of all centrifugal pump bearings outside the main flowpath shall be measured at points selected to be responsive to changes in the temperature of the bearings. (IWP-3300, 4310)

BASIS FOR RELIEF:

The data associated with bearing temperatures taken at one-year intervals provides little statistical basis for determining the incremental degradation of a bearing or any meaningful trending information or correlation.

In many cases the pump bearings are water-cooled and thus, bearing temperature is a function of the temperature of the cooling medium, which can vary considerably.

Vibration measurements are a significantly more reliable indication of pump bearing degradation than are temperature measurements. All pumps in the program are subjected to vibration measurements in accordance with IWP-4500.

Although excessive bearing temperature is an indication of an imminent or existing bearing failure, it is highly unlikely that such a condition would go unnoticed during routine surveillance testing since it would manifest itself in other obvious indications such as audible noise, unusual vibration, increased motor current, etc.

Any potential gain from taking bearing measurements, which in most cases would be done locally using portable instrumentation, cannot offset the cost in terms of dilution of operator effort, distraction of operators from other primary duties, excessive operating periods for standby pumps especially under minimum flow conditions, and unnecessary personnel radiation exposure.

ALTERNATE TESTING:

None

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RELIEF REQUEST NO. PR-5

COMPONENTS:

Various

SECTION XI REQUIREMENT:

The full-scale range of each instrument shall be three times the reference value or less. (IWP-4120)

BASIS FOR RELIEF:

Table IWP-4110-1 requires the accuracy of instruments used to measure temperature and speed to be equal to or better than  $\pm 5$  percent for temperature and  $\pm 2$  percent for speed, both based on the full scale reading of the instrument. This means that the accuracy of the measurement can vary as much as  $\pm 15$  percent and  $\pm 6$  percent, respectively, assuming the range of the instruments extended to the allowed maximum.

These IST pump parameters are often measured with portable test instruments where commercially available instruments do not necessarily conform to the Code requirements for range. In these cases, high quality calibrated instruments will be used where the "reading" accuracy is at least equal to the Code-requirement for full-scale accuracy. This will ensure that the measurements are always more accurate than the accuracy as determined by combining the requirements of Table IWP-4110-1 and Paragraph IWP-4120.

ALTERNATE TESTING:

Whenever portable instruments are used for measuring pump speed or bearing temperatures, the instruments will be such that the "reading" accuracy is as follows

|             |                 |
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| Temperature | $\pm 5$ percent |
| Speed       | $\pm 2$ percent |

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RELIEF REQUEST NO. PR-6

COMPONENTS:

Intake Cooling Water Pumps \*-P9 A thru C

SECTION XI REQUIREMENT:

Each inservice test shall include the measurement and observation of all quantities in Table IWP-3100-1.

(IWP-3300)

Pump inlet pressure shall be measured before starting a pump and during the test. (Table IWP-3100-1)

BASIS FOR RELIEF:

The pumps listed above are vertical line shaft pumps submerged in the intake structure with no practical means of measuring pump inlet pressure. The inlet pressure, however, can be determined by calculation using, as input, the measured height of water above the pump inlet as measured at the intake.

During each inservice test, the water level in the intake pit remains relatively constant, thus only one measurement of level and the associated suction pressure calculation need be performed.

ALTERNATE TESTING:

During testing of these pumps, one value of inlet pressure will be calculated based on water level at the inlet structure.

RELIEF REQUEST NO. PR-7

COMPONENTS:

Applicable to all pumps in the Program

SECTION XI REQUIREMENT:

Each inservice test shall include the measurement and observation of all quantities in Table IWP-3100-1.  
(IWP-3300)

Pump inlet pressure shall be measured before starting a pump and during the test. (Table IWP-3100-1)

BASIS FOR RELIEF:

If the pumps being tested are in operation as a result of plant or system needs, it is unreasonable to reconfigure system lineups simply to provide for measurement of static inlet pressure.

Inlet pressure prior to pump startup is not a significant parameter needed for evaluating pump performance or its material condition.

ALTERNATE TESTING:

When performing a test on a pump that is already in operation due to system or plant requirements, inlet pressure will only be measured during pump operation.



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RELIEF REQUEST NO. PR-8

COMPONENTS:

Containment Spray Pumps 4-P214 A&B

SECTION XI REQUIREMENT:

Each inservice test shall include the measurement and observation of all quantities in Table IWP-3100-1.  
(IWP-3300)

BASIS FOR RELIEF:

There is no practical method of testing the Containment Spray Pumps at full or substantial flow. During quarterly testing of these pumps, flow is routed through a minimum flow test line leading to the RWST. The flow instrument is installed in this line such that the flowrate measurements are unreliable and thus, not usable for IST purposes.

NRC Generic Letter 89-04, Position 9, requires the installation of flow instrumentation meeting the Code requirements (IWP-4110 and IWP-4120) if no flowrate instrumentation is provided. The Generic Letter also allows a grace period of 18 months for completing any modifications needed for conformance.

ALTERNATE TESTING:

During quarterly testing of the RHR pumps, pump differential pressure and vibration will be recorded per IWP-3200 and IWP-6000.

Prior to April 3, 1991 the existing instrumentation in the Containment Spray Test line will be replaced or modified to allow accurate and reliable flowrate measurements to be recorded during quarterly testing of the Containment Spray Pumps 4-P214 A&B. Following that, measurements of flowrate will be recorded and evaluated per IWP-3200.



RELIEF REQUEST NO. PR-9

COMPONENTS:

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

SECTION XI REQUIREMENT:

Each inservice test shall include the measurement and observation of all quantities in Table IWP-3100-1.  
(IWP-3300)

BASIS FOR RELIEF:

During quarterly testing of the RHR Pumps, flow is routed through a minimum flow test line leading to the suction of the pump being tested. The main line flow instrument is sized such that flowrate readings taken under minimum flow conditions are inaccurate to the extent of being meaningless. An additional flow instrument is installed in the test loop however its maximum reading is less than the normal minimum flow test value. Thus, with the current system configuration recording flowrate measurements during quarterly testing is not practical or useful.

NRC Generic Letter 89-04, Position 9, 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.

ALTERNATE TESTING:

During quarterly testing of the RHR pumps, pump differential pressure and vibration will be recorded per IWP-3200 and IWP-6000.

During testing performed at cold shutdown, pump differential pressure, flowrate, and vibration will be recorded per IWP-3200 and IWP-6000. 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.



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RELIEF REQUEST NO. PR-10

COMPONENTS:

CVCS Charging Pumps \*-P201 A thru C

SECTION XI REQUIREMENT:

Each inservice test shall include the measurement and observation of all quantities in Table IWP-3100-1.  
(IWP-3300)

BASIS FOR RELIEF:

The CVCS configuration is such that there is no installed instrumentation provided for measuring charging pump suction or differential pressures. Installation of temporary instrumentation is burdensome and there is little value in measuring these parameters.

The Charging Pumps are multiple plunger, positive-displacement reciprocating pumps where the pump discharge pressure is purely a function of pump design and is independent of suction pressure. This is reflected in ASME/ANSI OMa-1987, Operation and Maintenance Of Nuclear Power Plants, Part 6 (Table 3b) where this new standard requires measurement and evaluation of pump discharge pressure vs. differential pressure and suction pressure measurements are not required.

ALTERNATE TESTING:

During inservice testing of the Charging Pumps, suction and differential pressures will not be measured nor recorded. In lieu of this, pump discharge pressure will be measured and evaluated per IWP-3200 and IWP-6000.



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09/19/89

RELIEF REQUEST NO. PR-11

COMPONENTS:

Residual Heat Removal Pumps \*-P210 A&B

SECTION XI REQUIREMENT:

The full-scale range of each instrument shall be three times the reference value or less. (IWP-4120)

BASIS FOR RELIEF:

The installed suction pressure test gauges of the RHR Pumps are sized to accommodate the pressure range of 4 to 450 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 test conditions, the pump suction pressure can be considerably less than 200 psig. or 1/3 times the pressure gauge range.

Suction pressure measurements typically serve two functions. First, they provide assurance that the subject pump has adequate suction head for proper operation. Secondly, the suction pressure measurement is used to derive the pump differential pressure through calculation.

For the determination of suction head, the accuracy and range requirement as set forth in the Code is overly restrictive.

When used in determining pump differential pressure, the accuracy of the suction pressure measurement normally has little or no effect on the results of the calculation since, generally, the pump discharge pressure exceeds the suction pressure by 2 or 3 orders of magnitude.

In this particular case, the gauge range and accuracy are 0-600 psig and  $\pm 0.25$  percent of full scale, respectively. This results in an absolute accuracy of  $\pm 1.5$  psig. This is clearly adequate for determining that the pump has met the NPSH requirements. When determining pump differential pressure, assuming the most limiting condition where RHR Pump dP is approximately 150 psig., the maximum effect of this is a reduced accuracy of  $\pm 1$  percent of the calculated dP. This is considered insignificant when compared to the maximum allowable accuracy (per Code) of the discharge pressure gauge of  $\pm 2$  percent of 450 psig. or  $\pm 9$  psig.





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RELIEF REQUEST NO. PR-11 (cont.)

ALTERNATE TESTING:

When measuring the suction pressure of the RHR Pumps, in lieu of satisfying the specified instrument range requirement of IWP-4120, the instruments used for measuring suction pressure will meet the following specifications:

|          |  |
|----------|--|
| Accuracy | $\pm 0.25$ percent of Full Scale (or better) |
| Range    | 0-600 psig. (or less)                        |

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Appendix D  
Valve Program Tables  
Unit 3

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LEGEND

|              |  |
|--------------|--|
| 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 as per the respective ISI boundary drawings  |
| CAT          | The valve category per Paragraph IWV-2200  |
| 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:<br><br>MO Electric motor-operated<br>AO Air-operated<br>SO Solenoid-operated<br>SA Self actuated<br>MAN Manual valve |
| 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".   |

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LEGEND (Cont.)

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EXAM Identifies the test requirements for a valve as follows:

EC Exercise to closed position. For all category A or B power-operated valves stroke times will be measured unless excluded by an associated relief request.

EO Exercise to open position. For all category A or B power-operated valves stroke times will be measured unless excluded by an associated relief request.

EE Exercise valve to verify proper operation and stroking with no stroke time measurements. Requires observation of system parameters or local observation of valve operation.

SLT-1 Seat leakrate test per 10 CFR 50, App J

SLT-2 Seat leakrate test for pressure isolation valves

PEO Partial-stroke test to the open position of check valves

FS Fail safe test

V Position indication verification

INSP Disassembly and inspection of check valves

TEST FREQ The required test interval as follows:

- 1 Each reactor refueling outage (cycle)
- 2 Cold shutdown as defined by Technical Specification
- 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)
- 8 Per Table IWV-3510-1

RELIEF REQ Refers to the specific relief request associated with the adjacent test requirement





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P & ID: 5177-074-M-2

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    | B-3    | 2  | A/C  | 2.500 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>SLT-1 | 5<br>5    | VR-1        |         |
| CV-3-6165    | B-4    | 2  | A    | 2.500 | GATE  | P   | A/O       | LC        | YES     | FAI       | SLT-1<br>V  | 5<br>5    |             |         |

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P & ID: 5610-T-E-4061-1

SYSTEM: MAIN STEAM

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE   | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|--------|--------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| 3-10-0004    | B-3    | 2  | C    | 26.000 | S/CHK  | A   | S/A       | NO        | NO      |           | EC        | 2           |         |
| 3-10-0005    | B-2    | 2  | C    | 26.000 | S/CHK  | A   | S/A       | NO        | NO      |           | EC        | 2           |         |
| 3-10-0006    | B-1    | 2  | C    | 26.000 | S/CHK  | A   | S/A       | NO        | NO      |           | EC        | 2           |         |
| MOV-3-1400   | B-3    | 2  | B    | 2.000  | GLOBE  | A   | MO        | NC        | YES     | FAI       | EC<br>V   | 3<br>5      |         |
| MOV-3-1401   | B-2    | 2  | B    | 2.000  | GLOBE  | A   | MO        | NC        | YES     | FAI       | EC<br>V   | 3<br>5      |         |
| MOV-3-1402   | B-1    | 2  | B    | 2.000  | GLOBE  | A   | MO        | NC        | YES     | FAI       | EC<br>V   | 3<br>5      |         |
| POV-3-2604   | B-3    | 2  | B/C  | 26.000 | PA/CHK | A   | A/O       | NO        | YES     |           | EC<br>V   | 2<br>5      |         |
| POV-3-2605   | B-2    | 2  | B/C  | 26.000 | PA/CHK | A   | A/O       | NO        | YES     |           | EC<br>V   | 2<br>5      |         |
| POV-3-2606   | B-1    | 2  | B/C  | 26.000 | PA/CHK | A   | A/O       | NO        | YES     |           | EC<br>V   | 2<br>5      |         |
| RV-3-1400    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-1      | 8           |         |
| RV-3-1401    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-2      | 8           |         |
| RV-3-1402    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-3      | 8           |         |
| RV-3-1403    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-4      | 8           |         |
| RV-3-1405    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-1      | 8           |         |
| RV-3-1406    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-2      | 8           |         |
| RV-3-1407    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-3      | 8           |         |
| RV-3-1408    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-4      | 8           |         |
| RV-3-1410    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-1      | 8           |         |
| RV-3-1411    | D-1    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-2      | 8           |         |
| RV-3-1412    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-3      | 8           |         |

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P & ID: 5610-T-E-4061-1(cont)

SYSTEM: MAIN STEAM

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | TYPE | ACT. | NORM | REM  | FAIL | TEST | RELIEF | REMARKS |
|--------------|--------|----|------|-------|------|-----|------|------|------|------|------|------|--------|---------|
|              |        |    |      |       |      |     |      | POS. | IND  | MODE | EXAM | FREQ | REQ.   |         |
| RV-3-1413    | D-1    | 2  | C    | 6.000 | SAFE | A   | S/A  | NC   | NO   |      | TF-4 | 8    |        |         |

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P & ID: 5610-T-E-4061-4

SYSTEM: AUXILIARY FEEDWATER PUMPS

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS  |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|----------|
| 3-10-0083    | F-3    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |          |
| 3-10-0087    | F-6    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 6           | IWV-3416 |
| 3-10-0375    | A-1    | 3  | C    | 3.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |          |
| 3-10-0376    | A-2    | 3  | C    | 3.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |          |
| 3-10-0377    | A-3    | 3  | C    | 3.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |          |
| 3-10-0381    | B-2    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO  | 2<br>3      |          |
| 3-10-0382    | B-2    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO  | 2<br>3      |          |
| 3-10-0383    | B-3    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO  | 2<br>3      |          |
| AFSS-0003B   | F-5    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |          |
| AFSS-0003C   | F-6    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |          |
| IS-3-0005    | B-3    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |          |
| MOV-3-1403   | B-2    | 2  | B    | 4.000 | GLOBE | A   | MO        | NC        | YES     | FAI       | EO<br>V   | 3<br>5      |          |
| MOV-3-1404   | B-2    | 2  | B    | 4.000 | GLOBE | A   | MO        | NC        | YES     | FAI       | EO<br>V   | 3<br>5      |          |
| MOV-3-1405   | B-3    | 2  | B    | 4.000 | GLOBE | A   | MO        | NC        | YES     | FAI       | EO<br>V   | 3<br>5      |          |
| MOV-6459A    | E-2    | 2  | B    | 3.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EO<br>V   | 3<br>5      |          |
| MOV-6459B    | E-4    | 2  | B    | 3.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EO<br>V   | 3<br>5      |          |
| MOV-6459C    | E-5    | 2  | B    | 3.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EO<br>V   | 3<br>5      |          |



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P & ID: 5610-T-E-4062-2

SYSTEM: FEEDWATER

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. NORM REM FAIL |      |     |      | EXAM | TEST RELIEF |      | REMARKS |
|--------------|--------|----|------|--------|-------|-----|--------------------|------|-----|------|------|-------------|------|---------|
|              |        |    |      |        |       |     | TYPE               | POS. | IND | MODE |      | FREQ        | REQ. |         |
| FCV-3-0478   | C-3    | 2  | B    | 14.000 | GLOBE | A   | A/O                | NO   | YES | FC   | EC   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | FS   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | V    | 5           |      |         |
| FCV-3-0479   | C-3    | 2  | B    | 4.000  | GLOBE | A   | A/O                | NC   | YES | FC   | EC   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | FS   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | V    | 5           |      |         |
| FCV-3-0488   | C-5    | 2  | B    | 14.000 | GLOBE | A   | A/O                | NO   | YES | FC   | EC   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | FS   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | V    | 5           |      |         |
| FCV-3-0489   | C-6    | 2  | B    | 4.000  | GLOBE | A   | A/O                | NC   | YES | FC   | EC   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | FS   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | V    | 5           |      |         |
| FCV-3-0498   | C-7    | 2  | B    | 14.000 | GLOBE | A   | A/O                | NO   | YES | FC   | EC   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | FS   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | V    | 5           |      |         |
| FCV-3-0499   | C-8    | 2  | B    | 4.000  | GLOBE | A   | A/O                | NC   | YES | FC   | EC   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | FS   | 2           |      |         |
|              |        |    |      |        |       |     |                    |      |     |      | V    | 5           |      |         |



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P & ID: 5610-T-E-4062-3

SYSTEM: STEAM GENERATOR - AUX FEEDWATER SUPPLY

| 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      | F-4    | 3  | C    | 6.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO | 6<br>3    |             | NOTE 2  |
| 20-0243      | F-6    | 3  | C    | 6.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO | 3<br>3    |             |         |
| 20-0343      | F-8    | 3  | C    | 6.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO | 3<br>3    |             |         |
| 3-20-0140    | B-1    | 2  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| 3-20-0240    | C-2    | 2  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| 3-20-0340    | C-3    | 2  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| 3-20-0456    | E-3    | 2  | C    | 0.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| AFPD-3-0010  | A-3    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| AFPD-3-0012  | A-3    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| AFPD-3-0014  | A-3    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| AFU-0013     | F-5    | 2  | C    | 0.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| AFWU-0014    | F-7    | 2  | C    | 0.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| AFWU-0015    | F-9    | 2  | C    | 0.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| AFWU-3-0017  | E-3    | 2  | C    | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |         |
| CV-3-2816    | B-1    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE       | 3         | VR-2        |         |
| CV-3-2817    | C-2    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE       | 3         | VR-2        |         |
| CV-3-2818    | D-3    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE       | 3         | VR-2        |         |
| CV-3-2831    | A-1    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE       | 3         | VR-2        |         |
| CV-3-2832    | B-2    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE       | 3         | VR-2        |         |
| CV-3-2833    | B-3    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE       | 3         | VR-2        |         |



