

North Atlantic Energy Service Corporation P.O. Box 300 Seabrook, NH 03874 (603) 474-9521

The Northeast Utilities System March 21, 2000

Docket No. 50-443 AR# 00001997

NYN-00027

United States Nuclear Regulatory Commission Attention: Document Control Desk Washington, D.C. 20555

> Seabrook Station "Submittal of the Second Ten-Year Interval Inservice Test Program Plan"

North Atlantic Energy Service Corporation (North Atlantic) has enclosed herein for your review, the Inservice Test Reference Manual (SITR) which serves as the Second Ten-Year Interval Inservice Test (IST) Program Plan. The Second Ten-Year Interval IST program plan was developed to meet the requirements of the 1995 Edition (including the 1996 Addenda) of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance (OM Code) of Nuclear Power Plants. The IST program plan was revised in order to meet the requirements specified in 10 CFR 50.55a(f)(5)(i). Included within the Second Ten-Year Interval IST program plan are 8 relief requests (PG-1, PR-1, PR-2, PR-3, VG-1, VG-2, VG-3, and AG-1) which require NRC review and approval. These relief requests are located in Figures F1, F2, F3 and F5 of the SITR. North Atlantic requests review and approval of relief requests VG-1, VG-3, PG-1, PR-1, PR-2, and PR-3 by October 1, 2000 to support testing during the upcoming refueling outage. North Atlantic requests review and approval of relief requests VG-2 and AG-1 by January 5, 2001. Additionally, certain Piping and Instrument Diagrams (P&IDs) have been provided to assist the NRC review of the revised IST program plan and associated relief requests.

North Atlantic forwarded an Alternative Request and License Amendment Request by letter (NYN-00006) dated February 18, 2000 to request approval to implement the IST program in accordance with 1995 Edition (including the 1996 Addenda) of the ASME OM Code and to revise the Technical Specifications accordingly.

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North Atlantic commitments associated with this letter are identified in Enclosure 2.

Should you have any questions regarding this letter, please contact Mr. James M. Peschel, Manager - Regulatory Programs, at (603) 773-7194.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.

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Ted C. Feigenbaum Executive Vice President and Chief Nuclear Officer

cc: H. J. Miller, NRC Regional Administrator
 R.M. Pulsifer, NRC Project Manager, Project Directorate 1-2
 R. K. Lorson, NRC Senior Resident Inspector

#### ENCLOSURE 1 TO NYN-00027

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ENCLOSURE 2 TO NYN-00027

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#### North Atlantic Commitments Contained in NYN-00027

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#### **Description of Commitment**

	Description of Commitment
AR# 00001997-02	Upon approval of LAR 00-02 and associated Alternative Request,
	North Atlantic will implement the second Ten-Year Interval Inservice
	Test Program Plan as described in Enclosure 1 of NYN-0027.
AR# 00001997-03	Upon approval of LAR 00-02 and associated Alternative Request,
	North Atlantic will establish a condition monitoring program for
	selected check valves in accordance with Appendix II of the ASME
	OM Code.

#### SEABROOK STATION REFERENCE MANUAL



#### **Inservice Testing Reference**

#### SITR

Manual Owner R. I. Parry

### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-AS-D20569, Rev. 4, AUXILIARY STEAM DETAIL

#### WITHIN THIS PACKAGE...OR,

### BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-AS-D20569, Rev.4



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-MAH-D20504, Rev. 20, MISCELLANEOUS AIR HANDLING CONTAINMENT & PURGES DETAILS (COP,CAP)

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-MAH-D20504, Rev.20

### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CBS-D20233, Rev. 19, CONTAINMENT SPRAY SYSTEM

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CBS-D20233, Rev.19



### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CC-D20205, Rev. 21, PRIMARY COMPONENT COOLING LOOP A DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CC-D20205, Rev.21

### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CC-D20206, Rev. 10, PRIMARY COMPONENT COOLING LOOP A DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CC-D20206, Rev.10



### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CC-D20207, Rev. 7, PRIMARY COMPONENT COOLING LOOP A DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CC-D20207, Rev.7

### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-CC-D20209, Rev. 6, PRIMARY COMPONENT COOLING THERMAL BARRIER LOOP DETAIL

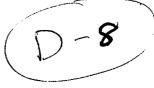
### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CC-D20209, Rev.6



### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CC-D20211, Rev. 15, PRIMARY COMPONENT COOLING LOOP "B" DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CC-D20211, Rev.15



### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CC-D20212, Rev. 7, PRIMARY COMPONENT COOLING LOOP B DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CC-D20212, Rev.7

### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CC-D20213, Rev. 6, PRIMARY COMPONENT COOLING LOOP B DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CC-D20213, Rev.6



### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CC-D20214, Rev. 6, PRIMARY COMPONENT COOLING LOOP B DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CC-D20214, Rev.6

#### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CGC-D20612, Rev. 5, COMBUSTIBLE GAS CONTROL SYSTEM

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CGC-D20612, Rev.5

### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-CO-D20426, Rev. 21, CONDENSATE SYSTEM DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CO-D20426, Rev.21



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-CS-D20722, Rev. 7, CHEMICAL& VOLUME CONTROL SYS HEAT EXCHANGERS DETAIL

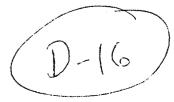
### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CS-D20722, Rev.7



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-CS-D20723, REV. 14 CHEMICAL & VOLUME CONTROL SYS. PURIFICATION DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-CS-D20723, REV. 14



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-CS-D20725, REV. 13 CHEMICAL & VOLUME CONTROL CHARGING SYSTEM DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-CS-D20725, REV. 13



### PID- 1-CS-D20726, REV. 18 CHEMICAL & VOLUME CONTROL SYS. SEAL WATER DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE

#### DOCUMENT/REPORT NUMBER:

#### PID-1-CS-D20726, REV. 18



### PID- 1-CS-D20727, REV. 5 CHEMICAL VOLUME & CONTROL SYSTEM THERMAL REGENERATION DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-CS-D20727, REV. 5



### PID- 1-CS-D20728, REV. 5 CHEMICAL VOLUME & CONTROL SYS. THERMAL REGENERATION DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER:

#### PID-1-CS-D20728, REV. 5

### PID- 1-CS-D20729, REV. 10 CHEMICAL & VOLUME CONTROL SYS. BORIC ACID DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-CS-D20729, REV. 10

### PID- 1-DG-D20458, REV. 8 DIESEL GENERATOR LUBE OIL SYSTEM TRAIN "A" DETAIL

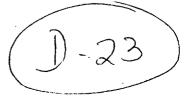
### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER:

#### PID-1-DG-D20458, REV. 8

### PID- 1-DG-D20459, REV. 11 DIESEL GENERATOR FUEL OIL SYSTEM TRAIN "A" DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-DG-D20459, REV. 11



### PID- 1-DG-D20460, REV. 15 DIESEL GENERATOR STARTING AIR SYSTEM TRAIN "A" DETAIL WITHIN THIS PACKAGE....OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-DG-D20460, REV. 15



### PID- 1-DG-D20461, REV. 12 DIESEL GENERATOR COOLING WATER SYSTEM TRAIN "A" DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER:

#### PID- 1-DG-D20461, REV. 12

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### PID- 1-DG-D20462, REV. 4 DIESEL GENERATOR INTAKE, EXHAUST & CRANKCASE VACUUM SYSTEM TRAIN "A" DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-DG-D20462, REV. 4

### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID- 1-DG-D20463, REV. 10 DIESEL GENERATOR LUBE OIL SYSTEM TRAIN "B" DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER:

#### PID-1-DG-D20463, REV. 10

### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID- 1-DG-D20464, REV. 13 DIESEL GENERATOR FUEL OIL SYSTEM TRAIN "B" DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER:

#### PID-1-DG-D20464, REV. 13

### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID- 1-DG-D20465, REV. 15 DIESEL GENERATOR STARTING AIR SYSTEM TRAIN "B" DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-DG-D20465, REV. 15

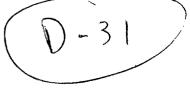
### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID- 1-DG-D20466, REV. 11 DIESEL GENERATOR COOLING WATER SYSTEM TRAIN "B" DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID- 1-DG-D20466, REV. 11

### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-DG-D20467, REV. 5 **DIESEL GENERATOR INTAKE, EXHAUST & CRANKCASE** VACUUM SYSTEM, TRAIN "B" DETAIL WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE **DOCUMENT/REPORT NUMBER:** PID-1-DG-D20467 REV. 5

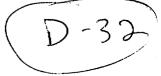
#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-DM-D20349, Rev. 19, DEMINERALIZED WATER DISTRIBUTION SYSTEM TURBINE BLDG

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-DM-D20349, Rev.19



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-DM-D20352, Rev. 5, DEMINERALIZED WATER DISTRIBUTION SYSTEM CONTAINMENT STRUCTURE

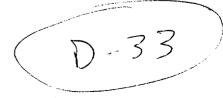
#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-DM-D20352, Rev.5



#### THAT CAN BE VIEWED AT THE RECORD TITLED:

#### PID-1-FP-D20271, Rev. 12, FIRE PROTECTION DETAILS

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-FP-D20271, Rev.12



#### THAT CAN BE VIEWED AT THE RECORD TITLED:

#### PID-1-FW-D20686, Rev. 9, FEEDWATER SYSTEM DETAILS

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-FW-D20686, Rev.9

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#### THAT CAN BE VIEWED AT THE RECORD TITLED:

#### PID-1-FW-D20687, Rev. 18, FEEDWATER SYSTEM DETAILS

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-FW-D20687, Rev.18



#### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-FW-D20688, Rev. 15, EMERGENCY FEEDWATER SYSTEM DETAILS

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-FW-D20688, Rev.15

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#### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-FW-D20690, Rev. 5, FEEDWATER SYSTEM WET LAY-UP

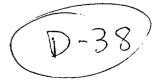
#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-FW-D20690, Rev.5

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#### THAT CAN BE VIEWED AT THE RECORD TITLED:

#### PID-1-FW-D20691, Rev. 1, LUBE OIL PIPING FOR SKD-26

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-FW-D20691, Rev.1



#### THAT CAN BE VIEWED AT THE RECORD TITLED:

#### PID-1-IA-D20640, Rev. 11, INSTRUMENT AIR PRIMARY AUX. BUILDING DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-IA-D20640, Rev.11

#### THAT CAN BE VIEWED AT THE RECORD TITLED:

### PID-1-IA-D20643, Rev. 9, INSTRUMENT AIR CONTAINMENT BUILDING DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-IA-D20643, Rev.9

### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-IA-D20644, Rev. 13, INSTRUMENT AIR MISCELLANEOUS BUILDING DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-IA-D20644, Rev.13

### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-IA-D20645, Rev. 11, INSTRUMENT AIR MISCELLANEOUS BUILDING DETAILS

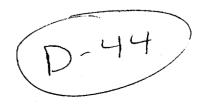
### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-IA-D20645, Rev.11

### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-IA-D20647, Rev. 4, INSTRUMENT AIR BOTTLE SUPPLY

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-IA-D20647, Rev.4

#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-LD-D20864, Rev. 7, LEAK DETECTION SYSTEM

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-LD-D20864, Rev.7



#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-MS-D20580, Rev. 7, MAIN STEAM SYSTEM MAIN STEAM HEADERS DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-MS-D20580, Rev.7



#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-MS-D20581, Rev. 9, MAIN STEAM SYSTEM MAIN STEAM HEADERS DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-MS-D20581, Rev.9



#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-MS-D20582, Rev. 10, MAIN STEAM SYSTEM EMERGENCY FEEDWATER PUMP SUPPLY DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-MS-D20582, Rev.10

### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-MS-D20583, Rev. 9, MAIN STEAM SYSTEM MAIN STEAM MANIFOLD & H.P.TURBINE PIPING DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-MS-D20583, Rev.9

#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-MS-D20587, Rev. 12, MAIN STEAM SYSTEM MAIN STEAM DRAINS DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-MS-D20587, Rev.12



#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-NG-D20135, Rev. 10, NITROGEN GAS DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-NG-D20135, Rev.10

#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-NG-D20136, Rev. 5, NITROGEN GAS DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-NG-D20136, Rev.5

### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RC-D20841, Rev. 15, REACTOR COOLANT SYSTEM LOOP NO. 1

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RC-D20841, Rev.15



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RC-D20842, Rev. 10, REACTOR COOLANT SYSTEM LOOP NO. 2

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RC-D20842, Rev.10

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### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RC-D20843, Rev. 12, REACTOR COOLANT SYSTEM LOOP NO. 3

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RC-D20843, Rev.12

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### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RC-D20844, Rev. 15, REACTOR COOLANT SYSTEM LOOP NO. 4

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RC-D20844, Rev.15



#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RC-D20845, Rev. 7, REACTOR COOLANT SYSTEM REACTOR VESSEL P & ID

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RC-D20845, Rev.7



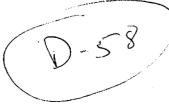
### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RC-D20846, Rev. 12, REACTOR COOLANT SYSTEM PRESSURIZER

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RC-D20846, Rev.12



#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RH-D20662, Rev. 13, RESIDUAL HEAT REMOVAL SYS. TRAIN A DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RH-D20662, Rev.13



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RH-D20663, Rev. 11, RESIDUAL HEAT REMOVAL SYS. TRAIN B CROSS-TIE DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RH-D20663, Rev.11

#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-RMW-D20360, Rev. 9, REACTOR MAKE-UP WATER SYSTEM

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-RMW-D20360, Rev.9



#### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SA-D20652, Rev. 5, SERVICE AIR SYSTEM MISC. BUILDINGS DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SA-D20652, Rev.5



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SB-D20626, Rev. 13, STEAM GENERATOR BLOWDOWN (BLOWDOWN FLASH) DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SB-D20626, Rev.13

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### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SF-D20482, Rev. 11, SPENT FUEL POOL COOLING AND CLEAN-UP SYSTEM DETAIL

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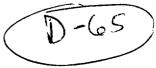
### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SF-D20483, Rev. 9, SPENT FUEL POOL COOLING AND CLEAN-UP SYSTEM DETAIL

### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SF-D20483, Rev.9

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### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SF-D20484, Rev. 6, SPENT FUEL POOL COOLING AND CLEAN-UP SYSTEM DETAIL

#### WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SF-D20484, Rev.6



### THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SI-D20446, Rev. 10, SAFETY INJECTION SYSTEM INTERMEDIATE HEAD INJECTION SYSTEM DETAIL

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## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SI-D20447, Rev. 12, SAFETY INJECTION SYSTEM HIGH HEAD INJECTION SYSTEM DETAIL

## WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SI-D20447, Rev.12

## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SI-D20450, Rev. 10, SAFETY INJECTION SYSTEM LOW HEAD INJECTION (ACCUMULATORS) DETAIL

## WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SI-D20450, Rev.10

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## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SS-D20518, Rev. 11, SAMPLE SYSTEM (NUCLEAR-NORMAL OPERATION) DETAIL

## WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SS-D20518, Rev.11



## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SS-D20520, Rev. 11, SAMPLE SYSTEM (NUCLEAR-POST ACCIDENT) DETAIL

## WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SS-D20520, Rev.11



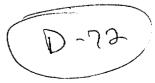
## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SW-D20794, Rev. 20, SERVICE WATER SYSTEM NUCLEAR DETAIL

## WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SW-D20794, Rev.20



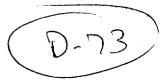
## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SW-D20795, Rev. 29, SERVICE WATER SYSTEM NUCLEAR DETAIL

## WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SW-D20795, Rev.29



## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-SW-D20796, Rev. 4, SERVICE WATER SYSTEM NUCLEAR DETAIL

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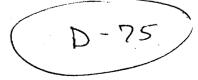
## PID-1-VG-D20780, Rev. 17, VENT GAS SYSTEM

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## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-WLD-D20218, Rev. 11, WASTE PROCESSING LIQUID DRAINS REACTOR COOLANT SYSTEM

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## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-WLD-D20219, Rev. 7, WASTE PROCESSING LIQUID DRAINS CONTAINMENT BUILDING SUMPS

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## WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-WLD-D20221, Rev.8



## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-WLD-D20222, Rev. 13, WASTE PROCESSING LIQUID DRAINS AUXILIARY BLDG. SHT. 1 OF 2

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## THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-CS-D20274, Rev. 11, CHEMICAL & VOLUME CONTROL SYS. LETDOWN DEGASIFIER DETAIL

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-80

## SEABROOK STATION REFERENCE MANUAL



## **Inservice Testing Reference**

## SITR

Manual Owner R. I. Parry

## INSERVICE TESTING REFERENCE (SITR)

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PART I

SEABROOK STATION

## PUMP AND VALVE INSERVICE TESTING (IST) PROGRAM PLAN

### 1.0 INTRODUCTION

### 1.1 OBJECTIVE

This document presents the second Ten Year Interval Program Plan for Inservice Testing (IST) of Pumps and Valves at Seabrook Station in compliance with the requirements of 10CFR50.55a(f) and Seabrook Station Technical Specification 4.0.5. This program plan was prepared in accordance with the rules of the ASME OM Code "Code for Operation and Maintenance of Nuclear Power Plants", Sections ISTA, ISTB, ISTC and applicable appendices, 1995 Edition, 1996 Addenda.

The North Atlantic Energy Service Corporation (NAESCO) 2nd Ten Year Interval is currently scheduled to begin August 18, 2000.

This document:

- 1. Establishes content of the Seabrook Station second interval Inservice Test Plan (ISTP) as required by the code.
- 2. Documents the Seabrook Station Licensing and Design bases for inclusion or exclusion of components within the scope of the IST Program Plan.

### 1.2 DEFINITIONS

The terms below, when used in the Inservice Testing Program Plan, are defined as follows:

Quarterly:	An interval of 92 days for testing components which can be tested during normal plant operation.
Cold Shutdown: (See Note)	Testing that cannot be performed when the plant is operating. Testing shall commence within 48 hours of achieving cold shutdown, and shall continue until the testing is complete or until the plant is ready to return to power. Some Cold Shutdown Testing at Seabrook Station is performed in Modes 2, 3 and 4 in order to develop sufficient system temperature or pressure to conduct the test. Most of the other Cold Shutdown tests are performed in Mode 5 or below. Reference Section 6.0.
Refueling:	Testing deferred to refueling will be performed during the normal scheduled refueling shutdown before returning to power operation.
Leakage Test Pressure Isolation:	Any valve which acts as an isolation boundary between the high pressure Reactor Coolant System and a system having a lower operating or design pressure with a specified leakage rate (see Section 5.5.2).

Leakage Test Containment Isolation:	Any valve which performs a containment isolation function and is included in the Appendix J Containment Leakage Rate Test Program (see Section 5.5.1 and References 2.3 and 2.4).
Active:	Any valve which is required to change position to accomplish its ISTC-1.1 safety-related function.
Passive:	Any value which is not required to change position to accomplish its safety-related function.

## NOTE

The above definition of cold shutdown testing applies unless otherwise specified. For example, pressure isolation valves are leakage rate tested at cold shutdown intervals defined by Seabrook Station Technical Specification 4.4.6.2.2.

## 1.3 ORGANIZATION

The Pump and Valve Inservice Testing Program Plan is organized into various sections and is in accordance with the program plan requirements outlined in OM Section ISTA 2.2.2:

- (a) the edition and addenda of the Code that apply to the required tests and examinations;
- (b) the classifications of the components and the boundaries of system classification;
- (c) identification of the components subject to test and examination;
- (d) the Code requirements for each component and the test or examination to be performed;
- (e) the Code requirements for each component that are not being satisfied by the tests and examinations, and justification for substitute tests or examinations;
- (f) Code Cases proposed for use and the extent of their application; and
- (g) test or examination frequency or a schedule for performance of tests and examinations, as applicable.

Figures F1 and F3 contain General Relief Requests for Code requirements found to be impractical for Seabrook Station. Figure F1 deals with Pumps and Figure F3 deals with Valves.

Figures F2 and F4 deal specifically with the Pump and Valve Test Tables, respectively, which detail the identification, classification, requirements, tests, and frequency of testing for each applicable component.

Where valve quarterly testing has been found to be impractical, a justification for delay of test to cold shutdown, or if necessary, to scheduled refueling outages, is provided in Figure F4 following the applicable system Valve Test Table. If a particular Code requirement for a pump is impractical, a specific relief request is provided with the Pump Test Table in Figure 2.

Figure F5 contains the Program Administrative General Relief Requests for Code requirements of Section ISTA which were found to be impractical for Seabrook Station.

The detailed or specific program mechanics and actual data collection are performed in accordance with specific Station Operating Procedures developed and revised in accordance with MNPR, Manuals and Procedures Administration Manual, PR 3.2 (e.g., OX, EX, MX procedures).

## 1.4 **RESPONSIBILITIES**

The Plant Engineering Department, Component Engineering and Test Group personnel are responsible for this Program Plan and maintaining the Pump and Valve Inservice Testing (IST) Program. The Plant Engineering Department is comprised of System and Component/Program Engineers. The department is organized into functional groups, one of which is the Component Engineering and Test Group, responsible for maintenance of the Program Plan and the Inservice Testing (IST) Program. The Component Engineering and Test Group is also responsible for performing certain IST surveillance activities as specified in applicable Engineering Department procedures (See Reference 2.08, ES1804.055, Inservice Testing Pump and Valve Program). The System Engineers within the Plant Engineering Department are responsible for periodically reviewing the test results.

The Operations Department is responsible for performing certain quarterly, cold shutdown and refueling outage frequency surveillance activities as specified in applicable Operations Department procedures.

Work Management is responsible for scheduling the applicable IST surveillance activities in accordance with WM 8.2, Repetitive Task Process. The Component Engineering and Test Group also assists in scheduling certain activities, such as, relief valve setpoint verification tests and check valve disassembly activities.

The Maintenance Department is responsible for specifying the appropriate post-maintenance retest activities on corrective maintenance work documents for components within the scope of the IST Program or the augmented test program for components important to safety, as directed in MA 3.5, Post Maintenance Testing. Assistance by the Component Engineering and Test Group will be provided, as required, to specify the appropriate activity.

### 2.0 **REFERENCES**

- 1. ASME OM Code, Sections ISTA, ISTB, ISTC, Appendix I, Appendix II, 1995 Edition, 1996 Addenda.
- 2. 10 CFR 50.55a(f), Inservice Testing Requirements, Guidance for Preparing Pump and Valve Testing Program Descriptions and Associated Relief Requests.
- 3. 10 CFR 50 Appendix J, Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors.
- NYN-96033, dated 6/4/96, which submitted License Amendment Request 96-05, Implementation of 10 CFR 50, Appendix J, Option B, Containment Leakage Rate Testing (TACM95312).
- 5. Technical Requirements Manual (SSTR).
  - a. Technical Requirement 6, Containment Isolation Valves.
  - b. Technical Requirement 18, Reactor Coolant System Pressure Isolation Valves.
  - c. Other sections as noted in the Basis Section of the individual component test data sheets.
- 6. Technical Specifications, North Atlantic Energy Service Corporation, Seabrook Station:
  - a. Section 4.0.5, Limiting Conditions for Operation and Surveillance Requirements.
  - b. Other sections as noted in the Basis Section of the individual component test data sheets.
- 7. Updated Final Safety Analysis Report (UFSAR).
- 8. ES1804.055, Inservice Testing Pump and Valve Program.
- 9. North Atlantic Energy Service Corporation P&ID's as noted on the individual component data sheets.
- 10. 1-NHY-250000, Data Sheets for Motor & Air Operated Valves & Dampers.
- 11. Engineering Evaluation 94-031, NRC Information Notice 91-56, Potential Radioactive Leakage to Tank Vented to Atmosphere.
- 12. NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants, April 1995.

- 13. Leakage Testing Reference (SLTR).
- 14. Condition Reports
  - a. 96-1447, UFSAR Active Valve Tables vs. IST Program (see also EWR 97-095).
  - b. 97-0089, UFSAR Active Valve Table, 4 RCPB CS Check Valves Closure Verification CS-V178, V179, V181, and CS-V182.
  - c. 97-0282, USNRC Generic Letter 96-06 Response, Reliance on Relief Valves for Containment Penetration inside Isolation Valve Protection: CC-V120, CC-V486, WLD-V211, DM-V274, RMW-V107, CC-V1105, and CC-V1112.
  - d. 97-0362, USNRC Generic Letter 97-0362 Response, Reliance on Check Valves and Air Operated Valves for Containment Penetration inside Isolation Valve Protection, Open/Fail-Open Verification: SS-V273, RMW-V29, CS-V144, CS-V178, CS-V179, CS-V181, CS-V182, CS-V177 and CS-V180.
  - e. 95-238, Closing CBS-V49 During Testing Renders ECCS Inoperable.
  - f. 98-1928, DBD-EFW-01, Emergency Feedwater System Design, EFW Stop Check Valve Leakage Testing Issue.
  - g. 98-3606, PCCW Radiation Monitor.
  - h. 99-0087, IST Program Discrepancies.
  - i. 99-4488, IST Program Scope Discrepancies
  - j. 99-4841, IST Program Scope Discrepancies
- 15. NRC Generic Letter 96-06, "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions."
- 16. Procedure EX1804.044, Relief Valve Setpoint Pressure and Leakage Test.
- 17. Procedure EX1804.041, Main Steam Safety Valve In-Place Setpoint Verification.
- 18. Procedure EX1804.LATER, Check Valve Condition Monitoring.

- 19. NRC Generic Letter No. 89-04, Guidance on Developing Acceptable Inservice Testing Programs, dated April 3, 1989.
  - a. Minutes of Public Meetings on NRC Generic Letter 89-04, dated Oct. 25, 1989.
  - b. Summary of Public Workshops on "Inservice Testing of Pumps and Valves", dated July 18, 1997.
- 20. Seabrook Station LER 98-013 Rev. 1, IST Program Discrepancies.
- 21. Seabrook Station Supplemental Safety Evaluation Reports (SSERs):
  - a. SSER 6, Appendix S, Pump and Valve Inservice Testing Program, which approves PG-1 (Flow Instrument Accuracies) Relief Request.
  - b. SSER 8, Appendix X, Inservice Testing of Pumps and Valves, which approves PR-3 (Pump Inlet Pressure) Relief Request.
- 22. Procedure OX1456.81, Operability Testing of IST Valves
- 23. Procedure OX1456.86, Operability Testing of IST Pumps
- 24. Condition Based Maintenance (CBM) Program
  - a. Procedure ES1807.023, Advanced Component Diagnostics
  - b. MA 8.1, Vibration Monitoring and Analysis
  - c. MA 8.2, Lubrication Analysis

### 3.0 <u>SCOPE</u>

### 3.1 OBJECTIVE

This document:

- 1. Establishes the contents of the IST Program Plan as described in Section 1; and
- 2. Documents the licensing and design bases which support inclusion or exclusion of pumps and valves in the IST Program Scope.

As stated in Section 1, the IST program plan has been developed to meet the scope and content as specified in ISTA 2.2.2, Test and Examination Program Plans, of the OM Code. Specific plan content for pumps and valves is contained in Sections ISTB 7.2, Pump Inservice Test Plans and ISTC 6.2, Valve Test Plans, respectively. In addition, the plan content guidance presented in NUREG 1482 (Reference 2.12) Section 2.4 has been considered in the plan development.

The specific ASME OM code requirements applicable to pump and valve testing are summarized in this chapter along with an analysis of their applicability to Seabrook Station.

The methodology utilized for including or excluding individual pumps and valves in the IST Program is discussed in the following sections. The basic code required scope statements are provided below:

Pumps (ISTB 1.1)

The pumps covered are those, provided with an emergency power source, that are required in shutting down the reactor to the safe shutdown condition, maintaining the safe shutdown condition or mitigating the consequences of an accident.

Valves (ISTC 1.1)

The active or passive valves covered are those that are required to perform a specific function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident. The pressure relief devices covered are those for protecting systems or portions of systems that perform a required function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition or in mitigating the consequences of an accident.

### 3.2 SAFE SHUTDOWN

Per UFSAR 5.4.7.2.i, the Seabrook Station safe shutdown design basis is Hot Standby.

The Seabrook Station IST program scope has been developed to include systems, portions of systems and associated pumps and valves required to achieve and maintain safe shutdown consistent with the plant licensing basis described in the below referenced UFSAR Sections and the NRC SER:

Per UFSAR 5.4.7.2.i, the Seabrook Station safe shutdown design basis is Hot Standby. However, the cold shutdown capability has been evaluated to determine how the plant can be brought to a cold shutdown condition using only safety grade equipment following a:

- 1. safe shutdown earthquake
- 2. loss of offsite power, and
- 3. most limiting single failure.

Per UFSAR 7.4, the minimum required system portions and components needed to establish and maintain safe shutdown of the reactor under non-accident conditions were evaluated and are identified in UFSAR Table 7.4-1. The evaluation of safe shutdown capability in UFSAR Section 7.4, as well as the listed systems and components described in UFSAR Section 5.4.7, include the capability to achieve cold shutdown subject to the criteria noted above. These evaluations and the basis for acceptance are also reflected in the associated NRC SER NUREG 0896, Sections 5.4.7 and 7.4.

### 3.3 ACCIDENT MITIGATION

Design basis accidents are described and analyzed in UFSAR Section 15 "Accident Analyses". This chapter includes a description of the systems, structures and components assumed to be available for accident mitigation, as well as minimum system and component performance criteria utilized in the analyses. Each safety system evaluated in the various chapter 15 accident analyses is also described in its own UFSAR Section. In addition to these sections of the UFSAR, safety system operability and surveillance requirements are specified in plant Technical Specifications.

In addition to the specific analyses described in UFSAR Section 15, other potentially adverse events described in the UFSAR, such as pipe rupture in Section 3.6 and flooding in Section 9.3.3 have been reviewed to identify components required to mitigate these events, and which should be included in the Seabrook Station IST Program.

Other documents, including: Design Basis Summary Documents, P&IDs, Engineering Evaluations and calculations, also contain design basis information which describes system and component safe shutdown and accident mitigation functional requirements.

### 3.4 COMPONENT SELECTION

Using the OM Code IST pump and valve scope descriptions, and various plant design and licensing basis documents, certain ASME III Code Class 1, 2, or 3 pumps and valves that perform these functions were identified and listed in Figures F2 and F4. See Section 3.11 for testing associated with certain pumps and valves which are not included in the IST Program scope.

Fire scenarios were not included in this evaluation, as they were included separately under the 10CFR50, Appendix R Report, Fire Protection of Safe Shutdown Capability. Appendix R evaluations are generally considered as outside the scope of IST programs.

### 3.5 EXCLUSION JUSTIFICATION

Selected pumps and valves that do not perform an ISTB 1.1 or ISTC 1.1 function, or that were specifically excluded by ISTB 1.2 or ISTC 1.2, are documented in the Exclusion Justification Document (see Part II, Figure F6).

### 3.6 LEAKAGE RATE TESTING (ISTC Category A or A/C)

Components that require leakage testing (designated Category A) are either under the Appendix J, 10CFR50 Containment Isolation Valve Leakage Test Program, or Reactor Coolant Pressure Isolation Valve Leakage Test Program. If specific leakage rates are identified as part of a design basis review, verification or revision process, then the applicable valves will be added to the IST Program Plan.

The Containment Isolation Valve Program (e.g., Type C Test Program) is in accordance with References 2.3 and 2.13. This program is administratively separate from the IST Program in accordance with ISTC 4.3.2, Containment Isolation Valves.

Technical Specification Surveillance Requirement 4.4.6.2.2 and Technical Requirement 2.18, Table 16.3-12, Reactor Coolant System Pressure Isolation Valves, define the Pressure Isolation Valve Leakage Test Program.

### 3.7 SKID-MOUNTED COMPONENTS

Skid-mounted valves and pumps and component subassemblies are excluded from Subsections ISTB and ISTC provided they are adequately tested as part of the major component. Skid-mounted components which have been determined to perform an ISTB 1.1 or ISTC 1.1 function at Seabrook Station have been evaluated for testing adequacy with the major component. Examples of such components are those associated with the Emergency Diesel Generator and various pump lubricating system components. These components are identified in this plan document as being adequately tested with the major components or separately tested in accordance with the applicable code requirements. See Section 3.11 for testing associated with certain pumps and valves which are not included in the IST Program scope.

### 3.8 COLD SHUTDOWN/ REFUELING TESTING RATIONALE

The ASME OM Code requires quarterly exercise testing for power operated valves and check valves unless it is not practicable to do so. This program plan specifies quarterly testing of pumps and valves unless it has been determined that such testing would:

- 1. Cause a reactor scram, turbine trip or increase the likelihood of a plant transient;
- 2. Require significant deviations from normal operations;
- 3. Require entry into inaccessible areas, ALARA;
- 4. Increase the possibility of an inter-system LOCA or of an accident;
- 5. Require a system intrusion; or
- 6. Require significant resources (e.g., non-intrusive testing at quarterly intervals versus at cold shutdown / refueling intervals) without substantial safety benefit.

Each component excluded from quarterly testing has been analyzed to determine when appropriate testing may be performed. If operation of a power operated valve, for example, is not practicable during station operation, the Code allows part-stroke exercising, if practicable, during normal station operation and full-stroke exercising at cold shutdown or refueling.

Since the Code allows testing at cold shutdown or scheduled refueling outages, this program does not request relief for those valves for which testing is delayed until cold shutdown or refueling outages. The valve IST Program Plan does provide a justification for the delay of testing until cold shutdown or scheduled refueling outages. These justifications are prepared in a format similar to relief requests. They are designated CSJ-XX or RJ-XX, where XX is a sequential number in the system. Cold shutdown and refueling justifications are referenced in the valve test data sheets and are included in Figure F4.

## 3.9 VALVE POSITION INDICATION TESTING AUGMENTED BY SYSTEM PARAMETER OBSERVATION

ISTC 4.1 of the OM Code requires that valves with remote position indicators be observed locally at least once every 2 years to verify accurate indication of operation. Where practicable, these position indication tests are to be supplemented by observation of system process or operating parameters. The OM Code does not require the documentation of specific cases when observation of these system parameters are considered impracticable. These cases will be determined during test procedure development and scheduling and will be documented as part of the procedure bases.

### 3.10 RELIEF REQUEST RATIONALE

Where it has been determined that implementation of code testing requirements is not practicable for a particular component, due to original plant system design configuration or unique operating restrictions, a specific relief request has been prepared. Each relief request provides the rationale for not performing the Code required testing and provides alternative testing requirements applicable to the unique situation. They are designated as PR-XX for the pumps and VR-XX for valves, where XX is a sequential number in the Pump Table (Figure F2) or in the System Valve Table (Figure F4).

In addition to specific component relief requests, general relief requests have been prepared which address specific Code requirements, applicable to all valves or pumps or groups of valves or pumps and which have been determined to be impractical for implementation at Seabrook Station. These relief requests are designated as PG-XX for pumps or VG-XX for valves, where XX is a sequential number within the particular section (Figure F1 for pumps and Figure F3 for valves).

Figure F5 contains the Program Administrative General Relief Requests for Code requirements of Section ISTA which were found to be impractical for Seabrook Station. They are designated as AG-XX, where XX is a sequential number in Figure F5.

## 3.11 TESTING OF NON-CODE PUMPS AND VALVES OR SKID-MOUNTED COMPONENTS

Certain Non-Code pumps and valves, certain skid-mounted components or certain components used to achieve or maintain the Cold Shutdown operating condition will be adequately tested commensurate with their importance to safety per NUREG-1482 guidance in accordance with an approved Appendix B test program. See MA 3.5, Figure 5.LATER for a listing of these components.

Examples of some skid-mounted components are discussed in Section 3.7.

Examples of some applicable Non-Code valves include a portion of the relief valves mentioned in Reference 2.14.c, Condition Report 97-0282.

An example of an applicable Non-Code pump would be the Startup Feedwater Pump, FW-P-113.

Examples of components used to achieve or maintain Cold Shutdown conditions are typically some of those components listed in the Exclusion Justification Document, Figure F6, which may be important to safety but do not perform a safety function as specified in ISTB 1.1 or ISTC 1.1 (such as, Spent Fuel Pumps and CGC sample or RHR slipstream valves).

### 4.0 <u>PUMPS</u>

This section describes the method to establish pump reference values and the different limits used to determine test acceptability. The pumps requiring inservice testing and their frequencies are listed in the Pump Test Table of this program plan. Pump selection criteria are described in Section 3.0.

### NOTE

Pump testing shall be performed in the as-found condition when possible. Preconditioning or grooming shall not be performed unless it is deemed prudent by sound engineering practice or there are personnel/equipment safety issues. The SSMM Policy on Preconditioning shall be consulted for acceptability of preconditioning prior to pump surveillances. Maintenance schedules for lubrication and packing adjustment/readjustment need to be coordinated with the surveillance schedule to minimize pump starts, yet still be able to detect degrading conditions.

Subsection ISTB establishes 2 pump groups as defined below:

Group A pumps- pumps that are operated continuously or routinely during normal operation, cold shutdown or refueling operations

Group B pumps- pumps in standby systems that are not operated routinely except for testing.

Testing requirements are specified for Groups A and B on a quarterly basis. If practicable, Group A and B tests are performed at flow rates within +/-20% of the pump's design flow rate. If the +/-20% value is not practicable, the reference flow rates are established at the highest practical flow rate. Comprehensive Tests, which must be performed at flow rates within +/-20% of the pumps design flow, are performed biennially, unless specific code relief is obtained.

Each pump within the scope of the code has been categorized and documented as either Group A or Group B on Figure F2, Pump Test Table, and will be tested in accordance with the requirements for that group, except where specific relief has been requested. Pumps that meet both Group A and Group B definitions have been categorized as a Group A pump (e.g. the RHR pumps and Charging pumps).

### 4.1 REFERENCE VALUES

Reference values (r) are defined in ISTB 4.3 and are comprised of hydraulic and mechanical condition parameters.

Initial reference values shall be obtained from the results of preservice testing meeting the requirements of ISTB 4.1, or from the results of the first inservice test.

New or additional reference values shall be established as required by ISTB 4.4, ISTB 4.5 or ISTB 4.6, subject to the following clarifications:

- Development of baseline pump curves for centrifugal pumps, including vertical pumps, in systems where resistance can be varied, shall be required (1) for new pumps, as a preservice test activity, before implementing inservice testing as described in ISTB 4.1, or (2) following a major repair or replacement activity to existing pumps, where this activity has been determined to have a potential impact on the hydraulic performance of the pump as described in ISTB 4.4. Alternatively, the pre-maintenance reference values may be reconfirmed by a comprehensive or Group A test run before the pump is declared operable.
- Additional sets of reference values will be established, if required, for reasons other than those stated in ISTB 4.4, per the requirements of ISTB 4.5 using either the baseline curve for new or refurbished pumps, or from the results of the first inservice test for pumps already in service. For example, reference values for the comprehensive test required by ISTB 5.2.3 must be determined for several existing pumps for which baseline pump curves, meeting the requirements of the code, do not exist. For these pumps, the initial comprehensive test reference values will be determined from the results of the first inservice test when the pump is known to be operating acceptably, and at a point of operation readily duplicated during subsequent tests, per ISTB 4.3.
- For cases where the pump's test parameters are within the alert or required action ranges and the pump's continued use at the changed values is supported by an analysis, a new set of reference values may be established per ISTB 4.6. This analysis shall include verification of the pump's operational readiness at both a pump level and a system level, the cause of the change in pump performance, and an evaluation of all trends indicated by available data. Development of a baseline pump curve is not required to establish the new reference values. The baseline curve would be developed, if required, only after repair or replacement to correct the degraded condition. Note that new reference values will not be established to accept test data outside the acceptable range which are known to result from systematic errors as described in ISTB 6.2.3. For these cases, the test will be rerun after correcting the systematic error.

### 4.2 ESTABLISHING LIMITS / ANALYSIS

Unless otherwise stated in an applicable specific (PR) or generic (PG) relief request, the parameters in ASME OM subsection ISTB, Table ISTB 4.1-1 shall be measured or determined.

Reference values are defined in ISTB 4.3. They are determined when the equipment is known to be operating acceptably. All subsequent test results are compared to these reference values. Any deviations from these reference values are compared to the maximum range limits contained in Tables ISTB 5.2.1-1, ISTB 5.2.1-2, ISTB 5.2.2-1 and ISTB 5.2.3-1.

Pump Reference Data Sheet (RDS) forms, with applicable range limit multipliers, are contained in Reference 2.8. These data sheets contain the reference values, the alert and action ranges for each pump within the scope of the code. Unless a restricted range limit is applied (e.g., Technical

Specification limit) or a specific relief request is obtained, the range limits of the above referenced tables are used to determine test acceptance, the alert condition or required action limits. The range limits are multipliers that are applied to the reference value parameters to determine upper and lower limits. Test acceptance limits and required action limits are contained in the pump test procedures. The test procedures provide on-the-spot acceptance determination.

Quantity	Preservice Test	Group A Test	Group B Test	Comprehensive Test	Remarks
Speed ,N	X	X	X	X	If variable speed
Differential Pressure, $\Delta P$	X	X	X (Note 1)	x	Centrifugal pumps including vertical line shaft pumps
Discharge Pressure, P	X	X		X	Positive Displacement pumps
Flow rate, Q	X	X	X (Note 1)	X	
Vibration Displacement, Vd Velocity, Vv	X	x		x	Measure either Vd - Peak to peak or Vv - Peak

#### TABLE ISTB 4.1-1

Note 1: For positive displacement pumps, flow rate shall be measured or determined; for all other pumps, differential pressure or flow rate shall be measured or determined.

#### Flow and Differential Pressure

As stated in ISTB 5.2 for centrifugal and vertical line shaft pumps, the system resistance shall be varied until either the measured flow rate or the differential pressure equals the corresponding reference value. Generally, Seabrook Station IST pump procedures set or establish the flow rate as the independent variable, then measure differential pressure (as the dependent variable). Test data is compared to the limits.

If flow rate is the independent variable, then range limits would be applied to differential pressure.

If differential pressure is to be used as the independent variable, then range limits would be applied to flow rate.

For positive displacement pumps, the system resistance is varied until the discharge pressure equals the reference point. The flow rate is then measured or determined and compared with its reference value.