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Key Point Nuclear Plant - Unit 3

P & ID: 5610-T-E-4062-4

SYSTEM: STEAM GEN BLOWDOWN RECOVERY AND SAMPLING

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | TYPE | POS. | IND | REM | FAIL | TEST | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|-----|------|------|--------|---------|
|              |        |    |      |       |       |     |      |      |     |     |      | EXAM | FREQ   | REQ.    |
| CV-3-6275A   | E-4    | 2  | B    | 6.000 | GLOBE | A   | A/O  | NO   | YES | FAI | EC   | V    | 3      | 5       |
| CV-3-6275B   | D-4    | 2  | B    | 6.000 | GLOBE | A   | A/O  | NO   | YES | FAI | EC   | V    | 3      | 5       |
| CV-3-6275C   | C-4    | 2  | B    | 6.000 | GLOBE | A   | A/O  | NO   | YES | FAI | EC   | V    | 3      | 5       |
| MOV-3-1425   | G-4    | 2  | B    | 1.000 | GATE  | A   | NO   | NO   | YES | FAI | EC   | V    | 3      | 5       |
| MOV-3-1426   | G-4    | 2  | B    | 1.000 | GATE  | A   | NO   | NO   | YES | FAI | EC   | V    | 3      | 5       |
| MOV-3-1427   | H-4    | 2  | B    | 1.000 | GATE  | A   | NO   | NO   | YES | FAI | EC   | V    | 3      | 5       |
| SV-3-6275A-1 | E-4    | 2  | B    | 0.750 | GLOBE | A   | SO   | NO   | YES | FC  | EC   | FS   | 3      | 5       |
| SV-3-6275B-1 | D-4    | 2  | B    | 0.750 | GLOBE | A   | SO   | NO   | YES | FC  | EC   | FS   | 3      | 5       |
| SV-3-6275C-1 | C-4    | 2  | B    | 0.750 | GLOBE | A   | SO   | NO   | YES | FC  | EC   | FS   | 3      | 5       |



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& ID: 5610-T-E-4062-6

SYSTEM: CONDENSATE AND FEEDWATER

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | TYPE | POS. | IND | MODE | EXAM | FREQ | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|------|------|------|--------|---------|
| 3-20-0401    | F-9    | 3  | C    | 8.000 | CHECK | A   | S/A  | NC   | NO  |      | EO   | 3    |        |         |

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P & ID: 5610-T-E-4065-1

SYSTEM: INTAKE AREA

| 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    | D-3    | 3  | C    | 24.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO | 3<br>3    |             |         |
| 3-50-0321    | D-4    | 3  | C    | 24.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO | 3<br>3    |             |         |
| 3-50-0331    | D-5    | 3  | C    | 24.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO | 3<br>3    |             |         |



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P & ID: 5610-T-E-4065-2

SYSTEM: CIRCULATING AND INTAKE COOLING WATER

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | TYPE | POS. | IND | MODE | EXAM | FREQ | RELIEF | REMARKS |
|--------------|--------|----|------|--------|-------|-----|------|------|-----|------|------|------|--------|---------|
| 3-0401       | C-3    | 3  | B    | 30.000 | BUTFY | A   | MAN  | NO   | NO  |      | EC   | 2    |        | NOTE 1  |
| POV-3-4882   | B-2    | 3  | B    | 30.000 | BUTFY | A   | A/O  | NO   | YES | FC   | EC   | 3    |        | NOTE 1  |
|              |        |    |      |        |       |     |      |      |     |      | FS   | 3    |        |         |
|              |        |    |      |        |       |     |      |      |     |      | V    | 5    |        |         |
| POV-3-4883   | A-2    | 3  | B    | 30.000 | BUTFY | A   | A/O  | NO   | YES | FC   | EC   | 3    |        | NOTE 1  |
|              |        |    |      |        |       |     |      |      |     |      | FS   | 3    |        |         |
|              |        |    |      |        |       |     |      |      |     |      | V    | 5    |        |         |



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P & ID: 5610-T-E-4501-1

SYSTEM: REACTOR COOLANT (RCS)

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM              | RELIEF FREQ      | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|------------------------|------------------|---------|
| 3-0518       | A-3    | 2  | A/C  | 0.750 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>SLT-1            | 5<br>5           | VR-3    |
| 3-0519       | A-2    | 2  | A/C  | 0.750 | S/CHK | A   | S/A       | NC        | NO      |           | EC<br>SLT-1            | 2<br>5           |         |
| CV-3-0519B   | B-2    | 2  | A    | 3.000 | DIAPH | P   | A/O       | NC        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25   |
| CV-3-0522A   | B-2    | 2  | A    | 0.750 | DIAPH | P   | A/O       | NC        | YES     | FC        | SLT-1<br>V             | 5<br>5           | VR-25   |
| CV-3-0522B   | C-2    | 2  | A    | 0.750 | DIAPH | P   | A/O       | NC        | YES     | FC        | SLT-1<br>V             | 5<br>5           | VR-25   |
| CV-3-0522C   | C-2    | 2  | A    | 0.750 | DIAPH | P   | A/O       | NC        | YES     | FC        | SLT-1<br>V             | 5<br>5           | VR-25   |
| MOV-3-0535   | B-9    | 1  | B    | 3.000 | GATE  | A   | NO        | NO        | YES     | FAI       | EC<br>V                | 3<br>5           |         |
| 3-0536       | C-9    | 1  | B    | 3.000 | GATE  | A   | NO        | NO        | YES     | FAI       | EC<br>V                | 3<br>5           |         |
| PCV-3-0455C  | C-9    | 1  | B    | 2.000 | GLOBE | A   | A/O       | NC        | YES     | FC        | EC<br>EO<br>FS<br>V    | 4<br>4<br>4<br>5 |         |
| PCV-3-0456   | B-9    | 1  | B    | 2.000 | GLOBE | A   | A/O       | NC        | YES     | FC        | EC<br>EO<br>FS<br>V    | 4<br>4<br>4<br>5 |         |
| RV-3-0551A   | B-8    | 1  | C    | 4.000 | SAFE  | A   | S/A       | NC        | NO      |           | TF-5                   | 8                |         |
| RV-3-0551B   | B-8    | 1  | C    | 4.000 | SAFE  | A   | S/A       | NC        | NO      |           | TF-5                   | 8                |         |
| RV-3-0551C   | B-8    | 1  | C    | 4.000 | SAFE  | A   | S/A       | NC        | NO      |           | TF-5                   | 8                |         |
| SV-3-6318A   | C-4    | 2  | B    | 1.000 | GLOBE | A   | SO        | LC        | YES     | FC        | EO<br>V                | 4<br>5           |         |

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P & ID: 5610-T-E-4501-1(cont)      SYSTEM: REACTOR COOLANT (RCS)

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | TYPE | POS. | IND | REM | FAIL | TEST | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|-----|------|------|--------|---------|
|              |        |    |      |       |       |     |      |      |     |     |      | EXAM | FREQ   | REQ.    |
| SV-3-6318B   | C-4    | 2  | B    | 1.000 | GLOBE | A   | SO   | LC   | YES | FC  |      | EO   | 4      |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V    | 5      |         |
| SV-3-6319A   | C-5    | 2  | B    | 1.000 | GLOBE | A   | SO   | LC   | YES | FC  |      | EO   | 4      |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V    | 5      |         |
| SV-3-6319B   | C-5    | 2  | B    | 1.000 | GLOBE | A   | SO   | LC   | YES | FC  |      | EO   | 4      |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V    | 5      |         |
| SV-3-6320A   | D-4    | 2  | B    | 1.000 | GLOBE | A   | SO   | LC   | YES | FC  |      | EO   | 4      |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V    | 5      |         |
| SV-3-6320B   | D-5    | 2  | B    | 1.000 | GLOBE | A   | SO   | LC   | YES | FC  |      | EO   | 4      |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V    | 5      |         |

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& ID: 5610-T-E-4503-1

SYSTEM: REACTOR COOLANT PUMP

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | EXAM    | TEST FREQ | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|-------|------|-----|-----------|-----------|---------|-----------|---------|-----------|-------------|---------|
| MOV-3-0626   | E-9    | 2  | B    | 3.000 | GATE | A   | MO        | NO        | YES     | FAI       | EC<br>V | 2<br>5    |             |         |
| MOV-3-0716A  | F-10   | 2  | B    | 6.000 | GATE | A   | MO        | NO        | YES     | FAI       | EC<br>V | 2<br>5    |             |         |
| MOV-3-0716B  | F-10   | 2  | B    | 6.000 | GATE | A   | MO        | NO        | YES     | FAI       | EC<br>V | 2<br>5    |             |         |
| MOV-3-0730   | B-10   | 2  | B    | 6.000 | GATE | A   | MO        | NO        | YES     | FAI       | EC<br>V | 2<br>5    |             |         |

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& ID: 5610-T-E-4505-1

SYSTEM: CHEM. VOL. CONT. (CVCS) - CHARGING SECT.

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM         | RELIEF FREQ | REMARKS       |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-------------------|-------------|---------------|
| 3-0298A      | F-1    | 1  | A/C  | 2.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>SLT-1       | 5<br>5      | VR-4          |
| 3-0298B      | F-2    | 1  | A/C  | 2.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>SLT-1       | 5<br>5      | VR-4          |
| 3-0298C      | F-2    | 1  | A/C  | 2.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>SLT-1       | 5<br>5      | VR-4          |
| 3-0312A      | G-4    | 1  | C    | 3.000 | CHECK | A   | S/A       | NO        | NO      |           | EO                | 3           |               |
| 3-0312B      | H-4    | 1  | C    | 3.000 | CHECK | A   | S/A       | NC        | NO      |           | EO                | 3           |               |
| 3-0312C      | F-3    | 1  | A/C  | 3.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO<br>SLT-1 | 5<br>3<br>5 | VR-5<br>VR-25 |
| 3-0333       | F-5    | 2  | A    | 3.000 | GLOBE | P   | MAN       | NC        | NO      | FAI       | SLT-1             | 5           | VR-25         |
| 3-0351       | D-4    | 2  | C    | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EO                | 2           |               |
| 3-0357       | D-10   | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO                | 2           |               |
| 3-0310A      | G-4    | 1  | B    | 3.000 | GLOBE | A   | A/O       | NO        | YES     | FO        | EO<br>FS<br>V     | 3<br>3<br>5 |               |
| CV-3-0310B   | H-4    | 1  | B    | 3.000 | GLOBE | A   | A/O       | NC        | YES     | FC        | EO<br>V           | 3<br>5      |               |
| HCV-3-0121   | G-5    | 2  | A    | 3.000 | GLOBE | A   | A/O       | NO        | NO      | FO        | EE<br>FS<br>SLT-1 | 2<br>2<br>5 | VR-6<br>VR-25 |
| LCV-3-0115B  | E-10   | 3  | B    | 4.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EO<br>V           | 2<br>5      |               |
| LCV-3-0115C  | C-2    | 2  | B    | 4.000 | GATE  | A   | NO        | NO        | YES     | FAI       | EC<br>V           | 4<br>5      |               |
| MOV-3-0350   | D-3    | 2  | B    | 2.000 | GATE  | A   | NO        | NC        | YES     | FAI       | EO<br>V           | 3<br>5      |               |
| RV-3-0283A   | F-9    | 2  | C    | 0.750 | SAFE  | A   | SA        | NC        | NO      |           | TF                | 8           |               |



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P & ID: 5610-T-E-4505-1(cont)

SYSTEM: CHEM. VOL. CONT. (CVCS) - CHARGING SECT.

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST FREQ | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|-------|------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| RV-3-0283B   | E-9    | 2  | C    | 0.750 | SAFE | A   | SA        | NC        | NO      | TF        | 8         |             |         |
| RV-3-0283C   | C-9    | 2  | C    | 0.750 | SAFE | A   | SA        | NC        | NO      | TF        | 8         |             |         |

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P & ID: 5610-T-E-4505-2

SYSTEM: CHEM. VOL. CONT. (CVCS) - LETDOWN SECT.

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | TYPE | POS. | IND | MODE | EXAM                   | FREQ             | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|------|------------------------|------------------|--------|---------|
| CV-3-0200A   | G-4    | 1  | A    | 2.000 | GLOBE | A   | A/O  |      | YES | FC   | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25  |         |
| CV-3-0200B   | G-4    | 1  | A    | 2.000 | GLOBE | A   | A/O  |      | YES | FC   | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25  |         |
| CV-3-0200C   | H-4    | 1  | A    | 2.000 | GLOBE | A   | A/O  |      | YES | FC   | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25  |         |
| CV-3-0204    | E-4    | 2  | A    | 2.000 | GLOBE | A   | A/O  | NO   | YES | FC   | EC<br>FS<br>SLT-1<br>V | 2<br>2<br>5<br>5 |        |         |
| MOV-3-0381   | E-5    | 2  | A    | 3.000 | GATE  | A   | MO   | NO   | YES | FAI  | EC<br>SLT-1<br>V       | 4<br>5<br>5      |        |         |
| MOV-3-6386   | F-6    | 2  | A    | 3.000 | GATE  | A   | MO   | NO   | YES | FAI  | EC<br>SLT-1<br>V       | 4<br>5<br>5      |        |         |





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P & ID: 5610-T-E-4505-5

SYSTEM: CHEM. VOL. CONT. (CVCS) - BORIC ACID/DEM

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| 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      | G-2    | 2  | C    | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EC   | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | EO   | 2         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | PEO  | 3         |             |         |
| 3-0397B      | F-2    | 2  | C    | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EC   | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | EO   | 2         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | PEO  | 3         |             |         |

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SYSTEM: SAFETY INJECTION / RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM                  | RELIEF FREQ      | REMARKS              |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|----------------------------|------------------|----------------------|
| 3-0741A      | C-2    | 2  | B    | 2.000  | GATE  | A   | MAN       | NC        | NO      | FAI       | EO                         | 3                |                      |
| 3-0752A      | C-6    | 2  | B    | 14.000 | GATE  | A   | MAN       | NO        | NO      | FAI       | EC<br>EO                   | 3<br>3           |                      |
| 3-0752B      | B-6    | 2  | B    | 14.000 | GATE  | A   | MAN       | NO        | NO      | FAI       | EC<br>EO                   | 3<br>3           |                      |
| 3-0753A      | C-5    | 2  | C    | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>PEO            | 3<br>2<br>3      |                      |
| 3-0753B      | B-5    | 2  | C    | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>PEO            | 3<br>2<br>3      |                      |
| 3-0874C      | C-7    | 2  | C    | 2.000  | CHECK | A   | SA        | NC        | NO      |           | EO                         | 3                |                      |
| 3-0874D      | D-5    | 2  | C    | 2.000  | CHECK | A   | SA        | NC        | NO      |           | EO                         | 3                |                      |
| 3-0879A      | C-7    | 2  | C    | 3.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>PEO            | 3<br>1<br>3      | VR-8<br>VR-8         |
| 3-0879B      | D-7    | 2  | C    | 3.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>PEO            | 3<br>1<br>3      | VR-8<br>VR-8         |
| 3-0890A      | D-4    | 2  | A/C  | 6.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>INSP<br>PEO<br>SLT-1 | 5<br>1<br>7<br>5 | VR-9<br>VR-9<br>VR-9 |
| 3-0890B      | D-4    | 2  | A/C  | 6.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>INSP<br>PEO<br>SLT-1 | 5<br>1<br>7<br>5 | VR-9<br>VR-9<br>VR-9 |
| 3-0893A      | C-7    | 2  | C    | 0.750  | CHECK | A   | SA        | NC        | NO      |           | EO                         | 3                |                      |
| 3-0893B      | C-8    | 2  | C    | 0.750  | CHECK | A   | SA        | NC        | NO      |           | EO                         | 3                |                      |
| 3-0894A      | D-5    | 2  | C    | 1.000  | CHECK | A   | SA        | NC        | NO      |           | EO                         | 3                |                      |
| 3-0894C      | D-4    | 2  | C    | 1.000  | CHECK | A   | SA        | NC        | NO      |           | EO                         | 3                |                      |



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SYSTEM: SAFETY INJECTION / RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | EXAM             | TEST FREQ   | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|------------------|-------------|-------------|---------|
| 3-0895V      | F-3    | 2  | A    | 0.750  | GLOBE | P   | MAN       | LC        | NO      | FAI       | SLT-1            | 5           |             |         |
| MOV-0878A    | E-8    | 2  | B    | 4.000  | GATE  | A   | MO        | NO        | YES     | FAI       | EC<br>V          | 2<br>5      |             |         |
| MOV-3-0843A  | G-3    | 2  | B    | 4.000  | GATE  | A   | MO        | NC        | YES     | FAI       | EC<br>EO<br>V    | 3<br>3<br>5 |             |         |
| MOV-3-0843B  | G-3    | 2  | B    | 4.000  | GATE  | A   | MO        | NC        | YES     | FAI       | EC<br>EO<br>V    | 3<br>3<br>5 |             |         |
| MOV-3-0856A  | C-7    | 2  | B    | 2.000  | GLOBE | A   | MO        | NO        | YES     | FAI       | EC<br>V          | 2<br>5      |             |         |
| MOV-3-0856B  | C-7    | 2  | B    | 2.000  | GLOBE | A   | MO        | NO        | YES     | FAI       | EC<br>V          | 2<br>5      |             |         |
| MOV-3-0860A  | D-3    | 2  | A    | 14.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V | 3<br>5<br>5 |             | VR-25   |
| MOV-3-0860B  | D-3    | 2  | A    | 14.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V | 3<br>5<br>5 |             | VR-25   |
| MOV-3-0861A  | C-5    | 2  | A    | 14.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V | 3<br>5<br>5 |             | VR-25   |
| MOV-3-0861B  | D-5    | 2  | A    | 14.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V | 3<br>5<br>5 |             | VR-25   |
| MOV-3-0862A  | A-7    | 2  | B    | 14.000 | GATE  | A   | MO        | LO        | YES     | FAI       | EC<br>V          | 2<br>5      |             |         |
| MOV-3-0862B  | B-7    | 2  | B    | 14.000 | GATE  | A   | MO        | LO        | YES     | FAI       | EC<br>V          | 2<br>5      |             |         |
| MOV-3-0863A  | A-3    | 2  | B    | 8.000  | GATE  | A   | MO        | LC        | YES     | FAI       | EO<br>V          | 4<br>5      |             |         |



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SYSTEM: SAFETY INJECTION / RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE | A/P | TYPE | POS. | IND | MODE | EXAM                   | FREQ             | RELIEF | REQ. | REMARKS |
|--------------|--------|----|------|--------|------|-----|------|------|-----|------|------------------------|------------------|--------|------|---------|
| MOV-3-0863B  | A-3    | 2  | B    | 8.000  | GATE | A   | MO   | LC   | YES | FAI  | EO<br>V                | 4<br>5           |        |      |         |
| MOV-3-0864A  | B-8    | 2  | B    | 16.000 | GATE | A   | MO   | LO   | YES | FAI  | EC<br>V                | 2<br>5           |        |      |         |
| MOV-3-0864B  | B-8    | 2  | B    | 16.000 | GATE | A   | MO   | LO   | YES | FAI  | EC<br>V                | 2<br>5           |        |      |         |
| MOV-3-0869   | E-2    | 2  | B    | 3.000  | GATE | A   | MO   | NC   | YES | FAI  | EC<br>EO<br>V          | 3<br>3<br>5      |        |      |         |
| MOV-3-0872   | A-2    | 2  | A    | 8.000  | GATE | A   | MO   | NC   | YES | FAI  | EC<br>EO<br>SLT-1<br>V | 4<br>4<br>5<br>5 |        |      |         |
| MOV-3-0880A  | D-4    | 2  | A    | 6.000  | GATE | A   | MO   | NC   | YES | FAI  | EO<br>SLT-1<br>V       | 3<br>5<br>5      |        |      |         |
| MOV-3-0880B  | D-5    | 2  | A    | 6.000  | GATE | A   | MO   | NC   | YES | FAI  | EO<br>SLT-1<br>V       | 3<br>5<br>5      |        |      |         |
| RV-3-0857    | G-4    | 2  | C    | 0.750  | SAFE | A   | SA   | NC   | NO  |      | TF                     | 8                |        |      |         |
| RV-3-0871    | E-3    | 2  | C    | 0.750  | SAFE | A   | SA   | NC   | NO  |      | TF                     | 8                |        |      |         |





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SYSTEM: SAFETY INJECTION / RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | TYPE | POS. | IND | MODE | EXAM                       | FREQ             | TEST RELIEF REQ.                 | REMARKS |
|--------------|--------|----|------|--------|-------|-----|------|------|-----|------|----------------------------|------------------|----------------------------------|---------|
| 3-0873A      | D-9    | 1  | A/C  | 2.000  | CHECK | A   | S/A  | NC   | NO  |      | EC<br>EO<br>SLT-2          | 5<br>1<br>5      | VR-10<br>VR-10<br>VR-21          |         |
| 3-0873B      | D-9    | 1  | A/C  | 2.000  | CHECK | A   | S/A  | NC   | NO  |      | EC<br>EO<br>SLT-2          | 5<br>1<br>5      | VR-10<br>VR-10<br>VR-21          |         |
| 3-0873C      | D-9    | 1  | A/C  | 2.000  | CHECK | A   | S/A  | NC   | NO  |      | EC<br>EO<br>SLT-2          | 5<br>1<br>5      | VR-10<br>VR-10<br>VR-21          |         |
| 3-0874A      | D-3    | 1  | A/C  | 2.000  | CHECK | A   | S/A  | NC   | NO  |      | EC<br>PEO<br>SLT-2         | 5<br>1<br>5      | VR-11<br>VR-11<br>VR-21          |         |
| 3-0874B      | D-3    | 1  | A/C  | 2.000  | CHECK | A   | S/A  | NC   | NO  |      | EC<br>PEO<br>SLT-2         | 5<br>1<br>5      | VR-11<br>VR-11<br>VR-21          |         |
| 3-0875A      | G-1    | 1  | A/C  | 10.000 | CHECK | A   | S/A  | NC   | NO  |      | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>2<br>5 | VR-12<br>VR-12<br>VR-12<br>VR-21 |         |
| 3-0875B      | G-1    | 1  | A/C  | 10.000 | CHECK | A   | S/A  | NC   | NO  |      | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>2<br>5 | VR-12<br>VR-12<br>VR-12<br>VR-21 |         |
| 3-0875C      | H-1    | 1  | A/C  | 10.000 | CHECK | A   | S/A  | NC   | NO  |      | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>2<br>5 | VR-12<br>VR-12<br>VR-12<br>VR-21 |         |
| 3-0875D      | G-3    | 1  | C    | 10.000 | CHECK | A   | S/A  | NC   | NO  |      | EC<br>INSP                 | 5<br>7           | VR-13<br>VR-13                   |         |
| 3-0875E      | G-5    | 1  | C    | 10.000 | CHECK | A   | S/A  | NC   | NO  |      | EC<br>INSP                 | 5<br>7           | VR-13<br>VR-13                   |         |
| 3-0875F      | G-7    | 1  | C    | 10.000 | CHECK | A   | S/A  | NC   | NO  |      | EC<br>INSP                 | 5<br>7           | VR-13<br>VR-13                   |         |



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SYSTEM: SAFETY INJECTION / RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | EXAM                       | TEST FREQ        | RELIEF REQ.                      | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|----------------------------|------------------|----------------------------------|---------|
| 3-0876A      | G-3    | 1  | A/C  | 8.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>SLT-2          | 5<br>2<br>5      | VR-17<br>VR-21                   |         |
| 3-0876B      | G-5    | 1  | A/C  | 8.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>2<br>5 | VR-14<br>VR-14<br>VR-14<br>VR-21 |         |
| 3-0876C      | G-8    | 1  | A/C  | 8.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>2<br>5 | VR-14<br>VR-14<br>VR-14<br>VR-21 |         |
| 3-0876D      | G-5    | 1  | A/C  | 8.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>4<br>5 | VR-15<br>VR-15<br>VR-15<br>VR-21 |         |
| 3-0876E      | G-7    | 1  | A/C  | 8.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>4<br>5 | VR-15<br>VR-15<br>VR-15<br>VR-21 |         |
| 3-0945E      | E-9    | 2  | A/C  | 1.000  | S/CHK | A   | S/A       | NC        | NO      |           | EC<br>SLT-1                | 2<br>5           |                                  |         |
| 3-2918       | B-4    | 2  | C    | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | INSP                       | 1                | VR-16                            |         |
| 3-2919       | B-6    | 2  | C    | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | INSP                       | 1                | VR-16                            |         |
| 3-2920       | B-8    | 2  | C    | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | INSP                       | 1                | VR-16                            |         |
| 3-2921       | B-4    | 2  | C    | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | INSP                       | 1                | VR-16                            |         |
| 3-2922       | C-6    | 2  | C    | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | INSP                       | 1                | VR-16                            |         |
| 3-2923       | C-8    | 2  | C    | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | INSP                       | 1                | VR-16                            |         |
| MOV-3-0744A  | G-9    | 2  | B    | 10.000 | GATE  | A   | NO        | NC        | YES     | FAI       | EC<br>EO<br>V              | 2<br>2<br>5      |                                  |         |



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| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | EXAM             | TEST FREQ   | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|------------------|-------------|-------------|---------|
| MOV-3-0744B  | G-9    | 2  | B    | 10.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EC<br>EO<br>V    | 2<br>2<br>5 |             |         |
| MOV-3-0750   | C-4    | 1  | A    | 14.000 | GATE  | A   | MO        | LC        | YES     | FAI       | EO<br>SLT-2<br>V | 2<br>5<br>5 | VR-21       |         |
| MOV-3-0751   | C-5    | 1  | A    | 14.000 | GATE  | A   | MO        | LC        | YES     | FAI       | EO<br>SLT-2<br>V | 2<br>5<br>5 | VR-21       |         |
| MOV-3-0865A  | F-3    | 2  | B    | 10.000 | GATE  | P   | MO        | LO        | YES     | FAI       | V                | 5           |             |         |
| MOV-3-0865B  | F-5    | 2  | B    | 10.000 | GATE  | P   | MO        | LO        | YES     | FAI       | V                | 5           |             |         |
| MOV-3-0865C  | F-7    | 2  | B    | 10.000 | GATE  | P   | MO        | LO        | YES     | FAI       | V                | 5           |             |         |
| MOV-3-0866A  | D-7    | 1  | B    | 2.000  | GLOBE | A   | MO        | LC        | YES     | FAI       | EC<br>EO<br>V    | 2<br>2<br>5 |             |         |
| MOV-3-0866B  | C-7    | 1  | B    | 2.000  | GLOBE | A   | MO        | LC        | YES     | FAI       | EC<br>EO<br>V    | 2<br>2<br>5 |             |         |
| SV-3-2905    | B-4    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |             |         |
| SV-3-2906    | B-4    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |             |         |
| SV-3-2907    | B-6    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |             |         |
| SV-3-2908    | B-6    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |             |         |
| SV-3-2909    | B-7    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |             |         |
| SV-3-2910    | B-8    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |             |         |

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SYSTEM: COMPONENT COOLING - OUTSIDE CONTAINMENT

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM     | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|---------------|-------------|---------|
| 3-0702A      | D-7    | 3  | C    | 16.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO      | 3<br>3      |         |
| 3-0702B      | D-8    | 3  | C    | 16.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO      | 3<br>3      |         |
| 3-0702C      | D-8    | 3  | C    | 16.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO      | 3<br>3      |         |
| CV-3-0739    | C-1    | 3  | B    | 3.000  | GLOBE | A   | AO        | NO        | YES     | FC        | EC<br>FS<br>V | 3<br>3<br>5 |         |
| CV-3-2903    | C-1    | 2  | B    | 10.000 | BUTFY | P   | A/O       | NO        | YES     | FO        | V             | 5           |         |
| CV-3-2904    | B-1    | 2  | B    | 10.000 | BUTFY | P   | A/O       | NO        | YES     | FO        | V             | 5           |         |
| CV-3-2905    | B-1    | 2  | B    | 10.000 | BUTFY | P   | A/O       | NO        | YES     | FO        | V             | 5           |         |
| CV-3-2906    | E-1    | 2  | B    | 10.000 | BUTFY | A   | A/O       | NC        | YES     | FO        | EO<br>FS<br>V | 3<br>3<br>5 |         |
| CV-3-2907    | E-2    | 2  | B    | 10.000 | BUTFY | A   | A/O       | NC        | YES     | FO        | EO<br>FS<br>V | 3<br>3<br>5 |         |
| CV-3-2908    | D-2    | 2  | B    | 10.000 | BUTFY | A   | A/O       | NC        | YES     | FO        | EO<br>FS<br>V | 3<br>3<br>5 |         |
| CWST VAC BKR | A-7    | 3  | C    | 0.000  | CHECK | A   | SA        | NC        | NO      |           | EC<br>EO      | 3<br>3      |         |
| MOV-3-0749A  | B-3    | 3  | B    | 16.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>V       | 3<br>5      |         |
| MOV-3-0749B  | B-3    | 3  | B    | 16.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>V       | 3<br>5      |         |
| MOV-3-1417   | A-1    | 2  | B    | 10.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EC<br>V       | 2<br>5      |         |
| MOV-3-1418   | D-2    | 2  | B    | 10.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EC<br>V       | 2<br>5      |         |



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SYSTEM: COMPONENT COOLING - OUTSIDE CONTAINMENT

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST FREQ | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|-------|------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| RV-3-0707    | A-8    | 3  | C    | 0.000 | SAFE | A   | SA        | NC        | NO      | TF        | 8         |             |         |

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SYSTEM: COMPONENT COOLING - INSIDE CONTAINMENT

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| RV-3-0715    | F-9    | 3  | C    | 3.000 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-3-0729    | G-5    | 3  | C    | 3.000 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-3-1426    | B-10   | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-3-1427    | B-9    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-3-1428    | A-6    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-3-1429    | A-3    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-3-1430    | B-8    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-3-1431    | A-5    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |

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SYSTEM: SPENT FUEL PIT COOLING

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| 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       | E-5    | 3  | C    | 8.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO | 3<br>3    |             |         |
| 3-0914       | E-5    | 3  | C    | 8.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO | 3<br>3    |             |         |

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SYSTEM: NORMAL AND POST-ACCIDENT SAMPLING

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

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P & ID: 5610-T-E-4515-2(cont)      SYSTEM: NORMAL AND POST-ACCIDENT SAMPLING

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

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P & ID: 5610-T-E-4517-1

SYSTEM: WASTE DISPOSAL - GASEOUS

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | EXAM  | TEST FREQ | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-------|-----------|-------------|---------|
| CV-3-0855    | B-3    | 2  | A    | 1.000 | GLOBE | A   | A/O       | NO        | YES     | FC        | EC    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | FS    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1 | 5         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | V     | 5         |             |         |

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P & ID: 5610-T-E-4517-2

SYSTEM: HYDROGEN & OXYGEN GAS ANALYZER

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MOOE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| CV-3-0516    | F-7    | 2  | A    | 0.375 | GLOBE | A   | A/O       | NC        | YES     | FC        | EC        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | FS        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1     | 5           |         |
|              |        |    |      |       |       |     |           |           |         |           | V         | 5           |         |
| SV-3-6385    | F-7    | 2  | A    | 0.375 | GLOBE | A   | SO        | NC        | YES     | FC        | EC        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | FS        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1     | 5           |         |
|              |        |    |      |       |       |     |           |           |         |           | V         | 5           |         |



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& ID: 5610-T-E-4518-2

SYSTEM: WASTE DISPOSAL - LIQUID

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM              | RELIEF FREQ      | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|------------------------|------------------|---------|
| CV-3-2821    | F-5    | 2  | A    | 3.000 | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |         |
| CV-3-2822    | F-5    | 2  | A    | 3.000 | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |         |
| CV-3-4658A   | E-5    | 2  | A    | 1.000 | DIAPH | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |         |
| CV-3-4658B   | E-6    | 2  | A    | 1.000 | DIAPH | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |         |
| CV-3-4659A   | D-5    | 2  | A    | 0.750 | DIAPH | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |         |
| CV-3-4659B   | E-5    | 2  | A    | 0.750 | DIAPH | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |         |
| CV-3-4668A   | F-5    | 2  | A    | 3.000 | DIAPH | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25   |
| CV-3-4668B   | F-5    | 2  | A    | 3.000 | DIAPH | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25   |
| PCV-3-1014   | D-6    | 2  | A    | 1.000 | GLOBE | P   | A/O       | NC        | NO      | FC        | SLT-1                  | 5                |         |



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SYSTEM: PRIMARY AND DEMINERALIZED 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    | G-4    | 2  | A/C  | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EC    | 5         | VR-18       |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1 | 5         | VR-25       |         |
| 3-10-0582    | G-5    | 2  | A    | 2.000 | GATE  | P   | MAN       | NC        | NO      | FAI       | SLT-1 | 5         | VR-25       |         |
| CV-3-0519A   | F-4    | 2  | A    | 3.000 | DIAPH | A   | A/O       | NC        | YES     | FC        | EC    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | FS    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1 | 5         | VR-25       |         |
|              |        |    |      |       |       |     |           |           |         |           | V     | 5         |             |         |



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SYSTEM: CONTAINMENT VENT & SAMPLING O/S CONT.

| 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    | F-5    | 2  | A/C  | 1.000  | CHECK | A   | S/A       | NO        | NO      |           | EC<br>SLT-1            | 5<br>5           | VR-19       |         |
| 3-40-0204    | D-3    | 2  | A    | 2.000  | GATE  | P   | MAN       | LC        | NO      | FAI       | SLT-1                  | 5                | VR-25       |         |
| 3-40-0205    | E-6    | 2  | A/C  | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>SLT-1            | 5<br>5           | VR-19       |         |
| CV-3-2826    | C-3    | 2  | A    | 2.000  | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |             |         |
| HV-3-0001    | G-6    | 2  | A    | 2.000  | DIAPH | P   | MAN       | LC        | NO      | FAI       | SLT-1                  | 5                | VR-25       |         |
| HV-3-0002    | G-6    | 2  | A    | 2.000  | DIAPH | P   | MAN       | LC        | NO      | FAI       | SLT-1                  | 5                | VR-25       |         |
| HV-3-0003    | G-6    | 2  | A    | 2.000  | DIAPH | P   | MAN       | LC        | NO      | FAI       | SLT-1                  | 5                | VR-25       |         |
| HV-3-0004    | G-6    | 2  | A    | 2.000  | DIAPH | P   | MAN       | LC        | NO      | FAI       | SLT-1                  | 5                | VR-25       |         |
| HV-3-0017    | D-3    | 2  | A    | 2.000  | GLOBE | P   | MAN       | NC        | NO      | FAI       | SLT-1                  | 5                | VR-25       |         |
| PAHM-3-0001A | G-5    | 2  | A    | 0.750  | GLOBE | P   | MAN       | NC        | NO      | FAI       | SLT-1                  | 5                |             |         |
| PAHM-3-0001B | G-5    | 2  | A    | 0.750  | GLOBE | P   | MAN       | NC        | NO      | FAI       | SLT-1                  | 5                |             |         |
| PAHM-3-0002A | H-3    | 2  | A    | 0.750  | GLOBE | P   | MAN       | NC        | NO      | FAI       | SLT-1                  | 5                | VR-25       |         |
| PAHM-3-0002B | G-5    | 2  | A    | 0.750  | GLOBE | P   | MAN       | NC        | NO      | FAI       | SLT-1                  | 5                | VR-25       |         |
| POV-3-2600   | A-3    | 2  | A    | 48.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 2<br>2<br>5<br>5 | VR-25       |         |
| POV-3-2602   | B-3    | 2  | A    | 54.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 2<br>2<br>5<br>5 | VR-25       |         |
| SV-3-2911    | A-8    | 2  | A    | 1.000  | GLOBE | A   | SO        | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |             |         |



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SYSTEM: CONTAINMENT VENT & SAMPLING O/S CONT.