### **Vibration**

Mechanical condition parameters (e.g., vibration) are required to be taken per Table ISTB 4.1-1. Vibration acceptance criteria (range limits) are specified in Table ISTB 5.2.1-1. Vibration reference values are established at the chosen reference operating point per ISTB 4.1. Drivers (e.g., motors or steam turbines) are excluded from vibration monitoring per ISTB 1.2 except when the pump and driver form an integral unit, or when the pump is a vertical line shaft pump. An example of an integral unit is the Boric Acid Transfer Pump. Examples of the vertical line shaft pumps are the Residual Heat Removal and Service Water Pumps. For these drivers, points on the motor are monitored in accordance with ISTB 4.7.4, or as per the applicable relief request. Drivers which are excluded from this program are included in a separate monitoring program (see Reference 2.24.b, MA 8.1, Vibration Monitoring and Analysis).

### 4.3 PUMP INSTRUMENTATION

Except when otherwise stated in applicable specific (PR) or generic (PG) relief requests, the requirements of ISTC 4.7 and Table ISTB 4.7.1-1 shall be followed.

### Range / Accuracy

- The full scale range of each analog instrument shall be three times the reference value or less (not applicable to vibration instruments)
- Digital instruments shall be selected such that the reference value does not exceed 70% of the calibrated range of the instrument (not applicable to vibration instruments)
- The frequency response range of vibration measuring transducers and their readout systems shall be from 1/3 minimum pump shaft rotational speed to at least 1000 Hz
- Instrument accuracy shall be as specified in Table 4.7.1-1 unless specific relief is granted.

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

#### Table ISTB 4.7.1-1 Required Instrument Accuracy

### Instrument Location

The sensor locations are established such that they are appropriate for the parameter being measured. The same locations are used for each test. Instruments that are position sensitive are permanently mounted or provisions have been made to duplicate their location during each test.

### **Fluctuations**

Symmetrical damping devices or averaging techniques may be used to reduce instrument fluctuations. Hydraulic instruments may be damped by using gage snubbers or by throttling small valves in instrument lines.

### Gage lines

If the presence or absence of liquid in a gage line could produce a difference of more than 0.25% in the indicated value of the measured pressure, means have been provided to ensure or determine the presence or absence of liquid as required for the static correction used. For example, instrument lines may be manually vented to purge air from the lines and ensure they are liquid-filled.

### **Differential Pressure**

When determining differential pressure across a pump, a differential pressure gage or a differential pressure transmitter that provides direct measurement of pressure difference or the difference between the pressure at a point in the inlet and the pressure at the discharge pipe are used, unless specific relief is granted. One such example is PR-3, where the vertical line shaft service water pumps have no means to directly obtain the inlet pressure measurement. Alternate means are provided where the inlet pressure is determined by measuring the level of water above the pump inlet.

#### 4.4 TRENDING (ISTB 6.1)

:

All required test parameters except for fixed values shall be trended. Refer to Section 7.0 for a description of the Seabrook Station IST data trending guidelines.

### 4.5 ACCEPTANCE CRITERIA (ISTB 6.2)

When the measured test parameter falls within the Alert range (ISTB 6.2.1), the specified test frequency shall be doubled until the cause of the deviation is determined and the condition is corrected, unless specific relief is granted.

When the measured test parameter falls within the Required Action range (ISTB 6.2.2), the pump shall be declared inoperable until either the cause of the deviation has been determined and the condition is corrected, or an analysis of the pump is performed and new reference values are established.

### 5.0 <u>VALVES</u>

### 5.1 POWER OPERATED VALVES

This section describes all the different limits and requirements used to determine test acceptability. The valves requiring stroke time testing and their frequencies are listed in the Valve Test Table (Figure F4) of this program plan.

## NOTE

Valve stroke time testing activities for normally scheduled surveillances shall be performed in the "as-found" condition when possible. With the exception of already approved deviations, the SSMM Policy on Preconditioning shall be consulted for acceptability of preconditioning prior to valve testing surveillances.

### 5.1.1 <u>Reference Stroke Time (RST) (ISTC 3.3)</u>

The full stroke time is that time interval from initiation of the actuating signal to the indication of the end of the operating stroke (e.g., switch-to-light, etc.). One or more independent full stroke time values of a power operated valve can be obtained when the valve is known to be operating acceptably. Different reference stroke times may be specified for different system conditions or stroke directions. Full stroke time can also be measured using diagnostic equipment which generates a time trace signature of various switch settings, current, thrust measurements, etc.

- 1. A fixed reference stroke time will be used to determine test acceptability. These reference values are to be determined from the results of inservice testing or from previous baseline (preservice) testing.
  - a. These tests should be performed under conditions as near as practicable to those expected during subsequent inservice testing.
  - b. Several reference values may be specified for an inservice test if system conditions are expected to change.
  - c. If a particular stroke time being measured can be significantly influenced by other related conditions (e.g., voltage, air pressure, flow rate of system or air supply), then these conditions shall be analyzed.
  - d. Reference values will be established in accordance with the provisions of Reference 2.8, ES1804.055, Inservice Testing Pump and Valve Program.

- 2. During the IST review of maintenance activities performed on power-operated valves (ISTC 3.4), the post-maintenance stroke time test is compared to the pre-maintenance test IST reference value, and the following evaluations are completed, as applicable.
  - a. Evaluate if a new IST valve reference stroke time is required or reconfirm the previous value.
  - b. Evaluate deviations between the previous and the new set of stroke times. Document verification that the new set of reference values stroke times represent acceptable valve operation.
  - c. Revise the IST reference value based on the new stroke times. The basis for declaring operability is based on meeting the specified limiting value (see References 2.10 and 2.23). The revised IST reference values are then determined and incorporated into the applicable Station procedures.
- 3. If it is necessary or desirable (e.g., dual train control switches, nitrogen/air supply, etc.) to establish additional reference stroke times for the same valve (ISTC 3.5), perform a test at the existing set of reference values, or if impractical, at the conditions for which the new reference values are required, and analyze the results. If operation is acceptable a second test shall be performed under the new conditions. The results of the second test shall establish the additional reference values. Document the additional set of valve reference stroke times and the reasons for creating the new values.

### 5.1.2 Specified Limiting Value (SLV) (ISTC 4.2.4(a))

The SLV is the maximum allowable stroke time for a power operated valve. The value is specified in 1-NHY-250000, Data Sheets for Motor & Air Operated Valves & Dampers (Reference 2.10) for the applicable valves. The reference stroke time cannot exceed the specified limiting value.

### 5.1.3 Stroke Time Acceptance Criteria (ISTC 4.2.8)

Test results shall be compared to the established referenced values. Table 1 identifies the allowable change in stroke times when compared with the referenced stroke time. The stroke time of all power operated values shall be measured to at least the nearest second. (ISTC 4.2.4 (b))

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

# TABLE 1 VALVE STROKE TIME LIMIT TABLE

Note 1: As a guideline, power operated valves with reference stroke times  $\leq 1.3$  seconds should be classified as rapid acting valves with a required action limit of 2 seconds as defined in ISTC 4.2.8 (e).

Solenoid operated valves with stroke times less than 2 seconds (rapid-acting SOV's) will have stroke times measured using diagnostic equipment capable of measuring valve stroke times to a fraction of a second, in lieu of less accurate stopwatch timing. This testing will permit trending of the actual performance of the valves, as well as the actuating and valve position indication circuits, thereby providing for identification of adverse trends and implementation of corrective action before the maximum allowable stroke time is exceeded. See Valve General Relief Request VG-2 for further information.

Valves with fail safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power (ISTC 4.2.6). Control valves that have a control station (e.g., manual/auto controller, or control switch), and that have a required fail-safe position, shall be tested to all the <u>applicable</u> requirements (e.g., full-stroke exercise, stroke time, position indication and fail-safe). These requirements shall be met during the fail-safe test. The valve will be exercised to the non-fail-safe position with the stroke time being measured during the fail-safe test. See Valve General Relief Request VG-1 for further information.

### 5.1.4 Corrective Action (ISTC 4.2.9)

If a valve fails to exhibit the required change of position or exceeds the SLV of full stroke time, then the valve shall be immediately declared inoperable.

Valves with measured stroke times that do not meet the acceptance criteria in Table 1 shall be immediately retested or declared inoperable. See Reference 2.22, OX1456.81, Operability Testing of IST Valves, for further direction concerning corrective action.

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

Before returning a repaired or replacement valve to service, a test demonstrating satisfactory operation shall be performed.

### 5.1.5 Valve Position Verification (ISTC 4.1)

Valves with remote position indicators or status lights (RPI/SL) shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated. Remote position indicators or status lights with an inaccurate indication shall be declared inoperable and corrective action taken, or the correct position determined.

Where practicable, the local observation should be supplemented by other indications such as use of flow meters or other suitable instrumentation to verify obturator position. These observations need not be concurrent. Where local observation is not possible, other indication shall be used for verification of valve operation (See Section 3.9 for further discussion).

A single valve may have more than 1 RPI/SL verified during each 2-year interval. The RPI/SL used for IST stroke time testing is the only light required to be verified per ISTC 4.1 Valve Position Indicator Verification. If the IST RPI/SL is providing an inaccurate indication, the other RPI/SL (in addition to the local indication) may be used to status the correct position. The faulty RPI/SL shall then be corrected, and the IST re-performed.

### 5.1.6 Exercising Requirements (ISTC 4.2.2)

- Active category A and B valves shall be tested nominally every three months.
- Valves shall be full stroke tested during plant operation to the position(s) required to fulfill their function(s).
- If full stroke exercising during plant operation is not practicable, it may be limited to part-stroke during plant operation and full-stroke during cold shutdown.

- If exercising during plant operation is not practicable, it may be limited to full-stroke exercising during cold shutdown.
- If exercising is not practicable during plant operation and full-stroke testing during cold shutdown is also not practicable, it may be limited to part-stroke during cold shutdown, and full-stroke during refueling outages.
- If exercising is not practicable during plant operation or cold shutdowns, it may be limited to full stroke during refueling outages.
- Valves exercised at shutdowns shall be exercised at each shutdown, except as noted below. Such exercising is not required if the interval since the previous exercise is less than 3 months.
- Valve exercising performed during cold shutdown shall commence within 48 hours of achieving cold shutdown and continue until all testing is complete or the plant is ready to return to power. For extended outages, testing need not be commenced within 48 hours if all valves required to be tested during cold shutdown will be tested before plant startup. It is not the intent of this requirement, however, to keep the plant in cold shutdown to complete cold shutdown testing.
- All valve testing required to be performed during a refueling outage shall be completed before returning the plant to operation.

### 5.2 CHECK VALVES

This section discusses the methods to be used for exercising check valves. The check valves that require exercising, and their frequencies, are listed in the Valve Test data sheets of this program plan. Exercising is the demonstration, based on direct or indirect visual or other positive indication, that the moving parts of a check valve function satisfactorily. These valves are typically self-actuating in response to some system characteristic, such as flow direction.

Each check valve exercise test shall include both open and close tests regardless of the required safety function direction of the valve. Open and close tests need only be performed at an interval when it is practicable to perform both tests. Open and close tests are not required to be performed at the same time if they are both performed within the same interval.

- 5.2.1 Valve Obturator Movement (ISTC 4.5.4)
  - A valid full stroke exercise by flow requires that the flow through the valve be known. Knowledge of only the total flow through multiple parallel lines does not provide verification of flow rates through the individual valves and is not a valid full stroke exercise. Confirmation that the disk moves away from the seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observation of substantially free flow through the valve as indicated by appropriate

flow or pressure indications in the system, or by other positive means. The required flow or design basis acceptance criteria is obtained from various plant documents. That required flow or design basis acceptance criteria is documented, as well as, the source documents from which that required flow rate is obtained.

- Check valves that have a safety function in both the open and closed direction shall be exercised by initiating flow and observing that the obturator has traveled to the full open position or the position required to perform its intended function, and verify that on cessation or reversal of flow, the obturator has traveled to the seat. Observations shall be made by observing a direct indicator (e.g., a positionindicating device) or by other positive means (e.g., changes in system pressure, flow rate, level, temperature, seat leakage testing or non-intrusive testing results).
- Check values that have a safety function in only the open direction shall be exercised by initiating flow and observing that the obturator has traveled to the full open position or the position required to perform its intended function, and verify closure.
- Check values that have a safety function in only the closed direction shall be exercised by initiating flow and observing that the obturator has traveled to at least the partially open position corresponding to normal or expected system flow, and verify that on cessation or reversal of flow, the obturator has traveled to the seat.
- A manual mechanical exerciser may be used to move the valve obturator subject to the requirements of ISTC 4.5.4 (b).
- If the valve exercising methods specified in ISTC 4.5.4 (a), and summarized above are impractical for certain check valves, or if sufficient flow cannot be achieved or verified, then a sample disassembly examination program shall be used to verify valve obturator movement as described in ISTC 4.5.4 (c).

### 5.2.2 <u>Non-Intrusive Testing</u>

- Non-intrusive testing can be used as a positive means of determining that a valve disk will full-stroke exercise open and/or closed.
- Check valves shall be tested in a manner that proves through analysis that the disk travels fully open or fully closed, or both fully open and closed depending on the test requirements.
- During non-intrusive valve testing, the valve is instrumented and disk movement recorded upon initiation and/or cessation of flow. This data is then analyzed and documented.

- Non-intrusive testing provides significantly more information than an IST exercise test. Non-intrusive tests would <u>not</u> routinely be performed quarterly, if non-intrusive testing is all that can be done, unless the valves subject to monitoring are considered high failure rate valves. Non-intrusive testing is primarily used to avoid unnecessary disassembly and examination.
- 5.2.3 Check Valve Condition Monitoring Program (ISTC 4.5.5)

As an alternative to the testing and examination requirements of ISTC 4.5.1 through 4.5.4, Seabrook Station will establish a condition monitoring program for selected check valves. The purpose of this program is both to improve valve performance and to optimize testing, examination and preventive maintenance activities in order to maintain the continued acceptable performance of a select group of check valves. The program will be developed and implemented in accordance with Appendix II of the ASME-OM Code for the selected valves or groups of valves. The modifications specified in the final rule dated November 22, 1999 under 10CFR50, Section 50.55a for use when implementing voluntary Appendix II of the OM Code in the IST Program shall be included in the implementation of the Appendix II requirements (See Reference 2.18).

5.2.4 Series Valve Pairs (ISTC 4.5.7)

If two check valves are in a series configuration without provisions to verify individual reverse flow closure and the plant safety analysis assumes closure of either valve (but not both), the valve pair may be operationally tested closed as a unit. If the plant safety analysis assumes that a specific valve or both valves of the pair close to perform the safety function(s), the required valve(s) shall be individually tested to demonstrate closure.