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | TYPE | ACT. | NORM | REM  | FAIL  | TEST | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|------|------|-------|------|--------|---------|
|              |        |    |      |       |       |     |      | POS. | IND  | MODE | EXAM  | FREQ | REQ.   |         |
| SV-3-2912    | B-8    | 2  | A    | 1.000 | GLOBE | A   | SO   | NO   | YES  | FC   | EC    | 3    |        |         |
|              |        |    |      |       |       |     |      |      |      |      | FS    | 3    |        |         |
|              |        |    |      |       |       |     |      |      |      |      | SLT-1 | 5    |        |         |
|              |        |    |      |       |       |     |      |      |      |      | V     | 5    |        |         |
| SV-3-2913    | A-7    | 2  | A    | 1.000 | GLOBE | A   | SO   | NO   | YES  | FC   | EC    | 3    |        |         |
|              |        |    |      |       |       |     |      |      |      |      | FS    | 3    |        |         |
|              |        |    |      |       |       |     |      |      |      |      | SLT-1 | 5    |        |         |
|              |        |    |      |       |       |     |      |      |      |      | V     | 5    |        |         |

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SYSTEM: CONTAINMENT VENT & SAMPLING I/S CONT.

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| CV-3-2819    | D-2    | 2  | A    | 2.000  | GLOBE | A   | A/O       | NO        | YES     | FC        | EC        | 3           |         |
|              |        |    |      |        |       |     |           |           |         |           | FS        | 3           |         |
|              |        |    |      |        |       |     |           |           |         |           | SLT-1     | 5           |         |
|              |        |    |      |        |       |     |           |           |         |           | V         | 5           |         |
| POV-3-2601   | B-2    | 2  | A    | 48.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EC        | 2           |         |
|              |        |    |      |        |       |     |           |           |         |           | FS        | 2           |         |
|              |        |    |      |        |       |     |           |           |         |           | SLT-1     | 5           | VR-25   |
|              |        |    |      |        |       |     |           |           |         |           | V         | 5           |         |
| POV-3-2603   | D-2    | 2  | A    | 54.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EC        | 2           |         |
|              |        |    |      |        |       |     |           |           |         |           | FS        | 2           |         |
|              |        |    |      |        |       |     |           |           |         |           | SLT-1     | 5           | VR-25   |
|              |        |    |      |        |       |     |           |           |         |           | V         | 5           |         |

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SYSTEM: DIESEL GENERATOR 'A'

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| 3-70-0006A   | D-10   | 3  | C    | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |         |
| CV-2046A     | C-9    | 3  | B    | 2.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EO        | 3           | VR-22   |
| SV-2051A     | C-10   | 3  | B    | 2.000 | GLOBE | A   | SO        | NC        | NO      | FC        | EO        | 3           | VR-22   |
| SV-3-3522A   | G-9    | 3  | B    | 1.500 | GATE  | A   | SO        | NC        | NO      | FC        | EO        | 3           | VR-22   |



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SYSTEM: INSTRUMENT AIR INSIDE CONTAINMENT

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. | NORM | REM | FAIL | TEST  | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|------|-------|--------|---------|
|              |        |    |      |       |       |     | TYPE | POS. | IND | MODE | EXAM  | FREQ   | REQ.    |
| 3-40-0336    | F-7    | 2  | A/C  | 2.000 | CHECK | A   | S/A  | NO   | NO  |      | EC    | 5      | VR-20   |
|              |        |    |      |       |       |     |      |      |     |      | SLT-1 | 5      |         |
| 3-40-0340A   | F-7    | 2  | A/C  | 2.000 | S/CHK | A   | S/A  | NO   | NO  |      | EC    | 5      | VR-26   |
|              |        |    |      |       |       |     |      |      |     |      | SLT-1 | 5      |         |





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SYSTEM: TEST CONNECTION

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. | NORM | REM | FAIL | TEST  | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|------|-------|--------|---------|
|              |        |    |      |       |       |     | TYPE | POS. | IND | MODE | EXAM  | FREQ   | REQ.    |
| 3-2024       |        | 2  | A    | 0.375 | GATE  | P   | MAN  | NC   | NO  |      | SLT-1 | 5      |         |
| 3-2025       |        | 2  | A    | 0.375 | GLOBE | P   | MAN  | NC   | NO  |      | SLT-1 | 5      |         |
| 3-2026       |        | 2  | A    | 0.375 | GLOBE | P   | MAN  | NC   | NO  |      | SLT-1 | 5      |         |



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NOTES

1. (Ref. 5610-T-E-4065-2) Valves POV-3-4882 and POV-3-4883 will be installed per a plant modification scheduled for completion in 1990 at which time testing of 3-0401 will no longer be required.
2. Auxiliary Feedwater (AFW) Pump "A" Discharge Check Valve, 20-143, will be tested whenever "A" AFW Pump is lined up to operate in parallel with either of the other AFW Pumps.



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Appendix E  
Valve Program Tables  
Unit 4

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LEGEND

|              |  |
|--------------|--|
| 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 as per the respective ISI boundary drawings  |
| CAT          | The valve category per Paragraph IWV-2200  |
| 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:<br><br>MO Electric motor-operated<br>AO Air-operated<br>SO Solenoid-operated<br>SA Self actuated<br>MAN Manual valve |
| 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".   |





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LEGEND (Cont.)

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EXAM Identifies the test requirements for a valve as follows:

EC Exercise to closed position. For all category A or B power-operated valves stroke times will be measured unless excluded by an associated relief request.

EO Exercise to open position. For all category A or B power-operated valves stroke times will be measured unless excluded by an associated relief request.

EE Exercise valve to verify proper operation and stroking with no stroke time measurements. Requires observation of system parameters or local observation of valve operation.

SLT-1 Seat leakrate test per 10 CFR 50, App J

SLT-2 Seat leakrate test for pressure isolation valves

PEO Partial-stroke test to the open position of check valves

FS Fail safe test

V Position indication verification

INSP Disassembly and inspection of check valves

TEST FREQ The required test interval as follows:

- 1 Each reactor refueling outage (cycle)
- 2 Cold shutdown as defined by Technical Specification
- 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)
- 8 Per Table IWV-3510-1

RELIEF REQ Refers to the specific relief request associated with the adjacent test requirement



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P & ID: 5177-074-M-2                      SYSTEM: BREATHING AIR SYSTEM (BA)

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

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P & ID: 5610-T-E-4061-1

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    | B-3    | 2  | C    | 26.000 | S/CHK  | A   | S/A       | NO        | NO      |           | EC      | 2         |             |         |
| 4-10-0005    | B-2    | 2  | C    | 26.000 | S/CHK  | A   | S/A       | NO        | NO      |           | EC      | 2         |             |         |
| 4-10-0006    | B-1    | 2  | C    | 26.000 | S/CHK  | A   | S/A       | NO        | NO      |           | EC      | 2         |             |         |
| MOV-4-1400   | B-3    | 2  | B    | 2.000  | GLOBE  | A   | MO        | NC        | YES     | FAI       | EC<br>V | 3<br>5    |             |         |
| MOV-4-1401   | B-2    | 2  | B    | 2.000  | GLOBE  | A   | MO        | NC        | YES     | FAI       | EC<br>V | 3<br>5    |             |         |
| MOV-4-1402   | B-1    | 2  | B    | 2.000  | GLOBE  | A   | MO        | NC        | YES     | FAI       | EC<br>V | 3<br>5    |             |         |
| POV-4-2604   | B-3    | 2  | B/C  | 26.000 | PA/CHK | A   | A/O       | NO        | YES     |           | EC<br>V | 2<br>5    |             |         |
| POV-4-2605   | B-2    | 2  | B/C  | 26.000 | PA/CHK | A   | A/O       | NO        | YES     |           | EC<br>V | 2<br>5    |             |         |
| 4-2606       | B-1    | 2  | B/C  | 26.000 | PA/CHK | A   | A/O       | NO        | YES     |           | EC<br>V | 2<br>5    |             |         |
| RV-4-1400    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-1    | 8         |             |         |
| RV-4-1401    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-2    | 8         |             |         |
| RV-4-1402    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-3    | 8         |             |         |
| RV-4-1403    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-4    | 8         |             |         |
| RV-4-1405    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-1    | 8         |             |         |
| RV-4-1406    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-2    | 8         |             |         |
| RV-4-1407    | D-3    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-3    | 8         |             |         |
| RV-4-1408    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-4    | 8         |             |         |
| RV-4-1410    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-1    | 8         |             |         |
| RV-4-1411    | D-1    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-2    | 8         |             |         |
| RV-4-1412    | D-2    | 2  | C    | 6.000  | SAFE   | A   | S/A       | NC        | NO      |           | TF-3    | 8         |             |         |



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P & ID: 5610-T-E-4061-1(cont)      SYSTEM: MAIN STEAM

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. | NORM | REM | FAIL | TEST | RELIEF | REMARKS |
|--------------|--------|----|------|-------|------|-----|------|------|-----|------|------|--------|---------|
|              |        |    |      |       |      |     | TYPE | POS. | IND | MODE | EXAM | FREQ   | REQ.    |
| RV-4-1413    | D-1    | 2  | C    | 6.000 | SAFE | A   | S/A  | NC   | NO  |      | TF-4 | 8      |         |

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P & ID: 5610-T-E-4061-4

SYSTEM: AUXILIARY FEEDWATER PUMPS

| 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    | F-3    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |          |
| 4-10-0087    | F-6    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 6         |             | 1WV-3416 |
| 4-10-0375    | A-8    | 3  | C    | 3.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |          |
| 4-10-0376    | A-9    | 3  | C    | 3.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |          |
| 4-10-0377    | A-10   | 3  | C    | 3.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |          |
| 4-10-0381    | B-8    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO | 2<br>3    |             |          |
| 4-10-0382    | B-9    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO | 2<br>3    |             |          |
| 4-10-0383    | B-10   | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO | 2<br>3    |             |          |
| AFSS-4-0005  | B-8    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO       | 3         |             |          |
| MOV-4-1403   | B-8    | 2  | B    | 3.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>V  | 3<br>5    |             |          |
| MOV-4-1404   | B-9    | 2  | B    | 3.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>V  | 3<br>5    |             |          |
| MOV-4-1405   | B-10   | 2  | B    | 3.000 | GATE  | A   | MO        | NC        | YES     | FAI       | EO<br>V  | 3<br>5    |             |          |

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P & ID: 5610-T-E-4062-2

SYSTEM: FEEDWATER

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM     | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|---------------|-------------|---------|
| FCV-4-0478   | C-3    | 2  | B    | 14.000 | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>V | 2<br>2<br>5 |         |
| FCV-4-0479   | C-3    | 2  | B    | 4.000  | GLOBE | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>V | 2<br>2<br>5 |         |
| FCV-4-0488   | C-5    | 2  | B    | 14.000 | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>V | 2<br>2<br>5 |         |
| FCV-4-0489   | C-6    | 2  | B    | 4.000  | GLOBE | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>V | 2<br>2<br>5 |         |
| FCV-4-0498   | C-7    | 2  | B    | 14.000 | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>V | 2<br>2<br>5 |         |
| FCV-4-0499   | C-8    | 2  | B    | 4.000  | GLOBE | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>V | 2<br>2<br>5 |         |



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P & ID: 5610-T-E-4062-3

SYSTEM: STEAM GENERATOR-AUX FEEDWATER SUPPLY

| 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    | C-8    | 2  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO   | 3         |             |         |
| 4-20-0240    | C-9    | 2  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO   | 3         |             |         |
| 4-20-0340    | C-10   | 2  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO   | 3         |             |         |
| 4-20-0458    | E-9    | 2  | C    | 0.000 | CHECK | A   | S/A       | NC        | NO      |           | EO   | 3         |             |         |
| AFPD-4-0009  | A-8    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO   | 3         |             |         |
| AFPD-4-0011  | A-9    | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO   | 3         |             |         |
| AFPD-4-0013  | A-10   | 3  | C    | 4.000 | CHECK | A   | S/A       | NC        | NO      |           | EO   | 3         |             |         |
| AFWJ-4-0016  | E-10   | 2  | C    | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EO   | 3         |             |         |
| CV-4-2816    | C-8    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE   | 3         | VR-2        |         |
| CV-4-2817    | C-9    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE   | 3         | VR-2        |         |
| CV-4-2818    | C-10   | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE   | 3         | VR-2        |         |
| CV-4-2831    | B-8    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE   | 3         | VR-2        |         |
| CV-4-2832    | B-9    | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE   | 3         | VR-2        |         |
| CV-4-2833    | B-10   | 2  | B    | 4.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EE   | 3         | VR-2        |         |

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SYSTEM: STEAM GEN BLOWDOWN RECOVERY AND SAMPLING

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM     | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|---------------|-------------|---------|
| CV-4-6275A   | E-4    | 2  | B    | 6.000 | GLOBE | A   | A/O       | NO        | YES     | FAI       | EC<br>V       | 3<br>5      |         |
| CV-4-6275B   | D-4    | 2  | B    | 6.000 | GLOBE | A   | A/O       | NO        | YES     | FAI       | EC<br>V       | 3<br>5      |         |
| CV-4-6275C   | C-4    | 2  | B    | 6.000 | GLOBE | A   | A/O       | NO        | YES     | FAI       | EC<br>V       | 3<br>5      |         |
| MOV-4-1425   | G-4    | 2  | B    | 1.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EC<br>V       | 3<br>5      |         |
| MOV-4-1426   | G-4    | 2  | B    | 1.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EC<br>V       | 3<br>5      |         |
| MOV-4-1427   | H-4    | 2  | B    | 1.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EC<br>V       | 3<br>5      |         |
| SV-4-6275A-1 | E-4    | 2  | B    | 0.750 | GLOBE | A   | SO        | NO        | YES     | FC        | EC<br>FS<br>V | 3<br>3<br>5 |         |
| SV-4-6275B-1 | D-4    | 2  | B    | 0.750 | GLOBE | A   | SO        | NO        | YES     | FC        | EC<br>FS<br>V | 3<br>3<br>5 |         |
| SV-4-6275C-1 | C-4    | 2  | B    | 0.750 | GLOBE | A   | SO        | NO        | YES     | FC        | EC<br>FS<br>V | 3<br>3<br>5 |         |

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P & ID: 5610-T-E-4062-6

SYSTEM: CONDENSATE AND FEEDWATER

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. | NORM | REM | FAIL | TEST | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|------|------|--------|---------|
|              |        |    |      |       |       |     | TYPE | POS. | IND | MODE | EXAM | FREQ   | REQ.    |
| 4-20-0401    | F-2    | 3  | C    | 8.000 | CHECK | A   | S/A  | NC   | NO  |      | EO   | 3      |         |



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P & ID: 5610-T-E-4064-8

SYSTEM: INSTRUMENT AIR INSIDE CONTAINMENT

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. | NORM | REM | FAIL | TEST        | RELIEF | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|------|-------------|--------|---------|
|              |        |    |      |       |       |     | TYPE | POS. | IND | MODE | EXAM        | FREQ   | REQ.    |
| 4-40-0336    | F-8    | 2  | A/C  | 2.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>SLT-1 | 5<br>5 | VR-20   |
| 4-40-0340A   | F-8    | 2  | A/C  | 2.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>SLT-1 | 5<br>5 | VR-26   |



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P & ID: 5610-T-E-4065-2

SYSTEM: CIRCULATING AND 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 |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|---------------|-------------|-------------|---------|
| POV-4-4882   | B-2    | 3  | B    | 30.000 | BUTFY | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>V | 3<br>3<br>5 |             |         |
| POV-4-4883   | B-2    | 3  | B    | 30.000 | BUTFY | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>V | 3<br>3<br>5 |             |         |

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P & ID: 5610-T-E-4065-3

SYSTEM: INTAKE AREA

| 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    | D-5    | 3  | C    | 24.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO | 3<br>3    |             |         |
| 4-50-0321    | D-6    | 3  | C    | 24.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO | 3<br>3    |             |         |
| 4-50-0331    | D-7    | 3  | C    | 24.000 | CHECK | A   | S/A       | NO        | NO      |           | EC<br>EO | 3<br>3    |             |         |

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P & ID: 5610-T-E-4501-1 SYSTEM: REACTOR COOLANT (RCS)

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | TYPE | POS. | IND | MODE | EXAM                   | FREQ             | TEST RELIEF REQ. | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|------|------------------------|------------------|------------------|---------|
| 4-0518       | A-3    | 2  | A/C  | 0.750 | CHECK | A   | S/A  | NC   | NO  |      | EC<br>SLT-1            | 5<br>5           | VR-3             |         |
| 4-0519       | A-2    | 2  | A/C  | 0.750 | S/CHK | A   | S/A  | NC   | NO  |      | EC<br>SLT-1            | 2<br>5           |                  |         |
| CV-4-0519B   | B-2    | 2  | A    | 3.000 | DIAPH | P   | A/O  | NC   | YES | FC   | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25            |         |
| CV-4-0522A   | B-2    | 2  | A    | 0.750 | DIAPH | P   | A/O  | NC   | YES | FC   | SLT-1<br>V             | 5<br>5           | VR-25            |         |
| CV-4-0522B   | C-2    | 2  | A    | 0.750 | DIAPH | P   | A/O  | NC   | YES | FC   | SLT-1<br>V             | 5<br>5           | VR-25            |         |
| CV-4-0522C   | C-2    | 2  | A    | 0.750 | DIAPH | P   | A/O  | NC   | YES | FC   | SLT-1<br>V             | 5<br>5           | VR-25            |         |
| MOV-4-0535   | B-9    | 1  | B    | 3.000 | GATE  | A   | MO   | NO   | YES | FAI  | EC<br>V                | 3<br>5           |                  |         |
| MOV-4-0536   | C-9    | 1  | B    | 3.000 | GATE  | A   | MO   | NO   | YES | FAI  | EC<br>V                | 3<br>5           |                  |         |
| PCV-4-0455C  | C-9    | 1  | B    | 2.000 | GLOBE | A   | A/O  | NC   | YES | FC   | EC<br>EO<br>FS<br>V    | 4<br>4<br>4<br>5 |                  |         |
| PCV-4-0456   | B-9    | 1  | B    | 2.000 | GLOBE | A   | A/O  | NC   | YES | FC   | EC<br>EO<br>FS<br>V    | 4<br>4<br>4<br>5 |                  |         |
| RV-4-0551A   | B-8    | 1  | C    | 4.000 | SAFE  | A   | S/A  | NC   | NO  |      | TF-5                   | 8                |                  |         |
| RV-4-0551B   | B-8    | 1  | C    | 4.000 | SAFE  | A   | S/A  | NC   | NO  |      | TF-5                   | 8                |                  |         |
| RV-4-0551C   | B-8    | 1  | C    | 4.000 | SAFE  | A   | S/A  | NC   | NO  |      | TF-5                   | 8                |                  |         |
| SV-4-6318A   | C-4    | 2  | B    | 1.000 | GLOBE | A   | SO   | LC   | YES | FC   | EO<br>V                | 4<br>5           |                  |         |

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P & ID: 5610-T-E-4501-1(cont) 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 |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|---------|-----------|-------------|---------|
| SV-4-6318B   | C-4    | 2  | B    | 1.000 | GLOBE | A   | SO        | LC        | YES     | FC        | EO<br>V | 4<br>5    |             |         |
| SV-4-6319A   | C-5    | 2  | B    | 1.000 | GLOBE | A   | SO        | LC        | YES     | FC        | EO<br>V | 4<br>5    |             |         |
| SV-4-6319B   | C-5    | 2  | B    | 1.000 | GLOBE | A   | SO        | LC        | YES     | FC        | EO<br>V | 4<br>5    |             |         |
| SV-4-6320A   | D-4    | 2  | B    | 1.000 | GLOBE | A   | SO        | LC        | YES     | FC        | EO<br>V | 4<br>5    |             |         |
| SV-4-6320B   | D-5    | 2  | B    | 1.000 | GLOBE | A   | SO        | LC        | YES     | FC        | EO<br>V | 4<br>5    |             |         |

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P & ID: 5610-T-E-4503-1 SYSTEM: REACTOR COOLANT PUMP

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| MOV-4-0626   | E-9    | 2  | B    | 3.000 | GATE | A   | MO        | NO        | YES     | FAI       | EC<br>V   | 2<br>5      |         |
| MOV-4-0716A  | F-10   | 2  | B    | 6.000 | GATE | A   | MO        | NO        | YES     | FAI       | EC<br>V   | 2<br>5      |         |
| MOV-4-0716B  | F-10   | 2  | B    | 6.000 | GATE | A   | MO        | NO        | YES     | FAI       | EC<br>V   | 2<br>5      |         |
| MOV-4-0730   | B-10   | 2  | B    | 6.000 | GATE | A   | MO        | NO        | YES     | FAI       | EC<br>V   | 2<br>5      |         |

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P & ID: 5610-T-E-4505-3

SYSTEM: CHEM. VOL. CONT. (CVCS)-CHARGING SECTION

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | TYPE | POS. | IND | MODE | EXAM              | FREQ        | REQ.          | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|------|-------------------|-------------|---------------|---------|
| 4-0298A      | F-9    | 1  | A/C  | 2.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>SLT-1       | 5<br>5      | VR-4          |         |
| 4-0298B      | F-10   | 1  | A/C  | 2.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>SLT-1       | 5<br>5      | VR-4          |         |
| 4-0298C      | F-10   | 1  | A/C  | 2.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>SLT-1       | 5<br>5      | VR-4          |         |
| 4-0312A      | G-8    | 1  | C    | 3.000 | CHECK | A   | S/A  | NO   | NO  |      | EO                | 3           |               |         |
| 4-0312B      | H-8    | 1  | C    | 3.000 | CHECK | A   | S/A  | NC   | NO  |      | EO                | 3           |               |         |
| 4-0312C      | F-7    | 1  | A/C  | 3.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>EO<br>SLT-1 | 5<br>3<br>5 | VR-5<br>VR-25 |         |
| 4-0333       | F-6    | 2  | A    | 3.000 | GLOBE | P   | MAN  | NC   | NO  | FAI  | SLT-1             | 5           | VR-25         |         |
| 4-0351       | D-7    | 2  | C    | 2.000 | CHECK | A   | S/A  | NC   | NO  |      | EO                | 2           |               |         |
| 4-0357       | D-1    | 3  | C    | 4.000 | CHECK | A   | S/A  | NC   | NO  |      | EO                | 2           |               |         |
| 4-0310A      | G-8    | 1  | B    | 3.000 | GLOBE | A   | A/O  | NO   | YES | FO   | EO<br>FS<br>V     | 3<br>3<br>5 |               |         |
| CV-4-0310B   | H-8    | 1  | B    | 3.000 | GLOBE | A   | A/O  | NC   | YES | FC   | EO<br>V           | 3<br>5      |               |         |
| HCV-4-0121   | G-6    | 2  | A    | 3.000 | GLOBE | A   | A/O  | NO   | NO  | FO   | EE<br>FS<br>SLT-1 | 2<br>2<br>5 | VR-6<br>VR-25 |         |
| LCV-4-0115B  | E-1    | 3  | B    | 4.000 | BUTFY | A   | A/O  | NC   | YES | FC   | EO<br>V           | 2<br>5      |               |         |
| LCV-4-0115C  | C-9    | 2  | B    | 4.000 | GATE  | A   | MO   | NO   | YES | FAI  | EC<br>V           | 4<br>5      |               |         |
| MOV-4-0350   | D-8    | 2  | B    | 2.000 | GATE  | A   | MO   | NC   | YES | FAI  | EO<br>V           | 3<br>5      |               |         |
| RV-4-0283A   | F-2    | 2  | C    | 0.750 | SAFE  | A   | S/A  | NC   | NO  |      | TF                | 8           |               |         |

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P & ID: 5610-T-E-4505-3(cont) SYSTEM: CHEM. VOL. CONT. (CVCS)-CHARGING SECT.

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST FREQ | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|-------|------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| RV-4-0283B   | E-2    | 2  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      | TF        | 8         |             |         |
| RV-4-0283C   | C-2    | 2  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      | TF        | 8         |             |         |

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P & ID: 5610-T-E-4505-4

SYSTEM: CHEM. VOL. CONT. (CVCS)-LETDOWN SECT.

| 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   | F-8    | 1  | A    | 2.000 | GLOBE | A   | A/O       |           | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25       |         |
| CV-4-0200B   | G-8    | 1  | A    | 2.000 | GLOBE | A   | A/O       |           | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25       |         |
| CV-4-0200C   | H-8    | 1  | A    | 2.000 | GLOBE | A   | A/O       |           | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 | VR-25       |         |
| CV-4-0204    | E-9    | 2  | A    | 2.000 | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 2<br>2<br>5<br>5 |             |         |
| MOV-4-0381   | E-5    | 2  | A    | 3.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EC<br>SLT-1<br>V       | 4<br>5<br>5      |             |         |
| MOV-4-6386   | F-3    | 2  | A    | 3.000 | GATE  | A   | MO        | NO        | YES     | FAI       | EC<br>SLT-1<br>V       | 4<br>5<br>5      |             |         |



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P & ID: 5610-T-E-4505-5      SYSTEM: CHEM. VOL. CONT. (CVCS)-BORIC ACID/DEM

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

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P & ID: 5610-T-E-4510-1

SYSTEM: SAFETY INJECTION/RESIDUAL HT. 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      | C-2    | 2  | B    | 2.000  | GATE  | A   | MAN       | NC        | NO      | FAI       | EO                         | 3                |                      |         |
| 4-0752A      | C-6    | 2  | B    | 14.000 | GATE  | A   | MAN       | NO        | NO      | FAI       | EC<br>EO                   | 3<br>3           |                      |         |
| 4-0752B      | B-6    | 2  | B    | 14.000 | GATE  | A   | MAN       | NO        | NO      | FAI       | EC<br>EO                   | 3<br>3           |                      |         |
| 4-0753A      | C-5    | 2  | C    | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>PEO            | 3<br>2<br>3      |                      |         |
| 4-0753B      | B-5    | 2  | C    | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>PEO            | 3<br>2<br>3      |                      |         |
| 4-0874C      | C-10   | 2  | C    | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EO                         | 3                |                      |         |
| 4-0874D      | D-5    | 2  | C    | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EO                         | 3                |                      |         |
| 4-0879C      | D-9    | 2  | C    | 3.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>PEO            | 3<br>1<br>3      | VR-8<br>VR-8         |         |
| 4-0879D      | C-9    | 2  | C    | 3.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>EO<br>PEO            | 3<br>1<br>3      | VR-8<br>VR-8         |         |
| 4-0890A      | D-4    | 2  | A/C  | 6.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>INSP<br>PEO<br>SLT-1 | 5<br>1<br>7<br>5 | VR-9<br>VR-9<br>VR-9 |         |
| 4-0890B      | D-4    | 2  | A/C  | 6.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>INSP<br>PEO<br>SLT-1 | 5<br>1<br>7<br>5 | VR-9<br>VR-9<br>VR-9 |         |
| 4-0893C      | C-9    | 2  | C    | 0.750  | CHECK | A   | S/A       | NC        | NO      |           | EO                         | 3                |                      |         |
| 4-0893D      | C-9    | 2  | C    | 0.750  | CHECK | A   | S/A       | NC        | NO      |           | EO                         | 3                |                      |         |
| 4-0894A      | D-5    | 2  | C    | 1.000  | CHECK | A   | S/A       | NC        | NO      |           | EO                         | 3                |                      |         |
| 4-0894C      | D-4    | 2  | C    | 1.000  | CHECK | A   | S/A       | NC        | NO      |           | EO                         | 3                |                      |         |

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P & ID: 5610-T-E-4510-1(cont) SYSTEM: SAFETY INJECTION/RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM        | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|------------------|-------------|---------|
| 4-0895V      | F-3    | 2  | A    | 0.750  | GLOBE | P   | MAN       | LC        | NO      | FAI       | SLT-1            | 5           |         |
| MOV-0878B    | E-9    | 2  | B    | 4.000  | GATE  | A   | NO        | NO        | YES     | FAI       | EC<br>V          | 2<br>5      |         |
| MOV-4-0843A  | G-3    | 2  | B    | 4.000  | GATE  | A   | NO        | NC        | YES     | FAI       | EC<br>EO<br>V    | 3<br>3<br>5 |         |
| MOV-4-0843B  | G-3    | 2  | B    | 4.000  | GATE  | A   | NO        | NC        | YES     | FAI       | EC<br>EO<br>V    | 3<br>3<br>5 |         |
| MOV-4-0856A  | C-10   | 2  | B    | 2.000  | GLOBE | A   | NO        | NO        | YES     | FAI       | EC<br>V          | 2<br>5      |         |
| MOV-4-0856B  | C-10   | 2  | B    | 2.000  | GLOBE | A   | NO        | NO        | YES     | FAI       | EC<br>V          | 2<br>5      |         |
| MOV-4-0860A  | D-3    | 2  | A    | 14.000 | GATE  | A   | NO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V | 3<br>5<br>5 | VR-25   |
| MOV-4-0860B  | D-3    | 2  | A    | 14.000 | GATE  | A   | NO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V | 3<br>5<br>5 | VR-25   |
| MOV-4-0861A  | C-5    | 2  | A    | 14.000 | GATE  | A   | NO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V | 3<br>5<br>5 | VR-25   |
| MOV-4-0861B  | D-5    | 2  | A    | 14.000 | GATE  | A   | NO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V | 3<br>5<br>5 | VR-25   |
| MOV-4-0862A  | A-7    | 2  | B    | 14.000 | GATE  | A   | NO        | LO        | YES     | FAI       | EC<br>V          | 2<br>5      |         |
| MOV-4-0862B  | B-7    | 2  | B    | 14.000 | GATE  | A   | NO        | LO        | YES     | FAI       | EC<br>V          | 2<br>5      |         |
| MOV-4-0863A  | A-3    | 2  | B    | 8.000  | GATE  | A   | NO        | LC        | YES     | FAI       | EO<br>V          | 4<br>5      |         |

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P & ID: 5610-T-E-4510-1(cont) SYSTEM: SAFETY INJECTION/RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM              | RELIEF FREQ      | REMARKS |
|--------------|--------|----|------|--------|------|-----|-----------|-----------|---------|-----------|------------------------|------------------|---------|
| MOV-4-0863B  | A-3    | 2  | B    | 8.000  | GATE | A   | MO        | LC        | YES     | FAI       | EO<br>V                | 4<br>5           |         |
| MOV-4-0864A  | B-10   | 2  | B    | 16.000 | GATE | A   | MO        | LO        | YES     | FAI       | EC<br>V                | 2<br>5           |         |
| MOV-4-0864B  | B-10   | 2  | B    | 16.000 | GATE | A   | MO        | LO        | YES     | FAI       | EC<br>V                | 2<br>5           |         |
| MOV-4-0869   | E-2    | 2  | B    | 3.000  | GATE | A   | MO        | NC        | YES     | FAI       | EC<br>EO<br>V          | 3<br>3<br>5      |         |
| MOV-4-0872   | A-2    | 2  | A    | 8.000  | GATE | A   | MO        | NC        | YES     | FAI       | EC<br>EO<br>SLT-1<br>V | 4<br>4<br>5<br>5 |         |
| MOV-4-0880A  | D-4    | 2  | A    | 6.000  | GATE | A   | MO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V       | 3<br>5<br>5      |         |
| MOV-4-0880B  | D-5    | 2  | A    | 6.000  | GATE | A   | MO        | NC        | YES     | FAI       | EO<br>SLT-1<br>V       | 3<br>5<br>5      |         |
| RV-4-0857    | G-4    | 2  | C    | 0.750  | SAFE | A   | S/A       | NC        | NO      |           | TF                     | 8                |         |
| RV-4-0871    | E-3    | 2  | C    | 0.750  | SAFE | A   | S/A       | NC        | NO      |           | TF                     | 8                |         |

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P & ID: 5610-T-E-4510-2

SYSTEM: SAFETY INJECTION/RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| 4-0873A      | D-9    | 1  | A/C  | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-10   |
|              |        |    |      |        |       |     |           |           |         |           | EO        | 1           | VR-10   |
|              |        |    |      |        |       |     |           |           |         |           | SLT-2     | 5           | VR-21   |
| 4-0873B      | D-9    | 1  | A/C  | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-10   |
|              |        |    |      |        |       |     |           |           |         |           | EO        | 1           | VR-10   |
|              |        |    |      |        |       |     |           |           |         |           | SLT-2     | 5           | VR-21   |
| 4-0873C      | D-9    | 1  | A/C  | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-10   |
|              |        |    |      |        |       |     |           |           |         |           | EO        | 1           | VR-10   |
|              |        |    |      |        |       |     |           |           |         |           | SLT-2     | 5           | VR-21   |
| 4-0874A      | D-3    | 1  | A/C  | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-11   |
|              |        |    |      |        |       |     |           |           |         |           | PEO       | 1           | VR-11   |
|              |        |    |      |        |       |     |           |           |         |           | SLT-2     | 5           | VR-21   |
| 4-0874B      | D-3    | 1  | A/C  | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-11   |
|              |        |    |      |        |       |     |           |           |         |           | PEO       | 1           | VR-11   |
|              |        |    |      |        |       |     |           |           |         |           | SLT-2     | 5           | VR-21   |
| 4-0875A      | G-1    | 1  | A/C  | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | INSP      | 7           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | PEO       | 2           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | SLT-2     | 5           | VR-21   |
| 4-0875B      | G-1    | 1  | A/C  | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | INSP      | 7           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | PEO       | 2           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | SLT-2     | 5           | VR-21   |
| 4-0875C      | H-1    | 1  | A/C  | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | INSP      | 7           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | PEO       | 2           | VR-12   |
|              |        |    |      |        |       |     |           |           |         |           | SLT-2     | 5           | VR-21   |
| 4-0875D      | G-3    | 1  | C    | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-13   |
|              |        |    |      |        |       |     |           |           |         |           | INSP      | 7           | VR-13   |
| 4-0875E      | G-5    | 1  | C    | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-13   |
|              |        |    |      |        |       |     |           |           |         |           | INSP      | 7           | VR-13   |
| 4-0875F      | G-7    | 1  | C    | 10.000 | CHECK | A   | S/A       | NC        | NO      |           | EC        | 5           | VR-13   |
|              |        |    |      |        |       |     |           |           |         |           | INSP      | 7           | VR-13   |

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P & ID: 5610-T-E-4510-2(cont) SYSTEM: SAFETY INJECTION/RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | ACT. A/P | NORM TYPE | REM POS. | FAIL IND | TEST EXAM                  | RELIEF FREQ      | REMARKS                          |
|--------------|--------|----|------|--------|-------|----------|-----------|----------|----------|----------------------------|------------------|----------------------------------|
| 4-0876A      | G-3    | 1  | A/C  | 8.000  | CHECK | A        | S/A       | NC       | NO       | EC<br>EO<br>SLT-2          | 5<br>2<br>5      | VR-17<br>VR-21                   |
| 4-0876B      | G-5    | 1  | A/C  | 8.000  | CHECK | A        | S/A       | NC       | NO       | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>2<br>5 | VR-14<br>VR-14<br>VR-14<br>VR-21 |
| 4-0876C      | G-8    | 1  | A/C  | 8.000  | CHECK | A        | S/A       | NC       | NO       | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>2<br>5 | VR-14<br>VR-14<br>VR-14<br>VR-21 |
| 4-0876D      | G-5    | 1  | A/C  | 8.000  | CHECK | A        | S/A       | NC       | NO       | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>4<br>5 | VR-15<br>VR-15<br>VR-15<br>VR-21 |
| 4-0876E      | G-3    | 1  | A/C  | 8.000  | CHECK | A        | S/A       | NC       | NO       | EC<br>INSP<br>PEO<br>SLT-2 | 5<br>7<br>4<br>5 | VR-15<br>VR-15<br>VR-15<br>VR-21 |
| 4-0945E      | E-9    | 2  | A/C  | 1.000  | CHECK | A        | S/A       | NC       | NO       | EC<br>SLT-1                | 5<br>5           | VR-27                            |
| 4-2918       | B-4    | 2  | C    | 2.000  | CHECK | A        | S/A       | NC       | NO       | INSP                       | 1                | VR-16                            |
| 4-2919       | B-3    | 2  | C    | 2.000  | CHECK | A        | S/A       | NC       | NO       | INSP                       | 1                | VR-16                            |
| 4-2920       | B-8    | 2  | C    | 2.000  | CHECK | A        | S/A       | NC       | NO       | INSP                       | 1                | VR-16                            |
| 4-2921       | B-4    | 2  | C    | 2.000  | CHECK | A        | S/A       | NC       | NO       | INSP                       | 1                | VR-16                            |
| 4-2922       | C-3    | 2  | C    | 2.000  | CHECK | A        | S/A       | NC       | NO       | INSP                       | 1                | VR-16                            |
| 4-2923       | C-8    | 2  | C    | 2.000  | CHECK | A        | S/A       | NC       | NO       | INSP                       | 1                | VR-16                            |
| MOV-4-0744A  | G-9    | 2  | B    | 10.000 | GATE  | A        | MO        | NC       | YES FAI  | EC<br>EO<br>V              | 2<br>2<br>5      |                                  |