- 5.2.5 Exercising Requirements (ISTC 4.5)
  - Check valves shall be exercised nominally every 3 months.
  - If exercising is not practicable during plant operation, it shall be performed during cold shutdowns.
  - If exercising is not practicable during plant operation or cold shutdowns, it shall be performed during refueling outages.
  - Valves exercised at shutdowns shall be exercised at each shutdown, except as noted below. Such exercising is not required if the interval since the previous exercise is less than 3 months.
  - Valve exercising shall commence within 48 hours of achieving cold shutdown and continue until all testing is complete or the plant is ready to return to power. For extended outages, testing need not be commenced within 48 hours if all valves

required to be tested during cold shutdown will be tested before plant startup. It is not the intent of this requirement, however, to keep the plant in cold shutdown to complete cold shutdown testing.

• All valve testing required to be performed during refueling outages shall be completed prior to returning the plant to operation.

### 5.3 PRESSURE RELIEF SAFETY VALVES

The safety and relief values to be tested are listed in the Value Test Tables of this program plan. As specified in ISTC 4.4, Category C safety and relief values shall meet the inservice test requirements of Appendix I to ASME OM. The requirements of Appendix I are summarized in this section along with a brief description of the associated Seabrook Station safety and relief value testing program elements.

### 5.3.1 Scope

The scope of safety and relief valves included within the scope of the IST Program is defined in Appendix I Section I1.1, and includes those pressure relief devices utilized in systems, which are required to protect systems or portions of systems that perform a specific function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident.

Those safety and relief valves which perform a code required overpressure protection function for systems or portions of systems meeting the above scope definition have been identified in the valve test data sheets. The Seabrook Station Relief / Safety Valve Testing Program which contains the essential testing program elements required by Appendix I is described in procedure EX1804.44 (Reference 2.16). Actual testing is implemented using specific station procedures. The program procedure includes the following information:

- Listing of valves by group- valves of the same manufacturer, type, system, application and service media.
- Vendor model/type/ Manual No. / Drawing No.
- P&ID No.
- Test and repair procedure Nos.
- Valve set pressure
- Set pressure tolerance
- Test media
- Seat leakage acceptance criteria
- Instrument calibration requirements
- Record of test results
- Trending and analysis guidelines

### 5.3.2 Test Frequencies

#### Class 1 (I 1.3.3)

Class 1 pressure relief devices are tested at least once every 5 years. A minimum of 20% of the valves from each valve group are tested within each 24 month interval. If the as found set pressure exceeds the acceptance criteria, then two additional valves from the group are tested. If the as found set pressure of any of the additional valves tested exceeds the acceptance criteria, then all remaining valves in the valve group are tested. Seabrook Station's pressurizer safety valves are sent off-site for testing by an approved vendor. The test sequence is in accordance with I 7.3. The test methods are in accordance with I 8. Note that all three of the RCS pressurizer safety valves are replaced with tested valves each refueling outage. The pressurizer power operated relief valves are tested on site.

The Class 2 main steam safety valves are tested to the frequency requirements of Class 1 valves per I 1.3.5 (a).

Any valve not meeting the test acceptance criteria, is repaired or replaced and successfully tested prior to returning the valve to service. All test failures are evaluated for cause and effect to identify any generic concerns which could apply to valves in the same or other valve group.

#### Class 2 & 3 (I 1.3.5)

Class 2 and 3 pressure relief devices (except main steam safety valves) are tested at least once every 10 years. A minimum of 20% of valves in each valve group are tested every 48 months. For each valve tested for which the as found set pressure acceptance criteria are not met, two additional valves from the same group are tested. If the as found set pressure of any of the additional valves tested exceeds the acceptance criteria, then all remaining valves in the valve group are tested.

Any valve not meeting the test acceptance criteria, is repaired or replaced and successfully tested prior to returning the valve to service. All test failures are evaluated for cause and effect to identify any generic concerns which could apply to valves in the same of other valve groups.

Class 2 and 3 nonreclosing pressure relief devices are replaced every 5 years unless historical data indicates a requirement for more frequent replacement.

#### Instrumentation (I 1.4)

Test equipment used to determine valve set pressure, has an overall combined accuracy of not greater than  $\pm 1\%$  of the indicated (measured) set-pressure.

### 5.4 MANUAL VALVES

Certain active manual valves (e.g., CGC, CS, and RMW) are included in this program plan if they are within the IST scope as defined in ISTC 1.1. These valves will be full stroke exercised. Certain Category A manual valves (e.g., included in the Appendix J Type C leakage rate test program [see Reference 2.13]) are included in this program plan.

### 5.5 VALVE LEAKAGE RATE TESTS (ISTC 4.3)

Category A valves are valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their function. Type C tests are intended to measure primary reactor containment system isolation valve leakage rates, as required by 10CFR50, Appendix J. Pressure Isolation Valves (PIVs) are typically two normally closed valves in series that isolate the Reactor Coolant System (RCS) from an attached low pressure system.

### 5.5.1 <u>10CFR50, Appendix J Type C Leakage Rates</u>

Individual containment isolation valve leakage rate values, test pressures and intervals are in accordance with References 2.3 and 2.13.

### 5.5.2 Pressure Isolation Valve Leakage Rates (See Reference 2.5.b)

Individual pressure isolation valve (PIV) leakage rate values and test pressures are in accordance with Technical Specification LCO 3.4.6.2, Technical Specification Surveillance Requirement 4.4.6.2.2, and the table contained in Technical Requirement 2.18.

# 5.6 CATEGORIES OF VALVES (ISTC 1.4)

- 1. <u>Category A</u> Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their function.
- 2. <u>Category B</u> Valves for which seat leakage in the closed position is inconsequential for fulfillment of their function.
- 3. <u>Category C</u> Valves which are self actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of their function.
- 4. <u>Category D</u> Valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosively actuated valves.

# 5.7 INSERVICE TEST REQUIREMENTS (ISTC 3.6)

Active and Passive valves in the above defined categories shall be tested in accordance with Table ISTC
3.6-1 below:

Category	Function	Leakage Test Procedure	Exercise Test Procedure	Special Test (Note 1) Procedure	Position Indication Verification ISTC 4.1	
A	Active	ISTC 4.3	ISTC 4.2	None		
A	Passive	ISTC 4.3	None	None	ISTC 4.1	
В	Active	None	ISTC 4.2	None	ISTC 4.1	
В	Passive	None	None	None	ISTC 4.1	
C (Safety & Relief)	Active	None (Note 2)	ISTC 4.4	None	ISTC 4.1	
C (Check)	Active	None (Note 2)	ISTC 4.5	None	ISTC 4.1	
D	Active	None	None	ISTC 4.6, 4.7	none	

NOTES:

- 1. Additional requirements exist for fail-safe valves per ISTC 4.2.6
- 2. When more than one distinguishing category characteristic is applicable, all requirements of each of the individual categories are applicable, although duplication or repetition of common testing requirements is not necessary.

The following inspection and or test codes are included on the individual valve test data sheets in Figure F4:

### Valve Test and Examination Codes

Code	Description
DI	Disassembly and Inspection - applies to check valves and is conducted in accordance with ISTC 4.5.4 (c)
FE	Full Stroke Exercise Test (ISTC 4.2.2)
FS	Fail Safe Test (ISTC 4.2.6)
LJ	Leakage Test per 10CFR50 Appendix J (CIVs)
LK	Leakage Test per ISTC 4.3 (PIVs)
PE	Partial Stroke Exercise Test (ISTC 4.2.2)
PI	Remote Position Indication Verification (ISTC 4.1)
RT	Relief Valve Test (Appendix I)
ST	Stroke Time Test (ISTC 4.2.4)

### 6.0 COLD SHUTDOWN TESTING

Cold Shutdown Testing (see definition in Section 1.2) of valves shall be conducted as follows:

- 1. Testing may commence prior to or as soon as the cold shutdown condition is achieved but no later than 48 hours after achieving cold shutdown, and testing will continue until all testing is complete or the plant is ready to return to power. For planned cold shutdowns, where ample time is available for testing all valves identified for the cold shutdown test frequency, exception to the 48 hours may be taken.
- 2. Completion of all valve testing is not a prerequisite to return to power.
- 3. Any testing not completed during one cold shutdown should be performed during any subsequent cold shutdowns starting from the last sequenced test performed at the previous cold shutdown.
- 4. Power operated relief valves RC-PCV-456A/B shall be tested <u>each</u> cold shutdown and when relied upon for Low Temperature Over Pressurization (LTOP) protection, but do not need to be tested more often than once every 92 days.
- 5. Testing shall commence with the valve having the oldest indicated performed test date and proceed in an ascending order by test date.
- 6. If a value in the group being tested is skipped, for whatever reason, that value should be satisfactorily tested prior to returning the plant to power. Values may be tested in Modes 3 & 4, if desired.
- 7. For cold shutdown intervals of less than 3 months (frequent cold shutdowns), these valves need not be tested more often than once every 3 months.
- 8. All valves shall be tested during refueling outages.
- 9. For a valve in a system declared inoperable or not required to be operable, the test schedule need not be followed. Within 3 months prior to return of the system to operable status, the valves shall be tested and the testing schedule resumed.
- 10. Completion of an activity (e.g., all the valves in a group) is not a prerequisite to return to power.
- 11. The Main Steam Isolation Valves (MSIVs), Main Feedwater Isolation Valves (FWIVs), and Main Feedwater Check Valves are tested at frequencies other than cold shutdown due to their applicable Technical Specifications and required plant conditions (Modes 3 & 4).

### 7.0 IST TRENDING ANALYSIS

The following discussion outlines IST Trending Analysis which assists in predicting component degradation and/or failure by historically monitoring and analyzing test results.

- 1. <u>Analysis of Inservice Test Results</u> The analysis consists of the review of data against allowable ranges of performance parameter variations specified in ASME OM Subsection ISTB and ISTC for pumps and valves, respectively, or as modified in this program plan.
  - a. Hard copies of logs and data sheets shall be generated and placed in the appropriate record of test files and/or logs as applicable. These logs will be periodically reviewed by the Plant Engineering Department System Engineers.
  - b. When a value or its control system has been replaced, repaired or has undergone maintenance that could affect its performance prior to the time it is returned to service, it shall be tested to demonstrate that the performance parameters that could be affected by the replacement, repair, or maintenance are within acceptable limits.
- 2. <u>Analysis of Pump and Valve Test Results</u> The analysis of IST results consists of a review of the collected data against the allowable limits as specified on the applicable data sheets and logs. Required test parameters shall be reviewed at the time of performance for acceptability as specified in the surveillance procedure.
- 3. <u>Pumps</u>
  - a. If during this review, the test results show deviations greater than allowed, then the pump shall be declared inoperable except as provided below. Applicable Technical Specification requirements shall be initiated at this time.
  - b. As per Reference 2.19, if a test is underway (regardless of whether test data has been recorded) and it is obvious that a gage is malfunctioning, the test may be halted. The instrument shall be promptly recalibrated and the test rerun. If it is not clear that the problem is with the instrument, then the pump should be declared inoperable before the evaluation and investigation is conducted.
- 4. <u>Valves</u>
  - a. If a valve fails to exhibit the required change of valve stem or disk position or exceeds its Stroke Time Required Action Limit, then the valve shall be declared inoperable.
  - b. Valves with measured stroke times that do not meet the acceptance criteria in Section 5.1.3 Table 1 shall be immediately retested or declared inoperable.

For components that do not have a historical data file, trending of the data should start with the second inservice data set and continue until a "Trend" is evident

- 1. A trend can be established with as little as three data sets, however, some investigative work may be started with the collection of the second set.
- 2. The nature of the trend is the goal of the analysis. Examples of expected trend tendencies are:
  - a. Straight line
  - b. Curve slightly
  - c. Sudden and marked step change
  - d. Indeterminate due to excessive data scatter
- 3. Once the trend assumes a somewhat predictable tendency, the tabular log of test results can be used to review each new data set, although graphical presentation may be a preferred means of data analysis.
- 4. Various graphical techniques may be employed to analyze the data. This technique is not intended to be a formal documented process, but a review process possibly leading to some additional measures. Graphical reviews may be performed:
  - a. In conjunction with establishing a new reference value, confirming an existing value, or establishing an additional set of reference values.
  - b. Whenever a sudden or marked change has occurred.
  - c. Whenever a component is in an "Alert" or on an increased frequency test schedule.
- 5. Significant test data fluctuations should be investigated to determine their cause, and eventually reduced to an acceptable fluctuation limit.
  - a. Excessive data scatter complicates the establishment of the trend tendency.
  - b. Excessive data scatter reduces the allowable test margin. Until proven otherwise, the point is considered valid indicating component degradation when in fact the scatter might be due to instrumentation anomalies or inconsistencies of personnel taking data.
  - c. Excessive data scatter can place a component in and out of an increased frequency category without actual degradation occurring.
  - d. Excessive fluctuations are possible indications of instrumentation concerns related to poor location (e.g., taps too close to turbulent flow areas such as at elbows, at valves, or air entrapment in sensing lines due to partial system drainage between tests/usage, etc.).

- e. <u>Pumps</u> Possible options to correct data fluctuations would be to increase calibration frequency or require calibration prior to or immediately following the IST, use of temporary test equipment to improve readout or to eliminate devices exhibiting excessive drift. Any change in an instrument and/or its location should be reviewed against the baseline criteria to determine if there is an impact.
- f. <u>Valves</u> Data fluctuations could be related to different response characteristics of the data taker or to various related influences such as air header pressure. Additional parameters may have to be monitored to determine the impact of these influences.
- 6. A sudden and marked change in results is typically caused by another activity. Examples include:
  - a. System lineup
  - b. Tide level
  - c. System pressure/temperature
  - d. Periodic instrument calibration
  - e. Component repair or adjustment
  - f. Change in related parameter or influence on the test
- 7. Until identified and another test is run to prove the anomaly, the point is assumed to represent component condition.
- 8. Components that exhibit erratic behavior or that fail the surveillance test may require that a Work Request (WR) be initiated to correct the condition.