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P & ID: 5610-T-E-4510-2(cont) SYSTEM: SAFETY INJECTION/RESIDUAL HT. REMOVAL

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM        | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|------------------|-------------|---------|
| MOV-4-0744B  | G-9    | 2  | B    | 10.000 | GATE  | A   | NO        | NC        | YES     | FAI       | EC<br>EO<br>V    | 2<br>2<br>5 |         |
| MOV-4-0750   | C-4    | 1  | A    | 14.000 | GATE  | A   | NO        | LC        | YES     | FAI       | EO<br>SLT-2<br>V | 2<br>5<br>5 | VR-21   |
| MOV-4-0751   | C-5    | 1  | A    | 14.000 | GATE  | A   | NO        | LC        | YES     | FAI       | EO<br>SLT-2<br>V | 2<br>5<br>5 | VR-21   |
| MOV-4-0865A  | F-3    | 2  | B    | 10.000 | GATE  | P   | NO        | LO        | YES     | FAI       | V                | 5           |         |
| MOV-4-0865B  | F-5    | 2  | B    | 10.000 | GATE  | P   | NO        | LO        | YES     | FAI       | V                | 5           |         |
| MOV-4-0865C  | F-7    | 2  | B    | 10.000 | GATE  | P   | NO        | LO        | YES     | FAI       | V                | 5           |         |
| MOV-4-0866A  | D-7    | 1  | B    | 2.000  | GLOBE | A   | NO        | LC        | YES     | FAI       | EC<br>EO<br>V    | 2<br>2<br>5 |         |
| MOV-4-0866B  | C-7    | 1  | B    | 2.000  | GLOBE | A   | NO        | LC        | YES     | FAI       | EC<br>EO<br>V    | 2<br>2<br>5 |         |
| SV-4-2905    | B-4    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |         |
| SV-4-2906    | B-4    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |         |
| SV-4-2907    | B-6    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |         |
| SV-4-2908    | B-6    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |         |
| SV-4-2909    | B-7    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |         |
| SV-4-2910    | B-8    | 2  | B    | 2.000  | GLOBE | A   | SO        | NC        | YES     | FC        | EO<br>V          | 3<br>5      |         |

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SYSTEM: COMPONENT COOLING-OUTSIDE CONTAINMENT

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | TYPE | POS. | IND | MODE | TEST RELIEF   |             | REMARKS |
|--------------|--------|----|------|--------|-------|-----|------|------|-----|------|---------------|-------------|---------|
|              |        |    |      |        |       |     |      |      |     |      | EXAM          | FREQ REQ.   |         |
| 4-0702A      | D-7    | 3  | C    | 16.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>EO      | 3<br>3      |         |
| 4-0702B      | D-8    | 3  | C    | 16.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>EO      | 3<br>3      |         |
| 4-0702C      | D-8    | 3  | C    | 16.000 | CHECK | A   | S/A  | NO   | NO  |      | EC<br>EO      | 3<br>3      |         |
| CV-4-0739    | C-1    | 3  | B    | 3.000  | GLOBE | A   | A/O  | NO   | YES | FC   | EC<br>FS<br>V | 3<br>3<br>5 |         |
| CV-4-2903    | C-1    | 2  | B    | 10.000 | BUTFY | P   | A/O  | NO   | YES | FO   | V             | 5           |         |
| CV-4-2904    | B-1    | 2  | B    | 10.000 | BUTFY | P   | A/O  | NO   | YES | FO   | V             | 5           |         |
| CV-4-2905    | B-1    | 2  | B    | 10.000 | BUTFY | P   | A/O  | NO   | YES | FO   | V             | 5           |         |
| CV-4-2906    | E-1    | 2  | B    | 10.000 | BUTFY | A   | A/O  | NC   | YES | FO   | EO<br>FS<br>V | 3<br>3<br>5 |         |
| CV-4-2907    | E-2    | 2  | B    | 10.000 | BUTFY | A   | A/O  | NC   | YES | FO   | EO<br>FS<br>V | 3<br>3<br>5 |         |
| CV-4-2908    | D-2    | 2  | B    | 10.000 | BUTFY | A   | A/O  | NC   | YES | FO   | EO<br>FS<br>V | 3<br>3<br>5 |         |
| CWST VAC BKR | A-7    | 3  | C    | 0.000  | CHECK | A   | S/A  | NC   | NO  |      | EC<br>EO      | 3<br>3      |         |
| MOV-4-0749A  | B-3    | 3  | B    | 16.000 | GATE  | A   | MO   | NC   | YES | FAI  | EO<br>V       | 3<br>5      |         |
| MOV-4-0749B  | B-3    | 3  | B    | 16.000 | GATE  | A   | MO   | NC   | YES | FAI  | EO<br>V       | 3<br>5      |         |
| MOV-4-1417   | A-1    | 2  | B    | 10.000 | GATE  | A   | MO   | NO   | YES | FAI  | EC<br>V       | 2<br>5      |         |
| MOV-4-1418   | D-2    | 2  | B    | 10.000 | GATE  | A   | MO   | NO   | YES | FAI  | EC<br>V       | 2<br>5      |         |



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P & ID: 5610-T-E-4512-1(cont)

SYSTEM: COMPONENT COOLING-OUTSIDE CONTAINMENT

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. | NORM | REM | FAIL | TEST RELIEF |      | REMARKS |
|--------------|--------|----|------|-------|------|-----|------|------|-----|------|-------------|------|---------|
|              |        |    |      |       |      |     | TYPE | POS. | IND | MODE | EXAM        | FREQ |         |
| RV-4-0707    | A-8    | 3  | C    | 0.000 | SAFE | A   | S/A  | NC   | NO  | TF   | 8           |      |         |

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P & ID: 5610-T-E-4512-2      SYSTEM: COMPONENT COOLING-INSIDE CONTAINMENT

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| RV-4-0715    | F-9    | 3  | C    | 3.000 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-4-0729    | G-5    | 3  | C    | 3.000 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-4-1426    | B-10   | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-4-1427    | B-9    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-4-1428    | A-6    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-4-1429    | A-3    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-4-1430    | A-8    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |
| RV-4-1431    | A-5    | 3  | C    | 0.750 | SAFE | A   | S/A       | NC        | NO      |           | TF        | 8           |         |

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SYSTEM: SPENT FUEL PIT COOLING

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

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P & ID: 5610-T-E-4515-2

SYSTEM: NORMAL AND POST-ACCIDENT SAMPLING

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



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P & ID: 5610-T-E-4515-2(cont)      SYSTEM: NORMAL AND POST-ACCIDENT SAMPLING

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| 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        | EC    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | FS    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1 | 5         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | V     | 5         |             |         |
| SV-4-6428    | C-4    | 2  | A    | 0.375 | GLOBE | A   | SO        | NC        | YES     | FC        | EC    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | FS    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1 | 5         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | V     | 5         |             |         |

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P & ID: 5610-T-E-4517-1                      SYSTEM: WASTE DISPOSAL-GASEOUS

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| CV-4-0855    | B-1    | 2  | A    | 1.000 | GLOBE | A   | A/O       | NO        | YES     | FC        | EC        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | FS        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1     | 5           |         |
|              |        |    |      |       |       |     |           |           |         |           | V         | 5           |         |

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**SYSTEM: HYDROGEN & OXYGEN GAS ANALYZER**

| 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    | E-5    | 2  | A    | 0.375 | GLOBE | A   | A/O       | NC        | YES     | FC        | EC    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | FS    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1 | 5         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | V     | 5         |             |         |
| SV-4-6385    | E-4    | 2  | A    | 0.375 | GLOBE | A   | SO        | NC        | YES     | FC        | EC    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | FS    | 3         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1 | 5         |             |         |
|              |        |    |      |       |       |     |           |           |         |           | V     | 5         |             |         |



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P & ID: 5610-T-E-4518-2 SYSTEM: WASTE DISPOSAL-LIQUID

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | TYPE | POS. | IND | REM | FAIL | TEST RELIEF |           | REMARKS |
|--------------|--------|----|------|-------|-------|-----|------|------|-----|-----|------|-------------|-----------|---------|
|              |        |    |      |       |       |     |      |      |     |     |      | EXAM        | FREQ REQ. |         |
| CV-4-2821    | F-5    | 2  | A    | 3.000 | GLOBE | A   | A/O  | NO   | YES | FC  |      | EC          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | FS          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | SLT-1       | 5         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V           | 5         |         |
| CV-4-2822    | F-5    | 2  | A    | 3.000 | GLOBE | A   | A/O  | NO   | YES | FC  |      | EC          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | FS          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | SLT-1       | 5         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V           | 5         |         |
| CV-4-4658A   | E-5    | 2  | A    | 1.000 | DIAPH | A   | A/O  | NO   | YES | FC  |      | EC          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | FS          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | SLT-1       | 5         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V           | 5         |         |
| CV-4-4658B   | E-6    | 2  | A    | 1.000 | DIAPH | A   | A/O  | NO   | YES | FC  |      | EC          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | FS          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | SLT-1       | 5         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V           | 5         |         |
| CV-4-4659A   | D-5    | 2  | A    | 0.750 | DIAPH | A   | A/O  | NO   | YES | FC  |      | EC          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | FS          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | SLT-1       | 5         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V           | 5         |         |
| CV-4-4659B   | E-5    | 2  | A    | 0.750 | DIAPH | A   | A/O  | NO   | YES | FC  |      | EC          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | FS          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | SLT-1       | 5         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V           | 5         |         |
| CV-4-4668A   | F-5    | 2  | A    | 3.000 | DIAPH | A   | A/O  | NO   | YES | FC  |      | EC          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | FS          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | SLT-1       | 5         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V           | 5         |         |
| CV-4-4668B   | F-5    | 2  | A    | 3.000 | DIAPH | A   | A/O  | NO   | YES | FC  |      | EC          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | FS          | 3         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | SLT-1       | 5         |         |
|              |        |    |      |       |       |     |      |      |     |     |      | V           | 5         |         |
| PCV-4-1014   | D-6    | 2  | A    | 1.000 | GLOBE | P   | A/O  | NC   | NO  | FC  |      | SLT-1       | 5         |         |
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P & ID: 5610-T-E-4531-1 SYSTEM: PRIMARY AND DEMINERALIZED 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    | B-9    | 2  | A/C  | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EC<br>SLT-1            | 5<br>5           | VR-18<br>VR-25 |         |
| 4-10-0582    | B-10   | 2  | A    | 2.000 | GATE  | P   | MAN       | NC        | NO      |           | SLT-1                  | 5                | VR-25          |         |
| CV-4-0519A   | A-10   | 2  | A    | 3.000 | DIAPH | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |                |         |

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SYSTEM: CONTAINMENT VENT & SAMPLING O/S CONT.

| 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    | E-2    | 2  | A/C  | 1.000  | CHECK | A   | S/A       | NO        | NO      |           | EC<br>SLT-1            | 5<br>5           | VR-19       |         |
| 4-40-0204    | D-3    | 2  | A    | 2.000  | GATE  | P   | MAN       | LC        | NO      |           | SLT-1                  | 5                | VR-25       |         |
| 4-40-0205    | E-1    | 2  | A/C  | 2.000  | CHECK | A   | S/A       | NC        | NO      |           | EC<br>SLT-1            | 5<br>5           | VR-19       |         |
| CV-4-2826    | C-3    | 2  | A    | 2.000  | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |             |         |
| HV-4-0001    | G-2    | 2  | A    | 2.000  | DIAPH | P   | MAN       | LC        | NO      |           | SLT-1                  | 5                | VR-25       |         |
| HV-4-0002    | G-2    | 2  | A    | 2.000  | DIAPH | P   | MAN       | LC        | NO      |           | SLT-1                  | 5                | VR-25       |         |
| HV-4-0003    | G-1    | 2  | A    | 2.000  | DIAPH | P   | MAN       | LC        | NO      |           | SLT-1                  | 5                | VR-25       |         |
| HV-4-0004    | G-1    | 2  | A    | 2.000  | DIAPH | P   | MAN       | LC        | NO      |           | SLT-1                  | 5                | VR-25       |         |
| 0017         | D-3    | 2  | A    | 2.000  | GLOBE | P   | MAN       | NC        | NO      |           | SLT-1                  | 5                | VR-25       |         |
| PAHM-4-0001A | F-3    | 2  | A    | 0.750  | GLOBE | P   | MAN       | NC        | NO      |           | SLT-1                  | 5                |             |         |
| PAHM-4-0001B | E-3    | 2  | A    | 0.750  | GLOBE | P   | MAN       | NC        | NO      |           | SLT-1                  | 5                |             |         |
| PAHM-4-0002A | G-3    | 2  | A    | 0.750  | GLOBE | P   | MAN       | NC        | NO      |           | SLT-1                  | 5                | VR-25       |         |
| PAHM-4-0002B | F-4    | 2  | A    | 0.750  | GLOBE | P   | MAN       | NC        | NO      |           | SLT-1                  | 5                | VR-25       |         |
| POV-4-2600   | A-3    | 2  | A    | 48.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 2<br>2<br>5<br>5 | VR-25       |         |
| POV-4-2602   | B-3    | 2  | A    | 54.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 2<br>2<br>5<br>5 | VR-25       |         |
| SV-4-2911    | A-8    | 2  | A    | 1.000  | GLOBE | A   | SO        | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |             |         |

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| SV-4-2912    | B-8    | 2  | A    | 1.000 | GLOBE | A   | SO        | NO        | YES     | FC        | EC        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | FS        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1     | 5           |         |
|              |        |    |      |       |       |     |           |           |         |           | V         | 5           |         |
| SV-4-2913    | A-7    | 2  | A    | 1.000 | GLOBE | A   | SO        | NO        | YES     | FC        | EC        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | FS        | 3           |         |
|              |        |    |      |       |       |     |           |           |         |           | SLT-1     | 5           |         |
|              |        |    |      |       |       |     |           |           |         |           | V         | 5           |         |

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SYSTEM: CONTAINMENT VENT & SAMPLING I/S CONT.

| VALVE NUMBER | COORD. | CL | CAT. | SIZE   | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | EXAM                   | TEST FREQ        | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|--------|-------|-----|-----------|-----------|---------|-----------|------------------------|------------------|-------------|---------|
| CV-4-2819    | D-2    | 2  | A    | 2.000  | GLOBE | A   | A/O       | NO        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 3<br>3<br>5<br>5 |             |         |
| POV-4-2601   | B-2    | 2  | A    | 48.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 2<br>2<br>5<br>5 | VR-25       |         |
| POV-4-2603   | D-2    | 2  | A    | 54.000 | BUTFY | A   | A/O       | NC        | YES     | FC        | EC<br>FS<br>SLT-1<br>V | 2<br>2<br>5<br>5 | VR-25       |         |

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P & ID: 5610-T-E-4536-1                      SYSTEM: DIESEL GENERATOR 'B'

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| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST FREQ | RELIEF REQ. | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| SV-2051B     | B-10   | 3  | B    | 2.000 | GLOBE | A   | SO        | NC        | NO      | FC EO     | 3         | VR-22       |         |

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P & ID: 5610-T-E-4536-2 SYSTEM: DIESEL GENERATOR 'B'

| VALVE NUMBER | COORD. | CL | CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|----|------|-------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
| 4-70-0006B   | B-9    | 3  | C    | 2.000 | CHECK | A   | S/A       | NC        | NO      |           | EO        | 3           |         |
| CV-2046B     | C-9    | 3  | B    | 2.000 | GLOBE | A   | A/O       | NC        | NO      | FC        | EO        | 3           | VR-22   |
| SV-4-3522B   | G-9    | 3  | B    | 1.500 | GLOBE | A   | SO        | NC        | NO      | FC        | EO        | 3           | VR-22   |

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Florida Power & Light Company  
INSERVICE TESTING - VALVE TABLES  
Key Point Nuclear Plant - Unit 4

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P & ID: VARIOUS

SYSTEM: TEST CONNECTION

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| VALVE NUMBER | COORD. | CL CAT. | SIZE  | TYPE  | A/P | ACT. TYPE | NORM POS. | REM IND | FAIL MODE | TEST EXAM | RELIEF FREQ | REMARKS |
|--------------|--------|---------|-------|-------|-----|-----------|-----------|---------|-----------|-----------|-------------|---------|
|              |        |         |       |       |     |           |           |         |           |           |             |         |
| 4-2024       |        | 2 A     | 0.375 | GATE  | P   | MAN       | NC        | NO      |           | SLT-1     | 5           |         |
| 4-2025       |        | 2 A     | 0.375 | GLOBE | P   | MAN       | NC        | NO      |           | SLT-1     | 5           |         |
| 4-2026       |        | 2 A     | 0.375 | GLOBE | P   | MAN       | NC        | NO      |           | SLT-1     | 5           |         |

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Appendix F  
Valve Program  
Requests for Relief  
Units 3 & 4

RELIEF REQUEST NO. VR-1

SYSTEM:

Breathing Air System (5177-074-M-2)

COMPONENTS:

3-BA-0201

4-BA-0201

CATEGORY:

A/C

FUNCTION:

These valves close to provide containment isolation for the breathing air penetration (Pen No. 30) to the primary containment.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

These are simple check valves with no external position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. The valves are normally closed with the outside isolation valves, CV-\*-6165 locked closed, thus, in effect, they are passive and exercising is not required per IWV-3700. The primary reason for requiring exercising is to verify that the valves are cycled open then closed prior to leaktesting to ensure they are indeed operable and capable of closing following periods of use during outages. Performing leaktests of these valves at each cold shutdown outage would constitute an unreasonable burden on the plant staff.

ALTERNATE TESTING:

These valves will be exercised and verified to close at least once every two (2) years in conjunction with Appendix J leaktesting activities.



RELIEF REQUEST NO. VR-2

SYSTEM:

Steam Generator - Aux. Feedwater Supply (5610-T-E-4062-3)

COMPONENTS:

|          |          |
|----------|----------|
| CV--2816 | CV--2831 |
| CV--2817 | CV--2832 |
| CV--2818 | CV--2833 |

CATEGORY:

B

FUNCTION:

These valves open to provide flowpaths from the Auxiliary Feedwater Pumps to the respective steam generators.

SECTION XI REQUIREMENT:

The stroke time of all power operated valves shall be measured to ....., whenever such a valve is full-stroke tested. (IWV-3413(b))

BASIS FOR RELIEF:

These valves are flow control modulating valves, therefore, valve stroke time measurements are not practical nor are they significant in evaluating their capability of performing their required safety functions. The routine AFW System performance tests provide adequate assurance that the valves function properly to the open position and provide adequate flow to the respective steam generators

ALTERNATE TESTING:

These valves will be tested in conjunction with the integrated Auxiliary Feedwater (AFW) System surveillance testing to ensure proper operation. The satisfactory response and operation of the AFW system will suffice to demonstrate valve operability but no valve stroke times will be measured.

RELIEF REQUEST NO. VR-3

SYSTEM:

Reactor Coolant (RCS) (5610-T-E-4501-1)

COMPONENTS:

3-0518  
4-0518

CATEGORY:

A/C

FUNCTION:

These valves close to provide primary containment isolation for the penetration associated with the nitrogen supply to the pressurizer relief tank (Pen No. 6).

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

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. The valves are normally closed with the outside isolation valves, \*-550 closed. Performing leaktests of these valves at each cold shutdown outage would constitute an unreasonable burden on the plant staff.

ALTERNATE TESTING:

These valves will be exercised and verified to close at least once every two (2) years in conjunction with Appendix J leaktesting activities.





RELIEF REQUEST NO. VR-4

SYSTEM:

Chemical & Volume Control (CVCS) (5610-T-E-4505-1)

COMPONENTS:

3-0298A thru C  
4-0298A thru C

CATEGORY:

A/C

FUNCTION:

These valves close to provide primary containment isolation for penetrations associated with the CVCS supply to the reactor coolant pump seal injection lines (Pen Nos. 24A-C).

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

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 would 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.

ALTERNATE TESTING:

These valves will be exercised and verified to close at least once every two (2) years in conjunction with Appendix J leaktesting activities.



RELIEF REQUEST NO. VR-5

SYSTEM:

Chemical & Volume Control (CVCS) (5610-T-E-4505-1)

COMPONENTS:

3-0312C  
4-0312C

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths to the RCS for emergency boration and close to provide primary containment isolation for penetrations associated with the CVCS charging water supply to the reactor coolant system.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

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 charging water to the reactor coolant system. Interruption of this flow during operation would 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.

ALTERNATE TESTING:

These valves will be exercised and verified to close at least once every two (2) years in conjunction with Appendix J leaktesting activities.



RELIEF REQUEST NO. VR-6

SYSTEM:

Chemical & Volume Control (CVCS) (5610-T-E-4505-1)

COMPONENTS:

HCV--\*-0121

CATEGORY:

A

FUNCTION:

These valves open to provide flowpaths from the Charging Water Pumps to the reactor coolant system during emergency boration. They are required to close for containment isolation.

SECTION XI REQUIREMENT:

The stroke time of all power operated valves shall be measured to ....., whenever such a valve is full-stroke tested.  
(IWV-3413(b))

BASIS FOR RELIEF:

These valves are flow control modulating valves, therefore, ~~measurement of valve stroke time is not practical nor is it~~ significant in evaluating their capability of performing their required safety functions.

ALTERNATE TESTING:

The valves will be exercised to the open and closed positions with local observation to ensure proper valve operation; however stroke times will not be measured.



RELIEF REQUEST NO. VR-7

SYSTEM:

Various

COMPONENTS:

Any valves tested during cold shutdown conditions.

CATEGORY:

Various

FUNCTION:

Various

SECTION XI REQUIREMENT:

Valves shall be exercised ... unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the valve shall be part-stroke exercised during plant operation and full stroke exercised during cold shutdowns. Full stroke exercising during cold shutdowns for all valves not full-stroke exercised during plant operation shall be on a frequency determined by the intervals between shutdowns as follows: For intervals of 3 months or longer - exercise during each shutdown. (IWV-3412 and IWV-3522)

BASIS FOR RELIEF:

In many instances testing of all valves designated for testing during cold shutdown cannot be completed due to the brevity of an outage or the lack of plant conditions needed for testing specific valves. It has been the policy of the NRC that if testing commences in a reasonable time and reasonable efforts are made to test all valves, then outage extension or significant changes in plant conditions are not required when the only reason is to provide the opportunity for completion of valve testing.

ASME/ANSI OMa-1987, Operation and Maintenance Of Nuclear Power Plants, Part 10 (Paragraphs 4.2.1.2 and 4.3.2.2) recognizes this issue and allows deferred testing as set forth below.





RELIEF REQUEST NO. VR-7 (cont.)

ALTERNATE TESTING:

For those valves designated to be exercised or tested during cold shutdown, exercising shall commence as soon as practical after the plant reaches a stable cold shutdown condition as defined by the applicable Technical Specification but no later than 48 hours after reaching cold shutdown. If an outage is sufficiently long enough to provide for testing of all valves required to be tested during the cold shutdown period, then the 48-hour requirement need not apply if all valves are tested during the outage. Valve testing need not be performed more often than once every three (3) months except as provided for in IWV-3417(a). Completion of all valve testing during a cold shutdown outage is not required if plant conditions preclude testing of specific valves or if the length of the shutdown period is insufficient to complete all testing. Testing not completed prior to startup may be rescheduled for the next shutdown in a sequence such that the test schedule does not omit nor favor certain valves or groups of valves. It should be noted that there are two conditions of cold shutdown identified in the program tables (Appendices D and E), namely pressurized and vented. 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 cold shutdown testing applies. Refer to Appendix G for discussion of the reasons and justification for allowing cold shutdown vs. quarterly testing.

RELIEF REQUEST NO. VR-8

SYSTEM:

Safety Injection (5610-T-E-4510-1)

COMPONENTS:

3-0879 A&B  
4-0879 C&D

CATEGORY:

C

FUNCTION:

These valves open to provide flowpaths from the SIS Pumps to the various SI headers and piping. They close to prevent reverse recirculation through an idle pump.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Full stroke exercising of these valves would require operating each safety injection pump at nominal accident flowrate. The only flowpath available for such operation would necessitate injecting into the reactor coolant system since no full flow recirculation path exists. At power operation this is not possible because the SIS pumps do not develop sufficient discharge pressure to overcome reactor coolant system pressure. During normal cold shutdown conditions, injection via the SIS pumps is precluded by restrictions related to Low-temperature Overpressurization Protection concerns and Technical Specifications, Section 3.15.

ALTERNATE TESTING:

Each of these valves will be partial-stroke exercised quarterly in conjunction with testing of the SIS pumps via the minimum flow test line. During each refueling outage, each valve will be exercised at least once to demonstrate full stroke capability.



RELIEF REQUEST NO. VR-9

SYSTEM:

Safety Injection (5610-T-E-4510-1)

COMPONENTS:

3-0890A & B

4-0890A & B

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths from the Containment Spray Pumps to the containment spray headers in containment and to the emergency containment filter/coolers. They are required to close for containment isolation.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Full stroke exercising of 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 operation would necessitate injecting borated water into the containment spray header and thence into the containment building atmosphere via the spray nozzles. Dousing of equipment inside the containment in such a manner is obviously undesirable.~~

At 5-year intervals each valve is partial stroke tested during spray nozzle functional testing by pressurizing the header with air and verifying flow from the containment spray nozzles.

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 at each cold shutdown would constitute an unreasonable burden on the plant staff.



RELIEF REQUEST NO. VR-9 (Cont.)

ALTERNATE TESTING:

During each reactor refueling outage one of these valves will be disassembled, inspected, and manually exercised on a sequential and rotating schedule.

At 5-year intervals each valve will be partial stroke tested during spray nozzle functional testing by pressurizing the header with air and verifying flow from the containment spray nozzles.

Each of these valves will be verified to close at least once every two (2) years in conjunction with Appendix J leaktesting activities.



RELIEF REQUEST NO. VR-10

SYSTEM:

Safety Injection (SIS) (5610-T-E-4510-2)

COMPONENTS:

3-0873A thru C  
4-0873A thru C

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths for borated water injection from the SIS Pumps to each of the RCS cold legs. Additionally, they closed to provide isolation of the SIS system from the RCS System high pressure.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Full stroke exercising of these valves would require operating a safety injection pump at nominal accident flowrate and injecting into the reactor coolant system since no full flow recirculation path exists. At power operation this is not possible because the SIS pumps do not develop sufficient discharge pressure to overcome reactor coolant system pressure. During normal cold shutdown conditions, injection via the SIS pumps is precluded by restrictions related to Low-Temperature Overpressurization Protection concerns and Technical Specifications, Section 3.15.

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, access is limited to the system since most of the components needed for leaktesting are located within the containment building. 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.





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RELIEF REQUEST NO. VR-10 (Cont.)

ALTERNATE TESTING:

At least once during each reactor refueling outage these valves will be full-stroke exercised to the open position.

At least once every two (2) years these valves will be verified to close in conjunction with PIV leaktesting.



RELIEF REQUEST NO. VR-11

SYSTEM:

Safety Injection (SIS) (5610-T-E-4510-2)

COMPONENTS:

3-0874A & B  
4-0874A & B

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths for borated water injection from the SIS Pumps to A and B RCS hot legs. Additionally, they close to provide isolation of the SIS system from the RCS System high pressure.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Exercising these valves requires operating a safety injection pump and injecting into the reactor coolant system since ~~no recirculation path exists.~~ 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 restrictions related to Low-Temperature Overpressurization Protection concerns and Technical Specification Section 3.15.

During refueling outages the valves can be exercised, however since they are installed such that the only lineup available causes them to form a parallel path, full accident flow through each valve cannot be confirmed as required by Reference 2.8, Position 1.



RELIEF REQUEST NO. VR-11 (Cont.)

These valves are of a design that requires seal welding to ensure their leaktight integrity. Subjecting the valves to frequent disassembly and internal inspection will require untimely valve replacement due to metallurgical limitations as to the number of instances seal welds are removed and replaced. (Estimated to be 3 times)

A measure of the structural integrity and proper functioning of valve internals is gained by the leak testing done during each reactor refueling.

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, access is limited to the system since most of the components needed for leaktesting are located within the containment building. 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.

ALTERNATE TESTING:

During each reactor refueling outage, each of these valves will be partial-stroke exercised to the open position and at least once every two years they are verified closed by performing a leakrate test.



RELIEF REQUEST NO. VR-12

SYSTEM:

Safety Injection (SIS) (5610-T-E-4510-2)

COMPONENTS:

3-0875A thru C  
4-0875A thru C

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths for borated water injection from the SIS Pumps, the RHR Pumps, and the SIS Accumulators to each of the RCS cold legs. Additionally, they closed to provide isolation of the SIS system from the RCS System high pressure.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Full stroke exercising of these valves to the open position, based on the maximum accident flowrate resulting from SIS Accumulator injection to a depressurized RCS loop, is not practical due to limitations associated with the effects of such a test on system components. The maximum flowrate achievable would be that developed using two RHR Pumps injecting into a depressurized reactor coolant system is approximately 7500 gpm - a value somewhat less than the peak flowrate expected during accumulator injection. Due to system configuration, this maximum flow can be directed through \*-875A but would be split between valves \*-875B and \*-875C. In any event, based on current knowledge, the valves cannot be full-stroke exercised as defined by Paragraph 4.4.



RELIEF REQUEST NO. VR-12 (Cont.)

Partial-flow testing of these valves requires injecting into the RCS since no downstream recirculation path exists. 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.

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, access is limited to the system since most of the components needed for leaktesting are located within the containment building. 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.

ALTERNATE TESTING:

Each of these valves will be partial stroke tested to the open position during cold shutdown.

At least once every two (2) years, each of these valves will be verified to close in conjunction with PIV leak testing.

At least once during each 10-year inspection interval all six valves will be disassembled, inspected, and manually exercised per Reference 2.8, Position 2.



RELIEF REQUEST NO. VR-13

SYSTEM:

Safety Injection (SIS) (5610-T-E-4510-2)

COMPONENTS:

3-0875D thru F  
4-0875D thru F

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths for borated water injection from the SIS Accumulators to each of the RCS cold legs. They close to isolate the SIS Accumulators from reactor coolant system pressure and to prevent diversion of flow from the safety injection paths into a partially full accumulator.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

~~Full stroke exercising of these valves to the open position~~ as defined by Paragraph 4.5, based on the maximum accident flowrate resulting from SIS Accumulator injection to a depressurized RCS loop, is not practical due to limitations associated with the effects of such a test on system components.

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, access is limited to the system since most of the components needed for leaktesting are located within the containment building. 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.



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RELIEF REQUEST NO. VR-13 (Cont.)

ALTERNATE TESTING:

At least once every two (2) years, each of these valves will be verified to close in conjunction with leak testing.

At least once each 10-year inspection interval all six valves will be disassembled, inspected, and manually exercised per Reference 2.8, Position 2.



RELIEF REQUEST NO. VR-14

SYSTEM:

Safety Injection (SIS) (5610-T-E-4510-2)

COMPONENTS:

3-0876B and C  
4-0876B and C

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths for borated water injection from the RHR Pumps to B and C RCS cold legs. Additionally, they closed to provide isolation of the RHR system from the RCS System high pressure.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Exercising these valves requires operating an RHR Pump and injecting into the reactor coolant system since no recirculation path exists. At power operation this is not possible because the RHR pumps cannot develop sufficient discharge pressure to overcome reactor coolant system pressure. During normal cold shutdown conditions, injection via the RHR pumps is practical

During refueling outages the valves can be exercised, however, since they are installed such that the only lineup available causes them to form a parallel path, full accident flow through each valve cannot be confirmed as required by Reference 2.8, Position 1.





RELIEF REQUEST NO. VR-14 (Cont.)

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, access is limited to the system since most of the components needed for leaktesting are located within the containment building. 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.

ALTERNATE TESTING:

Each of these valves will be partial stroke tested to the open position during cold shutdown.

At least once during each reactor refueling outage, each of these valves will be verified to close in conjunction with PIV leak testing.

At least once during each 10-year inspection interval these valves will be disassembled, inspected, and manually exercised per Reference 2.8, Position 2.



RELIEF REQUEST NO. VR-15

SYSTEM:

Safety Injection (SIS) (5610-T-E-4510-2)

COMPONENTS:

3-0876D and E  
4-0876D and E

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths for borated water for alternate low head injection to the B and C RCS loops in Unit 3 and A and B RCS loops Unit 4. Additionally, they closed to provide isolation of the RHR system from the RCS System high pressure.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Full stroke exercising of these valves to the open position, as defined in Paragraph 4.4, based on the maximum accident flowrate resulting from two Low-pressure Safety Injection (RHR) Pumps injection to a depressurized RCS loop, is not practical due the system configuration that splits the flow between the two valves in the line.

Partial-flow testing of these valves would require injecting into the RCS since no downstream recirculation path exists. At power operation this is not possible because the RHR pumps cannot develop sufficient discharge pressure to overcome reactor coolant system pressure. During normal cold shutdown conditions, injection via the RHR pumps can be accomplished for partial-stroke exercising.



RELIEF REQUEST NO. VR-15 (Cont.)

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, access is limited to the system since most of the components needed for leaktesting are located within the containment building. 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.

ALTERNATE TESTING:

Each of these valves will be partial stroke tested to the open position during cold shutdowns.

At least once every two (2) years, each of these valves will be verified to close in conjunction with PIV leak testing.

At least once during each 10-year inspection interval these valves will be disassembled, inspected, and manually exercised per Reference 2.8, Position 2.

RELIEF REQUEST NO. VR-16

SYSTEM:

Safety Injection (SIS) (5610-T-E-4510-2)

COMPONENTS:

3-2918 thru 2923  
4-2918 thru 2923

CATEGORY:

C

FUNCTION:

These valves open to provide flowpaths from each of the containment spray headers to the emergency containment cooler units for cooling in the event of a fan failure.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Flow testing of these valves would require pressurizing the respective containment spray header and spraying down the ECC coolers. This is unacceptable since it would result in contaminating the containment building and also possible damage to equipment within the containment.

ALTERNATE TESTING:

During each reactor refueling outage, on a rotating basis, at least three (3) of these valves will be disassembled, inspected, and manually exercised per Reference 2.8, Position 2. If a disassembled valve is not capable of being full-stroke exercised or there is binding or failure of valve internals, the remaining valve in that unit will be disassembled and inspected. Should this occur, then at the next refueling outage, the routine one-valve inspection will continue.



RELIEF REQUEST NO. VR-17

SYSTEM:

Safety Injection (SIS) (5610-T-E-4510-2)

COMPONENTS:

3-0876A  
4-0876A

CATEGORY:

A/C

FUNCTION:

These valves open to provide flowpaths for borated water injection from the RHR Pumps to the A cold leg and close to provide isolation of the RHR system from the RCS System high pressure reactor coolant drain tanks.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

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 nitrogen supply system, which is undesirable during plant operation and would be an unreasonable burden on the plant staff to perform at cold shutdown.

ALTERNATE TESTING:

At least once every two (2) years, each of these valves will be verified to close in conjunction with the PIV leak testing program.





RELIEF REQUEST NO. VR-18

SYSTEM:

Primary and Demineralized Water (5610-T-E-4531-1)

COMPONENTS:

3-10-0567

4-10-0567

CATEGORY:

A/C

FUNCTION:

These valves close to provide primary containment for the penetrations related to the primary water supply line to the containment building.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

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 (3-10-0582) also closed. Thus, in effect, they are passive valves and essentially, need not be exercised.