# FIGURE F1 PUMP GENERAL RELIEF REQUESTS

# SEABROOK STATION

# PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

# FIGURE F1 <u>PUMP GENERAL RELIEF REQUESTS</u>

Relief Request:	PG-1								
Pumps:	CC-P-11A, CC-P-11B, CC-P-11C, CC-P-11D, RH-P-8A, RH-P-8B								
Code Class:	2, 3								
Function:	Pumps required to perform a function in shutting down the reactor or in mitigating the consequences of an accident, and are provided with an emergency power source.								
Test Requirements:	ISTB 4.7.1 Flow Me ISTB 4.7.1-1)	easurement (Acceptab	le Instrument Accuracy Table						
Basis for Relief:	acceptable instrumer the total flow element to the indicator read	nt accuracies defined in int loop accuracy was out device. The loop as of Table ISTB 4.7.1	trumentation which meets the n Table ISTB 4.7.1-1. However, calculated from the flow device accuracies do not meet the I-1, but the instruments are well						
		rement Instrument Ac of Full Scale)	curacies						
		Instrument	Loop						
	System	Accuracy	Accuracy						
	CC RH	0.50% 2.00%	2.20% 3.00%						

Alternate Testing:

.

No additional testing is necessary.

# SEABROOK STATION

# PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

### Introduction

This section presents the program plan for inservice testing of certain pumps at Seabrook Station in compliance with the requirements of 10CFR50.55a. This program plan has been prepared to the requirements of the ASME OM Code, 1995 Edition with 1996 Addenda.

The pump program plan specifies Inservice testing requirements for certain pumps provided with an on site emergency power source, and which are required for safety-related system operation. The pump, test circuit, and associated instrumentation were investigated to determine whether Inservice testing could be performed. For pumps where Code requirements are determined to be inappropriate, a specific relief request has been prepared. The specific relief requests are referenced on the Pump Test Table. Each specific relief request provides justification for deviation from the OM Code specified testing, and proposes appropriate alternate testing.

### Code Interpretation

A number of items in ISTB of the Code are subject to interpretation. The interpretations of a number of general items encountered in preparing the Pump Test program plan are provided below.

### Scope of Tests (ISTB 5)

ISTB 5.2 requires that each inservice test measure and observe all the quantities in Table ISTB 4.1-1. The Code assumes that each pump installation can be instrumented to obtain the specified quantities. In some installations it is not possible to provide instrumentation to obtain Code specified quantities. For example, submerged pumps cannot be instrumented to measure inlet pressure. In some cases, it is possible to substitute an alternate method. For example, inlet pressure for a submerged pump can be calculated by measuring the head of water relative to the pump suction. Explanatory notes and/or relief requests are included in the Pump Test Table when OM Code required testing is not possible due to pump design.

# Pump Table Nomenclature

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

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

Figure F2
Pump Test Table

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Pump Number	P&ID No.	Class and <u>Coord.</u>	Group	Flow Resis.	N	ΔP (2)	Qr	V	Remarks
CBS-P9A Containment Spray Pump	1-CBS-D20233	2 (A-12)	В	Fixed	(1)	X	X	X	PR-1
CBS-P9B Containment Spray Pump	1-CBS-D20233	2 (A-9)	B	Fixed	(1)	X	x	X	PR-1
CC-P11A Component Cooling Water Pump	1-CC-D20205	3 (C-7)	A	Variable	(1)	X	X	x	PG-1
CC-P11B Component Cooling Water Pump	1-CC-D20211	3 (C-11)	A	Variable	(1)	x	x	X	PG-1
CC-P11C Component Cooling Water Pump	1-CC-D20205	3 (C-11)	A	Variable	(1)	X	x	X	PG-1
CC-P11D Component Cooling Water Pump	1-CC-D20211	3 (C-7)	A	Variable	(1)	X	X	x	PG-1
CS-P2A Centrifugal Charging Pump	1-CS-D20725	2 (A-9)	A	Fixed	(1)	X	x	X	
CS-P2B Centrifugal Charging Pump	1-CS-D20725	2 (C-10)	A	Fixed	(1)	X	X	X	
CS-P3A Boric Acid Transfer Pump	1-CS-D20729	3 (C-12)	A	Variable	(1)	x	x	X	

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Figure F2 Pump Test Table

Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	ΔP (2)	Qr	V	Remarks
CS-P3B Boric Acid Transfer Pump	1-CS-D20729	3 (C-7)	A	Variable	(1)	X	X	X	
FW-P37A Emergency Feedwater Pump	1-FW-D20688	3 (C-6)	В	Fixed	x	X	X	x	
FW-P37B Emergency Feedwater Pump	1-FW-D20688	3 (B-9)	В	Fixed	(1)	X	X	X	
RH-P8A Residual Heat Removal Pump	1-RH-D20662	2 (C-11)	A	Fixed	(1)	X	X	X	PG-1
RH-P8B Residual Heat Removal Pump	1-RH-D20663	2 (C-11)	A	Fixed	(1)	X	X	x	PG-1

Figure F2	
Pump Test Table	Ň

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Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	Δ <b>P</b> (2)	Qf	V	Remarks
SI-P6A Safety Injection Pump	1-SI-D20446	2 (F-10)	B	Fixed	(1)	x	x	x	
SI-P6B Safety Injection Pump	1-SI-D20446	2 (A-10)	В	Fixed	(1)	X	x	x	
SW-P41A Service Water Pump	1-SW-D20794	3 (H-6)	A	Variable	(1)	X	X	x	PR-2,3
SW-P41B Service Water Pump	1-SW-D20794	3 (G-6)	A	Variable	(1)	x	X	x	PR-2,3
SW-P41C Service Water Pump	1-SW-D20794	3 (G-6)	A	Variable	(1)	x	X	x	PR-2,3
SW-P41D Service Water Pump	1-SW-D20794	3 (F-6)	A	Variable	(1)	x	X	x	PR-2,3
SW-P110A SW Cooling Tower Pump	1-SW-D20794	3 (B-8)	A	Variable	(1)	X	X	X	PR-3
SW-P110B SW Cooling Tower Pump	1-SW-D20794	3 (B-6)	A	Variable	(1)	X	X	X	PR-3

# <u>NOTES</u>

- 1. Table ISTB 4.1-1 requires measurement of variable speed devices only.
- 2. Differential pressure will be determined by using inlet (or level information) and discharge pressure measurements as opposed to measuring it directly from differential pressure instrumentation (Reference ISTB 4.7.2b).

# FIGURE F2 PUMP TEST TABLE

Relief request:	PR-1
Pumps:	CBS-P9A, CBS-P9B
Code Class:	2
Function:	Pumps required to perform a function in shutting down the reactor or in mitigating the consequences of an accident, and are provided with an emergency power source.
Test Requirements:	ISTB 4.3.e.1 requires reference values to be established within +/- 20% of design flow rate for the comprehensive test.
Basis For Relief:	The Containment Spray Pumps (CBS-P9A, CBS-P9B) can only be tested on a recirculation flow path which is sized for approximately 63% (1900 GPM) of the Best Efficiency Point (BEP) Flow of 3000 GPM and approximately 68% of the required design flow of 2808 GPM. Full flow testing would require system alignment to the containment spray headers and subsequent discharge to the containment. In order to perform full flow testing without alignment to the spray headers, temporary piping would be required to recirculate water to/from the ECCS Containment Sumps. This was performed one time previously, to verify CBS pump curve data (during pre-operational test 1-PT-11, Containment Recirculation Sump Operability Demonstration) but required modification of the sump by means of building a 2 to 3 foot high steel dyke around the top of the sump at $-26'$ elev. floor level in order to hold the volume of water required to achieve the necessary pump NPSH without flooding the containment. The spray header piping would also require modification by means of removing the spool pieces downstream of valves CBS-V13 and CBS-V19 and connecting temporary pipe (minimum 8" diameter) from the 25' elevation in containment to the ECCS Sumps at $-26'$ elevation. Performing these temporary modifications to the CBS system or enlarging the recirculation piping and components to achieve 80% design flow is not warranted since there will be no benefit in pump testing.
	The recirculation flow path provides for substantial flow testing in a stable, non-flat region of the pump curve, well above the minimum continuous flowrate specified by the pump OEM. Testing the CBS pumps at reference values established in this region of the pump curve will not damage the pumps and will provide meaningful data to assess pump operational readiness.
Alternate Testing	Reference values for testing the Containment Spray pumps will be established and comprehensive pump testing will be performed while operating on the installed bypass loop.

# FIGURE F2 <u>PUMP TEST TABLE</u>

Relief request:	PR-2	
Pumps:	SW-P41A, SW-P41B, SW-P41C, SW-P41D	
Code Class:	3	
Function:	Pumps required to perform a function in shutting down the reactor or in mitigating the consequences of an accident, and are provided with an emergency power source.	
<u>Test Requirements:</u>	<ul> <li>Table ISTB 4.7.1-1 requires vibration instrumentation loop accuracy to be ±5%.</li> <li>ISTB 4.7.1(f) states: The frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 Hz.</li> <li>ISTB 5.2.1(d) and ISTB 5.2.3(d) states that vibration measurements shall be broad band (unfiltered).</li> </ul>	
Basis For Relief:	Vibration instrument calibration activities are conducted over a specified frequency range and the calibration accuracy requirements of Table ISTB 4.7.1-1 are applied to both amplitude and frequency. All vibration instrum meet the specified $\pm$ 5% accuracy limits over a frequency range of 6-1000 Typically, frequency data below 6 Hz is filtered, since it provides no useful information and is outside the instrument calibration range. The ocean service water pumps are vertical line shaft pumps which operate 885 RPM (14.75 Hz). Vibration measurements are taken on the upper mobearing housing as required by ISTB 4.7.4(b). The minimum required vibration measuring equipment frequency response value for these pumps (1/3 operating speed) is 4.9 Hz. Therefore, the Table ISTB 4.7.1-1 accura requirement of +/- 5% for the 1/3 minimum operating frequency will not met.	
•	Due to service water pump design and configuration, vibration data at frequencies less than running speed (14.75 Hz) are not expected to be useful for condition monitoring or trending. Therefore, the vibration measuring equipment calibrated range low frequency limit of 6 Hz is adequate.	
	Note that all other pumps in the IST program have 1/3 operating speeds greater than the calibrated range low frequency limit of 6 Hz.	
Alternate Testing:	Vibration instruments will meet the accuracy requirement of Table ISTB 4.7.1-1 over a frequency range of 6 Hz to 1000 Hz. Vibration data below the calibrated frequency range will be filtered.	

# FIGURE F2 PUMP TEST TABLE

Relief request:	PR-3	
Pumps:	SW-P41A, SW-P41B, SW-P41C, SW-P41D, SW-P110A and SW-P110B	
Code Class:	3	
Function:	Pumps required to perform a function in shutting down the reactor or in mitigating the consequences of an accident, and are provided with an emergency power source.	
Test Requirements:	ISTB 4.7.2(b) requires direct pressure measurements. ISTB 4.7.1(a) requires the accuracy for instruments used for data collection to be within the limits of Table ISTB 4.7.1-1. The required accuracy for differential pressure instruments used during comprehensive tests is specified as $\pm \frac{1}{2}$ %.	
Basis For Relief:	The above listed pumps are vertical line shaft pumps with no direct means to obtain the inlet pressure measurements as required by ISTB 4.7.2(b). However, the inlet pressure can be calculated based on water level above the pump inlet using existing plant level instrumentation to measure pump suction pressure. Seabrook Station uses level measuring instruments which meet the acceptable instrument accuracies defined in Table ISTB 4.7.1-1 for the Group A tests. The installed level instrumentation's total loop accuracy, calculated from the level transmitter to the level indicator is within 2.0% of full scale, which also meets the requirement of Table ISTB 4.7.1-1 for the Group A test. The total level instrumentation loop accuracy, calculated from the transmitter to the indicator, does not meet the requirements for comprehensive tests. However, the Group A test is performed under basically the same operating conditions (flow and pressure) for these pumps as the Comprehensive test. The total loop accuracies and level indicator accuracy do not meet the instrument accuracies of Table ISTB 4.7.1-1 for Comprehensive tests, but the instruments and loop accuracies are well within the table limits for Group A tests.	
	Level Measurement Instrument Accuracies (% of Full Scale)	
	TransmitterIndicatorLoopAccuracyAccuracyAccuracy	
	0.5 % 1.50% 1.90%	
Alternate Testing:	The inlet pressure shall be calculated based on water level above the pump inlet using existing plant instrumentation to measure pump suction pressure.	

SEABROOK STATION

# PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

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Relief Request:	VG-1
Valves:	Fail Safe Valves
Category:	A and B
Code Class:	1, 2 and 3
Function:	(Active) Upon loss of actuator power, the valve must stroke to its fail safe position.
Test Requirements:	ISTC 4.2.6, Valves with fail-safe actuators shall be tested by observing the operation of the valve actuator upon loss of actuating power.
<u>Basis for Relief</u> :	Solenoid valves which control the air supply to air-operated valves and direct solenoid-operated valves must stroke to their fail-safe position upon interruption of their electric supply. It is not practical to interrupt power by actuation of the circuit breaker, as some circuits contain multiple valves. Actuation of valves in these circuits, other than the specific valve under test, may place the plant in an undesired condition during operation. Deenergizing the solenoid valve has the same effect as a loss of electrical power or control air. Therefore, stroking the valve from the control switch which interrupts power to the solenoid constitutes a fail-safe test.
Alternate Testing:	No additional testing is necessary.

Relief Request:	VG-2
<u>Valves:</u>	Solenoid operated valves with stroke times less than 2 seconds: CAH-FV6572, CAH-FV6573, CAH-FV6574, NG-FV4609, NG-FV4610, RC-FV2830, RC-FV2831, RC-FV2832, RC-FV2833, RC-FV2836, RC-FV2837, RC-FV2840, RC-FV2874, RC-FV2876, RC-FV2881, RC-FV2894, RC-FV2896, SS-FV2857, VG-FV1661, VG-FV1712, WLD-FV8330, WLD-FV8331.
Category:	A and B
Code Class:	2 and 3
Function:	Valves required to achieve and maintain safe shutdown or mitigate the consequences of an accident
Test Requirements:	ISTC 4.2.1, Active category A and B valves shall be tested nominally every 3 months,
<u>Basis For Relief</u> :	Seabrook Station proposes to utilize diagnostic equipment and techniques capable of measuring actual stroke times with accuracy to fractions of a second. This testing will permit trending of the actual performance of the valves, as well as the actuating and valve position indication circuits, thereby providing for identification of adverse trends and implementation of corrective action before the maximum allowable stroke time is exceeded.
<u>Alternate Testing:</u>	Solenoid operated valves with stroke times less than 2 seconds will have stroke times measured using diagnostic equipment capable of measuring valve stroke times to a fraction of a second.
	The applicable valves will be divided into groups. The grouping will be technically justified and will consider valve manufacturer, design, service, size, materials of construction, orientation, location, etc.
	Testing associated with the grouped valves will be on a staggered basis with all valves being tested at least once every 2 years.
	Unless otherwise specified in plant specifications, the maximum allowable stroke time will be two seconds, as described in ISTC 4.2.8 (e).

Relief Request:	VG-3
Valves:	Relief and Safety Valves
Category:	A and C
Code Class:	1, 2 and 3
Function:	Verification of set-pressure
Test Requirements:	Appendix I - 8.1.1h, 8.1.2h and 8.1.3g, During set-pressure testing for valves providing steam service, compressible fluid services other than steam and liquid service, respectively, the Time Between Valve Openings is specified as 'A minimum of 10 minutes shall elapse between successive openings.'
<u>Basis for Relief</u> :	<ul> <li>The ASME OMb Code - 1997 Addenda to the 1995 ASME OM Code for Operation and Maintenance of Nuclear Power Plants, Appendix I - 8.1.1h, 8.1.2h and 8.1.3g, Set-pressure testing for valves providing steam service, compressible fluid services other than steam and liquid service, respectively, states that the Time Between Valve Openings is specified as 'A minimum of 5 minutes shall elapse between successive openings.'</li> <li>5 minutes elapsed time between valve openings is adequate for the valve, test media and ambient conditions to stabilize to an operating point similar to the conditions present prior to the previous valve opening. Waiting an additional 5 minutes beyond that holding period requires needlessly maintaining valve test conditions for a longer time period with no additional testing benefit.</li> </ul>
Alternate Testing:	Set-pressure testing conducted under Appendix I Section 8.1 shall be performed with a minimum of 5 minutes elapsed time between successive valve openings.

# SEABROOK STATION

# PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

#### Introduction

This section presents the program plan for inservice testing of valves at Seabrook Station in compliance with the requirements of 10CFR50.55a. This program plan has been prepared to the requirements of the ASME OM Code, 1995 Edition including the 1996 Addenda.

This test program plan was developed to assess the operational readiness of valves in safety-related systems. The valves addressed are those whose operability is essential to safety-related system operation. Inservice testing is then specified for each of these valves to verify individual valve operational readiness.

Valves are selected for inclusion in the test program based on a review of all Station systems. These valves are investigated to determine whether Inservice testing can be performed during normal operation. Those valves for which quarterly testing is determined to be inappropriate are analyzed further to determine if Code allowed cold shutdown testing is possible. If so, a justification for delay of testing to cold shutdown is provided following the appropriate Valve Test Tables. Justification for further delay of testing to refueling outages has been prepared for valves which cannot be tested quarterly or during cold shutdown, and are provided following the appropriate Valve Test Tables. Any specific valve relief requests describing appropriate alternative testing when Code requirements are found to be inappropriate are provided following the appropriate States.

### Code Interpretation

A number of items in Subsection ISTC of the Code are subject to interpretation. Any interpretations encountered in preparing the valve test program plan are provided below, if applicable.

No interpretations are applicable, at this time.

#### 1. Relief Valves:

The Code requires testing of safety and relief valve set pressure in accordance with Appendix I. The relief valves designated for test are those which perform a specific ISTB 1.1 function. Certain thermal relief valves are included if they are called upon to perform their function for other than maintenance functions. Certain thermal relief valves have been included in the IST Program for containment penetration overpressure protection.

### 2. Passive Valves:

The reference Code excludes valves from testing that are used only for operating convenience and/or maintenance. This program defines passive valves as those which do not have to change position to accomplish their safety-related function. Passive valves with remote position indication and/or leakage test requirements will be tested in accordance with ISTC 4.1 and/or ISTC 4.3 requirements, respectively.

#### 3. Control Valves:

The reference Code excludes valves which perform system control functions (such as pressure regulating valves). See ISTC 1.2b.

4. Automatic Power Operated Valves:

Power operated valves which receive an automatic signal on system initiation are included in the program.

5. Remote Power Operated Valves:

The program includes power operated valves activated by remote switches if they are required to change position to align a system for safety-related operation, or if they provide containment isolation.

6. Dual Function Valves:

Valves (excluding check valves) which provide more than one function are tested for their safety-related function only. Valves with multiple safety-related functions are tested for each function.

7. Simple Check Valves:

This program plan considers any check valve to be a simple check valve if it has no means of changing position other than by fluid flow. Simple check valves are tested to verify operability in both directions. Check valves with both open and closed direction safety functions are tested to verify full opening or required position for intended function with forward flow and that the obturator has traveled to the seat on cessation or reversal of flow. Check valves with only an open direction safety function are tested to verify closure. Check valves with only a closed direction safety function are tested to initiate flow and verify at least partial opening and that the obturator has traveled to the seat on cessation or reversal of flow. Some check valves have been included in the IST Program for containment overpressure protection (e.g., all PIVs which already had open safety functions).

8. Pump Discharge Check Valves:

Pump discharge check valves in safety-related systems will be forward flow exercised. In addition, reverse flow closure will be verified as a closed direction safety function when failure of the valve to close could result in a reduction of system performance. Such a potential exists with parallel pumps connected to common suction and discharge headers. If the check valve on the idle pump fails to close, system flow could be diverted back through the idle pump to the suction header.

9. Check Valve Full/Partial Stroke:

As used in this program, the term full stroke refers to the ability of the valve to pass maximum accident condition flow, or the full mechanical stroking of a valve. Forward flow full stroke operability testing will

be by any method that verifies the valve is capable of passing maximum accident condition flow or by periodic demonstration that the valve has achieved a full stroke. Tests that verify less than maximum accident condition flow capability or tests where reduced flow has not achieved a full stroke will be considered as partial stroke tests. The partial open position should correspond to the normal or expected system flow.

10. Category A (Containment Isolation Valve) Leakage Testing:

Valves specified for Appendix J Type C leakage rate testing are included in the Valve IST Program as Category A valves and are tested in accordance with ISTC 4.3.2. The program plan reflects the current list of valves receiving Appendix J testing. Any valve that is added to or deleted from the Appendix J Type C Program will be incorporated into the Valve IST Program.

11. Category A (Pressure Isolation Valve) Leakage Testing:

Valves which perform a pressure isolation function between the Reactor Coolant System and a low pressure system are included in the Valve IST Program as Category A valves. These valves will be tested to the requirements specified in ISTC 4.3.

12. Category A (Containment and Pressure Isolation Valve) Leakage Testing:

Valves which perform both a containment isolation and a pressure isolation function are included in the Valve IST Program Plan as Category A Valves. These valves will be tested to requirements of both Appendix J and ISTC 4.3.3.

13. Valve Timing:

The required maximum stroke times based on system performance requirements have been established and incorporated into separate design documents and procedures (See References 2.10 and 2.22).

14. Valve Position Indicator Verification:

ISTC 4.1 requires that valves with remote position indicators shall be observed at least once every two years to verify that valve operation is accurately indicated. This program tests both active and passive valves equipped with remote position indicators in accordance with ISTC 4.1.

15. Valve Fail Safe Testing:

ISTC 4.2.6 requires proper Station operation of valves equipped with Fail Safe Actuators to be observed. For Seabrook Station, this is generally accomplished by placing the control switch to the position which de-energizes the actuator and observing proper valve operation (see VG-1). In cases where operation of normal valve controls does not de-energize the valve actuator, alternate means will be adopted to simulate loss of actuator power.

# VALVE TEST TABLE NOMENCLATURE

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

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

DE - Normal position depends on system condition

### VALVE TEST TABLE NOMENCLATURE (Continued)

#### **Test Requirements**

- DI Disassembly and Examination
- FE Full Stroke Exercise Test
- FS Fail Safe Test
- LJ Leakage Test per Appendix J, Type C (containment isolation function only)
- LK Leakage Test per ISTC 4.3.3 (pressure isolation function only)
- PE Partial Stroke Exercise Test
- PI Remote Position Indication Verification
- RT Relief Valve Test
- ST Stroke Time Test

#### Test Frequency

- C Testing performed during cold shutdown
- P Periodically tested during the time period defined in Appendix I (safety and relief valves)
- Q Once per 92 days (Quarterly)
- R At least once every 2 years unless associated with the Appendix J, 10 CFR 50 Leakage Test Program. LJ-R means tested in accordance with Reference 2.13. Some LJ-R intervals will exceed 2 years.
- T PIVs per Technical Specifications

# VALVE TEST TABLE FORMAT

Valve Number and Description	Unique number assigned to each valve, and a description of the valve's function within the system.
Class and Coord	The ASME valve classification (Class 1, 2 or 3), and the valve location on the reference drawing.
Valve (CAT.)	Valve category as defined in Sub-article ISTC 1.4.
Size (In.) and Type	Valve size is the nominal diameter of the valve in inches.
	Valve type is the specific type of valve, as abbreviated in "Valve Test Table Nomenclature."
Actu Type	The type of actuator used to operate the valve.
Positions	
NRM	The expected valve position during normal plant operation.
SAF	The valve position when performing its safety-related function.
FAL	The valve position during fail-safe operation.
Relief Req. C.S. Just. Ref. Just.	Reference number of the Relief Request, Cold Shutdown Justification or Refueling Justification.
IST Program Plan Commitment	
TEST/	The Seabrook Station IST Program Plan test commitments which apply to the valve.
FREQ/	The Seabrook Station IST Program Plan test frequency commitment for the applicable test. Cold shutdown, Refueling Outage or alternate testing which is being performed in lieu of the Code specified quarterly testing.
DIR	The direction in which the valve is required to be Stroke Timed (ST), indicated by "O" for open and "C" for closed.

#### FIGURE F4 VALVE TEST TABLES

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#### VALVE LIST

	System	P&ID No.	Page No.
1.	Auxiliary Steam (AS)	1-AS-D20569	1 <b>-F</b> 4.11
2.	Containment Air Handling (CAH)	1-MAH-D20504	1-F4.12
3.	Containment Air Purge (CAP)	1-MAH-D20504	1-F4.13
4.	Containment Spray (CBS)	1-CBS-D20233 1-SI-D20446 1-SI-D20447	1-F4.14
, <b>5</b> .	Component Cooling Water (CC)	1-CC-D20205 1-CC-D20206 1-CC-D20207 1-CC-D20209 1-CC-D20211 1-CC-D20212 1-CC-D20213 1-CC-D20214	1-F4.23
6.	Combustible Gas Control (CGC)	1-CGC-D20612	1-F4.38
7.	Condensate (CO)	1-CO-D20426	1-F4.43
8.	Containment Online Purge (COP)	1-MAH-D20504	1 <b>-F</b> 4.44
9.	Chemical & Volume Control (CS)	1-CBS-D20233 1-CS-D20722 1-CS-D20725 1-CS-D20726 1-CS-D20729 1-RC-D20843 1-SI-D20447	1 <b>-</b> F4.45
10.	Diesel Generator (DG)	1-DG-D20459 1-DG-D20464	1 <b>-F</b> 4.60
11.	Demineralized Water (DM)	1-DM-D20349 1-DM-D20352	1-F4.63

#### FIGURE F4 VALVE TEST TABLES

#### VALVE LIST (Continued)

	System	P&ID No.	<u>Page No.</u>
12.	Fire Protection (FP)	1 <b>-FP-D2027</b> 1	1 <b>-F4</b> .64
13.	Feedwater (FW)	1-CO-D20426	1 <b>-</b> F4.65
		1-FW-D20686	
		1-FW-D20687	
		1-FW-D20688	
14.	Instrument Air (IA)	1- <b>IA-D2</b> 0640	1 <b>-F4</b> .70
17.	mstrument / m (173)	1-IA-D20643	
		1-IA-D20644	
		1-IA-D20645	
15.	Leak Detection (LD)	1-LD-D20864	1-F4.71
16.	Main Steam (MS)	1-MS-D20580	1-F4.72
		1-MS-D20581	
		1-MS-D20582	
		1-MS-D20583	
		1 <b>-MS-D</b> 20587	
17.	Nitrogen Gas (NG)	1-NG-D20136	1-F4.82
18.	Reactor Coolant (RC)	1-RC-D20841	1-F4.84
		1-RC-D20843	
		1-RC-D20844	
		1-RC-D20845	
		1-RC-D20846	
		1-SS-D20518	
19.	Residual Heat Removal (RH)	1-RH-D20662	1-F4.93
		1-RH-D20663	
.20.	Reactor Makeup Water (RMW)	1-CS-D20725	1-F4.99
		1-CS-D20729	
		1-RMW-D20360	
21.	Service Air (SA)	1-SA-D20652	1-F4.100
22.	Steam Generator Blowdown (SB)	1-SB-D20626	1-F4.101

#### FIGURE F4 VALVE TEST TABLES

#### VALVE LIST (Continued)

	System	P&ID No.	Page No.
23.	Spent Fuel Pool Cooling and Cleanup (SF)	1-SF-D20482 1-SF-D20483 1-SF-D20484	1-F4.103
24.	Safety Injection (SI)	1-SI-D20446 1-SI-D20447 1-SI-D20450	1-F4.105
25.	Sample (SS)	1-SS-D20520	1-F4.120
.26.	Service Water (SW)	1-SW-D20794 1-SW-D20795 1-SW-D20796	1-F4.121
27.	Vent Gas (VG)	1-VG-D20780	1-F4.129
28.	Waste Processing Liquid Drains (WLD)	1-WLD-D20218 1-WLD-D20219 1-WLD-D20221 1-WLD-D20222	1-F4.130

#### SYSTEM: AS PID No.: D20569

### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class and	Vaive	Size (in.) and	Actuator		Position	s	Relief Reg				Progra commit	am Pla tment				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	IJ	LK	PE	ΡI	RT	ST
AS-V175	3 (D5)	В	12.0 Gate	Motor	0	С					•	est Fr	•		X		X
Auxiliary steam HELB isol: P&ID D20569, FSAR Sec		normally ope	n and will close folk	owing a HELB in the	e PAB. Ref	erences	:				RV T CV	est Fro ⊤est D	eq:	uarterly losed	y		
AS-V176	3 (D-5)	В	12.0 Gate	Motor	0	С				X	pen T	est Fre	eq:		X	]	X
Auxiliary steam HELB isola P&ID D20569, FSAR Sec		normally ope	n and will close follo	owing a HELB in the	e PAB. Ref	erences	:				RV To CV	est Fre Test [	eq:	uarterly losed	У		

#### SYSTEM: CAH PID No.: D20504

**S** 

#### FIGURE F4 **IST VALVE TEST TABLE**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positior SAF	ns FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CAH-FV6572	2 (G-7)	Α	0.5 Gate	Solenoid	0	C	С	VG-2	Open Test Freq:
Containment gas & particulat subject to Appendix J Type C isolation closure signal. Refer	LLRT. This valve is	normally oper	n when the rad. mo						Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAH-FV6573	2 (G-7)	A	0.5 Gate	Solenoid	0	с	с	VG-2	Open Test Freq:
Containment gas & particulate subject to Appendix J Type C isolation closure signal. Refer	LLRT. This valve is	normally oper	when the rad. mo						Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAH-FV6574	2 (G-8)	Α	0.5 Gate	Solenoid	0	С	С	VG-2	Open Test Freq:
Containment gas & particulate subject to Appendix J Type C isolation closure signal. Refer	LLRT. This valve is I	normally open	when the rad, mo						Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAH-V12	2 (F-7)	A/C	0.5 Check	Self	0	С		CAH-CSJ-1	Open Test Freq:
Containment gas & particulate Type C LLRT. This valve is no isolation function for X-52B. R	ormally open when the	e rad. monitor	is in service, and						Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

CAP

D20504

SYSTEM:

PID No.:

# FIGURE F4

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	is FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CAP-V1	2 (B-8)	В	36.0 Butterfly	Air/Piston	С	С	С	CAP-CSJ-1	Open Test Freq:
Containment- refueling purg extended plant shutdowns a References P&ID D20504,	and refueling outages. I	t receives an							Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAP-V2	2 (C-7)	В	36.0 Butterfly	Air/Piston	С	С	С	CAP-CSJ-1	Open Test Freq:
Containment- refueling purg extended plant shutdowns a References P&ID D20504,	ind refueling outages. I	t receives an							Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAP-V3	2 (C-7)	В	36.0 Butterfly	Air/Piston	С	С	С	CAP-CSJ-1	
Containment- refueling purg extended plant shutdowns a References P&ID D20504, I	e exhaust isolation values ind refueling outages.	t receives an	is normally closed					UAF-USJ-1	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAP-V4	2 (E-8)	В	36.0 Butterfly	Air/Piston	С	С	С	CAP-CSJ-1	Open Test Freq:
Containment- refueling purg extended plant shutdowns a References P&ID D20504, I	nd refueling outages. It	receives an							Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed

SYSTEM: CBS

D20233

PID No.:

#### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class and	Valve	Size (in.) and	Actuator		Positions	Relief Reg	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF F	AL C.S. Just.	DI FE FS LJ LK PE PI RT ST
CBS-V2	2	В	12.0	Motor	0	DE		
	(B-11)		Gate					Open Test Freq: Quarterly
Containment spray pump RWS phase of system operation, and seat leakage limits for this valve Engineering Evaluation 94-031.	is closed during to per Engineering E	the sump rec	irculation phase of s	vstem operation. T	here are no	specific		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CBS-V3	2	С	12.0	Self	С	DE		
	(B-11)		Check				CBS-CSJ-2	
Containment spray pump RWS and is closed during the recircul per Engineering Evaluation 94-0	ation phase of sys	tem operatior	<ol> <li>There are no specified.</li> </ol>	cific seat leakage lin	nits for this	s valve		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V5	2	В	12.0	Motor	0	DE		
	(C-8)		Gate					Open Test Freq: Quarterly
Containment spray pump RWS phase of system operation, and seat leakage limits for this valve Engineering Evaluation 94-031.	is closed during th	ne sump recir	culation phase of sy	stem operation. Th	ere are no	specific		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CBS-V7	2	С	12.0	Self	С	DE		
	(B-8)		Check				CBS-CSJ-2	Open Test Freq: CSD
Containment spray pump RWST and is closed during the recircul per Engineering Evaluation 94-0:	ation phase of syst 31. References: P	em operation &ID D20233	. There are no spec	ific seat leakage lin	nits for this	valve		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V8	2 (C-6)	В	16.0 Gate	Motor	с	DE	CBS-CSJ-1	Open Test Freq: CSD
Containment sump suction isolat recirculation. This containment is Section 6.2.2, FSAR Table 6.2-8	solation valve is exe	ve is normally empt from Ap	closed and opens t pendix J Type C LL	o initiate ECCS/CB RT. References: Po	S sump &ID D2023	3, FSAR		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
CBS-V9	2	С	12.0	Self	С	DE		
	(B-10)		Check					Open Test Freq: Per Disassembly S
Containment spray pump sump s phase of system operation. Clost injection phase of system operation	ure is required to p	revent diversi	on of CBS pump su	ction flow to the RH	e sump reci IR pump di	irculation uring the	CBS-RJ-2	Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM:	CBS

D20233

PID No.:

### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class	Mahar	Size (in.)	<b>A</b> - <b>b</b> - <b>c</b> - <b>b</b> - <b>c</b>		Positions			IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM		FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
CBS-V11	2	А	8.0	Motor	С	DE			
	(F-6)		Gate						Open Test Freq: Quarterly
Containment spray dischar signal to admit CBS pump containment isolation. This FSAR Table 6.2-83.	discharge to the conta	inment spray	headers. Remote m	nanual closure may	be required	t for			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
CBS-V12	2	A/C	8.0	Self	С	DE			
	(F-5)		Check						Open Test Freq: Per Disassembly S
Containment spray dischar discharge to the containm Appendix J Type C LLRT.	ent spray headers. Clos	ure may be re	equired for containing	nent isolation. This				CBS- RJ-3	Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V14	2	В	16.0	Motor	С	DE			
	(D-6)		Gate					CBS-CSJ-1	Open Test Freq: CSD
Containment sump suction recirculation. This contain Section 6.2.2, FSAR Table	nent isolation valve is ex					33, FSAR			RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
CBS-V15	2 (B-7)	С	12.0 Check	Self	С	DE			X     Image: Comparison of the second s
Containment spray pump s		e. This valve	is normally closed a	and opens during th	ne sump rec	rculation		CBS-RJ-2	Close Test Freq: Per Disassembly S
phase of system operation.	Closure is required to	prevent divers	sion of CBS pump s	uction flow to the R					RV Test Freq:
injection phase of system of	peration. References: I	28ID D20233	, FSAR Section 6.2	2.2.					CV Test Dir: ST Test Dir:
CBS-V17	2	A	8.0	Motor	С	DE			
	(E-6)		Gate						Open Test Freq: Quarterly
Containment spray dischar signal to admit CBS pump containment isolation. This	discharge to the contai	nment spray l	headers. Remote m	anual closure may l	be required	for			Close Test Freq: Quarterly RV Test Freq:
FSAR Table 6.2-83.	or is subject to Appe	ыла туре о	LENT. Nelelences	. i GID OZOZJJ, FO		n 0.z.z,			CV Test Dir: ST Test Dir: Open/Closed
CBS-V18	2	A/C	8.0	Self	С	DE			
	(E-5)		Check						Open Test Freq: Per Disassembly S
Containment spray dischar								CBS- RJ-3	Close Test Freq: Per Disassembly S
discharge to the containme Appendix J Type C LLRT. I					CIV is subje	ect to			RV Test Freq: CV Test Dir:
									ST Test Dir:

YSTEM: PID No.:	CBS D20233			IST V	FIGUR ALVE T		ГΤ	ABI	_E	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
opens upon tra normal plant co test fail a leakag leakage while in	tainment sump sucti nsfer to ECCS sump oldown. A back seat ge test must be perfo n mode 4 does not ex References: P&ID I	recirculation. test is required ormed to verify aceed the capa	This valve als d to be perform that the leaka city of the relia	o closes when the F ned each refueling ge is less than 30 G ef valve installed to j	RHR system is place per DCR 87-311. Sl PM. This ensures t	ed in servic hould the b hat the pol	ce during back seat tential	1	CBS-RJ-2	X X Den Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
opens upon tran normal plant co test fail a leakag leakage while in	tainment sump sucti sfer to ECCS sump oldown. A back seat je test must be perfo mode 4 does not ex References: P&ID [	recirculation. test is required rmed to verify ceed the capac	This valve als I to be perforr that the leaka city of the relia	o closes when the F ned each refueling   ge is less than 30 G ef valve installed to	RHR system is place per DCR 87-311. Sl PM. This ensures t	ed in servic hould the b hat the pol	e during ack seat ential	l	CBS-RJ-2	X X Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
and remains clo	ray pump min-flow to sed for the duration aluation 94-031. Refe	of the accident	mitigation pe	riod. There is no se	at leakage limit on th	his valve po		С		X       X       X       X         Open Test Freq:       Quarterly         Close Test Freq:       Quarterly         RV Test Freq:       CV Test Dir:         ST Test Dir:       ST Test Dir: Closed
and remains clo	ray pump min-flow to sed for the duration o aluation 94-031. Refe	of the accident	mitigation pe	riod. There is no se	at leakage limit on th	nis valve pe	er	С		X       X       X       X         Open Test Freq:       Close Test Freq:       X       X         RV Test Freq:       CV Test Dir:       X       X         ST Test Dir:       Closed       X       X
open, and remai	ray pump min-flow to ns closed for the du aluation 94-031. Refe	ration of the ac	cident mitigat	ion period. There is	no seat leakage lim	it on this v		C		X       X       X       X       X         Open Test Freq:       Close Test Freq:       X       X       X         RV Test Freq:       CV Test Dir:       ST Test Dir:       ST Test Dir:       ST Test Dir:

SYSTEM: PID No.:	CBS D20233			IST V	FIGUR ALVE 1			LE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
	Tank outlet isolation				Motor I to allow SAT NaO	C H solution	O to flow to		Open Test Freq: Quarterly Close Test Freq: RV Test Freq:
							· · · · · · · · · · · · · · · · · · ·		CV Test Dir: ST Test Dir: Open
CBS-V43		2 (G-10)	В	6.0 Gate	Motor	С	0		Open Test Freq: Quarterly
	Tank outlet isolation. ing chamber. Refere				l to allow SAT NaO	H solution	to flow to		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
operation, and o service during r the back seat to the potential lea RWST suction	/ST suction check v closes upon transfer oormal plant cooldow est fail a leakage test kage while in mode kage while in mode piping. There is no s aluation 94-031. Re	to ECCS sump m. A back seat t must be perfor 4 does not exce seat leakage red	recirculation test is require med to verify ed the capac puirement dur	h. This valve also closed to be performed a that the leakage is list that the leakage is list of the relief valve ring the sump recirc	eses when the RHR each refueling per I less than 30 GPM. Installed to protect ulation mode of EC	system is DCR 87-31 This ensur the lower   CS operati	placed in 1. Should es that pressure on per	CBS-RJ-4	X       A         Open Test Freq: Refueling         Close Test Freq: Refueling         RV Test Freq:         CV Test Dir:         ST Test Dir:
(OPEN ITEM: 1 94-031)	he 30 gpm leakage I	limit is inconsisi	ent with the	assumptions and co	onclusions in Engin	eering Eva	luation		
operation, and o service during r the back seat te the potential lea RWST suction Engineering Ev	/ST suction check va closes upon transfer formal plant cooldow st fail a leakage test kage while in mode 4 piping. There is no s aluation 94-031. Rei he 30 gpm leakage l	to ECCS sump m. A back seat must be perfor 4 does not exce seat leakage red ferences: P&ID	recirculation lest is require med to verify ed the capac uirement dur D20233, DC	. This valve also clo ed to be performed e that the leakage is I ity of the relief valve ing the sump recircu R 87-311, EX1804.	ses when the RHR each refueling per D ess than 30 GPM. installed to protect ulation mode of EC 20,21, Engineering	system is OCR 87-31 This ensur the lower p CS operation Evaluation	placed in 1. Should es that pressure on per 194-031.	CBS-RJ-4	X       A         Open Test Freq:       Refueling         Close Test Freq:       RV Test Freq:         CV Test Dir:       ST Test Dir:

SYSTEM: CBS PID No.: D20233

### FIGURE F4

Valve Number Remarks	Class and Coord	Vaive (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CBS-V94	2 (C-9)	с	0.75 Relief/Safety	Self	С	0	<u></u>		Open Test Freq:
CBS heat exchanger relief va	live. In scope per IST	C-1.1. Refere	ence : P&ID D20233.						Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CBS-V96	2 (C-12)	с	0.75 Relief/Safety	Self	С	0			Open Test Freq:
CBS heat exchanger relief va	lve. In scope per IST	C-1.1. Refere	ence : P&ID D20233.						Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CBS-V145	2 (B-11)	с	12.0 Check	Self	С	DE			Open Test Freq: Refueling
RHR pump RWST suction of operation, and closes upon tr service during normal plant of the back seat test fail a leaka the potential leakage while in RWST suction piping. There Engineering Evaluation 94-03 (OPEN ITEM: the 30 gpm lea 94-031)	ansfer to ECCS sump ooldown. A back seat ge test must be perfor mode 4 does not exce is no seat leakage red th. References: P&IC	o recirculation test is requir med to verify ed the capa- quirement du D20233, D	n. This valve also close red to be performed ea y that the leakage is les city of the relief valve ir rring the sump recircul CR 87-311, EX1804.20	es when the RHF ch refueling per I ss than 30 GPM. Installed to protec ation mode of EC 0,21, Engineering	R system is DCR 87-31 This ensur t the lower p CCS operation g Evaluation	placed i 1. Shoul es that pressure on per 194-031	n d	CBS-RJ-4	Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V146	2	С	12.0 Check	Self	С	DE			
RHR pump RWST suction of operation, and closes upon tra- service during normal plant of the back seat test fail a leakage the potential leakage while in RWST suction piping. There Engineering Evaluation 94-03 (OPEN ITEM: the 30 gpm leag 94-031)	ansfer to ECCS sump boldown. A back seat ge test must be perfor mode 4 does not exce is no seat leakage red i1. References: P&ID	o recirculation test is requir med to verify ed the capacity uirement due D20233, D0	n di	CBS-RJ-4	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:				

1-F4.18

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YSTEM: PID No.:	CBS D20233			IST V	FIGUR ALVE 1		