ALTERNATE TESTING:

At least once every two (2) years, each of these valves will be verified to close in conjunction with the Appendix J leak testing program.



RELIEF REQUEST NO. VR-19

SYSTEM:

Containment Vent & Sampling (5610-T-E-4534-1)

COMPONENTS:

|           |           |
|-----------|-----------|
| 3-11-0003 | 4-11-0003 |
| 3-40-0205 | 4-40-0205 |

CATEGORY:

A/C

FUNCTION:

These valves close to provide primary containment.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

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.

ALTERNATE TESTING:

At least once every two (2) years, each of these valves will be verified to close in conjunction with the Appendix J leak testing program.



RELIEF REQUEST NO. VR-20

SYSTEM:

Instrument Air Inside Containment (5610-T-E-4064-8 & 11)

COMPONENTS:

3-40-0336

4-40-0336

CATEGORY:

A/C

FUNCTION:

These valves close to provide primary containment.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Valves 3-40-0336 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.

ALTERNATE TESTING:

At least once every two (2) years, each of these valves will be verified to close in conjunction with the Appendix J leak testing program.



RELIEF REQUEST NO. VR-21

SYSTEM:

Safety Injection/Residual Heat Removal (5610-T-E-4510-1 & 2)

COMPONENTS:

\*-873 A thru C  
\*-874 A & B  
\*-875 A thru C  
\*-876 A thru E  
MOV--750  
MOV--751

CATEGORY:

A/C (Check Valves)  
A (Motor-operated valves)

FUNCTION:

These check valves open to provide for high-head and low-head safety injection to the RCS. The motor-operated valves open for residual heat removal recirculation during shutdown. Each of these valves is designated as a pressure isolation valve (PIV) and provides isolation of safeguard systems from the RCS.

SECTION XI REQUIREMENT:

The leakage rate for valves 6-inches or greater shall be evaluated per Subsection IWV-3427(b). (IWV-3521)

BASIS FOR RELIEF:

Leaktesting of these valves is primarily for the purpose of confirming their capability of preventing overpressurization and catastrophic failure of the Safety Injection/RHR piping and components. In this regard, special leakage acceptance criteria is established and included into the Turkey Point Technical Specifications (Table 3.16.1) (and Interim Technical Specifications - ADM-021, Table 3.4-1) that addresses the question of valve integrity in a more appropriate manner for these valves. Satisfying both the Technical Specification and the Code acceptance criteria is not warranted and implementation would be difficult and confusing.



RELIEF REQUEST NO. VR-21 (cont.)

ALTERNATE TESTING:

The leakage rate acceptance criteria for these valves will be established per the Turkey Point Technical Specifications, Table 3.16-1 (ADM-021, Table 3.4-1), namely,

1. Leakage rates less than or equal to 1.0 gpm are considered acceptable.
2. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered acceptable if the latest measured rate has not exceed the rate determined by the previous test by an amount that reduced the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.
3. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.
4. Leakage rates greater than 5.0 gpm are considered unacceptable.



RELIEF REQUEST NO. VR-22

SYSTEM:

Emergency Diesel Generator (5610-T-E-4536-1&2)

COMPONENTS:

CV-2046 A and B  
SV-2051 A and B  
SV-\*-3522A and B

CATEGORY:

B

FUNCTION:

These valves open to provide flowpaths for diesel fuel oil supply.

SECTION XI REQUIREMENT:

The stroke time of all power operated valves shall be measured to the nearest second, ..

BASIS FOR RELIEF:

These valves have no external position indicating devices that can be used for measuring stroke time.

ALTERNATE TESTING:

These valves will be tested in conjunction with testing of the Emergency Diesel Generators and the Diesel Generator Fuel Oil Transfer Pumps. The satisfactory response and operation of the associated diesel generator and the fuel oil transfer pumps will demonstrate valve operability but no valve stroke times will be measured.

RELIEF REQUEST NO. VR-23

SYSTEM:

Various

COMPONENTS:

Various

CATEGORY:

Various

FUNCTION:

This is a generic Request for Relief

SECTION XI REQUIREMENT:

If, for power-operated valves, an increase in stroke time of 50% or more for valves with full-stroke times less than or equal to 10 seconds is observed, the test frequency shall be increased to once each month until corrective action is taken, at which time the original test frequency shall be resumed (IWV-3417(a))

BASIS FOR RELIEF:

The stroke time measurements taken during testing of fast-acting valves (those less than 2 seconds) are subject to considerable variation due to conditions unrelated to the material condition of the valve (eg. test conditions, operator reaction time). In accordance with Reference 2.8, Position 6, an alternate method of evaluating stroke times is considered acceptable.

ALTERNATE TESTING:

The stroke time evaluation for those valves designated in the valve tables (Appendices D & E) as "fast-acting" will not account for successive increases of measured stroke time per IWV-3417(a) with the change in test frequency as required. In lieu of this, the assigned maximum limiting value of stroke time will be established at 2 seconds. Upon exceeding the 2-second limit, a valve will be declared inoperable and corrective action taken in accordance with IWV-3417(b).



RELIEF REQUEST NO. VR-24

SYSTEM:

Various

COMPONENTS:

This is a generic relief request

CATEGORY:

A and B

FUNCTION:

Various

SECTION XI REQUIREMENT:

Category A and B valves shall be exercised at least once every 3 months, except as provided by IWV-3412(a), IWV-3415, and IWV-3416. (IWV-3411)

BASIS FOR RELIEF:

There may arrive occasions when, due to the inoperability of a redundant train of a safeguard system, it is imprudent to perform valve testing in the operable train. The potential of a valve failing in a position whereby both trains would of the safety system would be unavailable to respond to an accident condition is unacceptable.

ALTERNATE TESTING:

When one or more components in a redundant system are determined to be inoperable, non-redundant valves in the operable train may not be tested, as required by this Program, but may be exercised after the inoperable train is returned to service.



RELIEF REQUEST NO. VR-25

SYSTEM:

Primary Containment

COMPONENTS:

Containment Isolation Valves per Table VR-25-1

CATEGORY:

A or A/C

FUNCTION:

These valves are closed to provide containment isolation.

SECTION XI REQUIREMENT:

Category A valves shall be seat leak tested and a maximum permissible leakage rate shall be specified. Individual valve leakage rates shall be evaluated per IWV-3426 and IWV-3427. (IWV-3426, IWV-3427, NRC Generic Letter 89-04)

BASIS FOR RELIEF:

Due to the configuration of the system piping and components, in many cases individual leakage rate tests are impractical. In these cases it is customary to perform tests with the test volume between valves in series or behind valves in parallel paths.

ALTERNATE TESTING:

In those cases where individual valves testing is impractical, valves will be leaktested simultaneously in multiple valve arrangements and a maximum permissible leakage rate will be applied to each combination of valves. Test results from tests of multiple valves will be evaluated in accordance with IWV-3426 and IWV-3427.





RELIEF REQUEST NO. VR-25 (Cont.)

TABLE VR-25-1

| <u>PENETRATION NO.</u> | <u>VALVE</u>                        |
|------------------------|-------------------------------------|
| 7                      | CV--519A and B<br>CV--522A A thru C |
| 14                     | CV--200A thru C                     |
| 15                     | *-312C<br>HCV--121<br>*-333         |
| 16                     | HV--1<br>HV--2<br>PAHM--002A        |
| 34                     | *-40-204<br>HV--017                 |
| 35                     | POV--2600<br>POV--2601              |
| 36                     | POV--2602<br>POV--2603              |
| 47                     | *-10-567<br>*-10-582                |
| 51                     | HV-4-3<br>HV-4-4<br>PAHM-4-002B     |
| 52                     | CV--4668 A and B                    |
| 53                     | HV-3-3<br>HV-3-4<br>PAHM-3-002B     |
| 54A                    | MOV--860A<br>MOV--861A              |
| 54B                    | MOV--860B<br>MOV--861B              |

RELIEF REQUEST NO. VR-26

SYSTEM:

Instrument Air (Primary Containment)

COMPONENTS:

3-40-340A  
4-40-340A

CATEGORY:

A/C

FUNCTION:

These valves close for containment isolation.

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

Stop-check valve 3-40-340A is normally closed with the valve operating shaft in the open direction while 4-40-304A is a simple, normally closed, check valve. The most 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.

ALTERNATE TESTING:

At least once every two (2) years, each of these valves will be verified to close in conjunction with the Appendix J leak testing program.



RELIEF REQUEST NO. VR-27

SYSTEM:

Safety Injection System (5610-T-E-4510-2)

COMPONENTS:

4-0945E

CATEGORY:

A/C

FUNCTION:

This valve closes to provide containment isolation for the penetration supplying nitrogen to the SIS Accumulators (Pen No. 42).

SECTION XI REQUIREMENT:

Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522. (IWV-3521)

BASIS FOR RELIEF:

This is a simple check valve with no external position indication, thus the only practical means of verifying closure is by performing a leaktest or backflow test. The valve is normally closed with the outside isolation valve, CV-4-855 closed. Performing leaktest of this valve at each cold shutdown outage would constitute an unreasonable burden on the plant staff.

ALTERNATE TESTING:

This valve will be exercised and verified to close at least once every two (2) years in conjunction with Appendix J leaktesting activities.



Revision 2  
09/19/89

Appendix G  
Valve Program  
Cold Shutdown Justifications  
Units 3 & 4





## Appendix G: COLD SHUTDOWN JUSTIFICATIONS

This appendix is intended to provide the justification for performing valve exercising only at cold shutdown conditions as permitted by IWV-3412(a).

### Main Steam (5610-T-E-4061-1)

3-10-0004, 3-10-0005, & 3-10-0006  
4-10-0004, 4-10-0005, & 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 a possible plant trip.

POV-3-2604, POV-3-2605, & POV-3-2606  
POV-4-2604, POV-4-2605, & 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 a possible plant trip.

### Feedwater (5610-T-E-4061-4/4062-2)

3-10-381, 3-10-382, & 3-10-383  
4-10-381, 4-10-382, & 4-10-383  
Aux. Feedwater Steam Supply Non-return Valves

Testing of these valves to the closed position requires isolation of the respective steam supply line from its associated steam generator and performing a backflow test to demonstrate closure. 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 cold shutdown.



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

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

FCV-3-0479, FCV-3-489, & FCV-3-499  
FCV-4-0479, FCV-4-489, & 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. Note that since these valves are normally closed and remain so except for low-power periods associated with startup and shutdown, the significance of exercising them to the closed position is diminished from the vantage point of plant safety.

#### Circulating Water (5610-T-E-4065-2)

3-401  
Turbine Plant Cooling Water Heat Exchanger Discharge Valve

If during testing to the closed position under normal operating conditions this valve were to fail to be reopened for any extended period of time, the associated turbine generator and various support components could be damaged due to overheating.

#### Reactor Coolant (5610-T-E-4501-1)

3-0519  
4-0519  
N2 Supply To Pressurizer Relief Tank

Since exercising these valves requires manual manipulation and these valves are located within the containment building where access is generally restricted for routine activities to periods when the plant is at cold shutdown, exercising at times other than when the plant is in that condition is not practical.



PCV-3-0455C, PCV-3-0456  
PCV-4-0455C, PCV-4-0456  
Power-Operated Relief Valves

Due to the potential impact of the resulting transient should one of these valves open prematurely or stick in the open position, it is considered imprudent to cycle them during plant operation with the reactor coolant system pressurized.

SV-3-6318A & B, SV-3-6319A & B, and SV-3-6320A & B  
SV-4-6318A & B, SV-4-6319A & B, and SV-4-6320A & B  
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 Technical Specification 3.1.3 leading to a plant shutdown. Furthermore, if a valve were to fail open or valve indication fail to show the valve returned to the fully closed position following exercising, prudent plant operation would probably likely result in a plant shutdown.

Reactor Coolant Pumps (5610-T-E-4503-1)

MOV-3-626, MOV-3-716A & B, and MOV-3-730  
MOV-4-626, MOV-4-716A & B, and MOV-4-730  
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 any of these valves during pump operation would result in severe RCP damage leading to plant operation in a potentially unsafe mode and a subsequent plant shutdown.



Chemical & Volume Control - Charging Section (5610-T-E-4505)

3-0351

4-0351

Emergency Boration Line 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.

3-357

4-357

RWST Discharge Valves

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

397 A thru D

Boric Acid Pump Discharge Check Valves

During plant operation, due to concerns about over-borating the RCS, the Boric Acid Pumps are tested via a recirculation flowpath is not provided with any flow indication. Thus, since flowrate through these valves cannot be measured, in accordance with the provisions of Reference 2.8, it is considered to be a partial-stroke test. At cold shutdown conditions the pumps can be lined up to pump to the charging pumps and thus through an instrumented line.





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

Closing these valves during operation would result in undesirable pressurizer level transients with the potential for a plant trip.

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

Opening these valves during operation would result in injection of RWSST borated water into the reactor coolant system. This would, in turn, result in overboration 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 of a Charging Pump would cause damage to the pump and interruption of charging water flow to the RCS and the RCP seals.

Chemical & Volume Control - Letdown Section (5610-T-E-4505-2)

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

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

MOV-3-0381 and MOV-3-6386  
MOV-4-0381 and 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 result in damage to the pumps.



Safety Injection / Residual Heat Removal (5610-T-E-4510-1)

3-0753 A & B

4-0753 A & B

Residual Heat Removal 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. Since the RHR Pumps cannot develop sufficient head to overcome RCS pressure this is impossible to accomplish during other than the cold shutdown modes when the RCS is depressurized. Note that these valves will be partial-stroke exercised open on a quarterly basis via the minimum flow test lines.

MOV-3-0856 A & B

MOV-4-0856 A & B

Minimum Flow Line Isolation Valves

Failure of either of these valves in the closed position during testing will render both unit Safety Injection and Containment Spray Pumps inoperable due to the high probability of damage should these pumps be started and operated without sufficient flow for cooling of pump internal components.

MOV-3-0862 A & B

MOV-4-0862 A & B

RHR Pump Suction Isolation Valves

Failure of either of these valves in the closed position during testing will isolate both unit Residual Heat Removal Pumps from the respective refueling water storage tank rendering them inoperable and losing all capability of low-pressure safety injection.



MOV-3-0863 A & B  
MOV-4-0863 A & B  
LP-SIS / Recirculation Isolation 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.

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

During stroke testing of any of these valves, the associated RWST is isolated reducing the capability of the safety injection and containment spray systems to respond to an accident if a valve could not be reopened after closure. Thus, closing any of these valves while the associated unit is not in a cold shutdown or refueling mode is considered imprudent.

MOV-3-0872  
MOV-4-0872  
Alternate LP Safety Injection Isolation Valves

Opening either of these valves while the RCS is at operating pressure subjects the RHR System to 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 cause the respective refueling water storage tank to overflow and possibly subject the RHR system to pressures above its design pressure. Because of this, opening these motor-operated valves while the RCS is at pressures above 600 psig is considered imprudent. Additionally, failure of either of these valves in the open position would disrupt the valve lineup and the flowpath needed for maintaining long-term recirculation cooling via the High-head Safety Injection Pumps if it were required as a result of an accident.



MOV-878 A&B

High Head Safety Injection Pump Discharge Cross-Tie

The Turkey Point plant design takes credit for the added redundancy of the shared safety injection systems and the capability of maintaining four (4) pumps capable of taking suction from either refueling water storage tank. The plant Technical Specifications require all four pumps to be operable when either or both of the units is in operation and Tav<sub>g</sub> greater than 350 deg.-F. Failure of either one of these valves to reopen while testing would significantly reduce the capability of the safety injection system to respond to a LOCA in the operating unit(s).

Safety Injection / Residual Heat Removal (5610-T-E-4510-2)

3-0876A

4-0876A

Low-head Safety Injection/RHR Injection Check Valves

The only flowpath available for full-flow exercising these valves to the open position requires pumping from the RHR Pump to the reactor coolant system. Since the RHR Pumps cannot develop sufficient head to overcome RCS pressure this is impossible to accomplish during periods other than the cold shutdown modes when the RCS is depressurized.

3-0945E

Nitrogen Supply To SIS Accumulators

Cycling these valves requires access to the containment building and thus is not practical to perform during plant operation when access is restricted.





MOV-3-744 A & B

MOV-4-744 A & B

Low-head Safety Injection/RHR Injection Stop Valves

Opening either of these valves while the RCS is at operating pressure subjects the RHR System to 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 and possibly damage system components. Because of this, opening these motor-operated valves while the RCS is at pressures above 600 psig is considered imprudent.

MOV-3-750 and MOV-3-751

MOV-4-750 and MOV-4-751

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.

MOV-3-866 A & B

MOV-4-866 A & B

High-Head Hot Leg Safety Injection Isolation Valves

Opening either of these valves while the RCS is at operating pressure subjects the SIS System to a situation where the only isolation between the RCS and SIS systems is established by a single (actually two in parallel) check valve. Failure of either of these check valves to seat could subject the SIS system to pressures above its design pressure and possibly damage system components. Because of this, opening these motor-operated valves while the RCS is at pressures above 600 psig is considered imprudent.



937



Component Cooling - Outside Containment (5610-T-E-4512-1)

MOV-3-1417 and MOV-3-1418

MOV-4-1417 and MOV-4-1418

Component Cooling Containment 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 and subsequent damage to these components.. Should any one of these valves fail to reopen after closure serious damage to equipment would occur necessitating an immediate plant shutdown and cooldown.

Containment Ventilation & Sampling (5610-T-E-4534-1)

POV-3-2600 and POV-3-2602

POV-4-2600 and POV-4-2602

Containment Bldg. Purge Supply/Exhaust Otbd. Isolation Valves

Due to the poor 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 and additional leaktests are performed based on cycling frequency. Thus, it is undesirable to cycle these valves more often than is absolutely necessary. In addition, typically these valves are closed (their safety-related position) during plant operation and are opened only for containment ventilation during shutdown periods.



Containment Ventilation & Sampling (5610-T-E-4534-2)

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

Due to the poor 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 and additional leaktests are performed based on cycling frequency. Thus, it is undesirable to cycle these valves more often than is absolutely necessary. In addition, typically these valves are closed (their safety-related position) during plant operation and are opened only for containment ventilation during shutdown periods.

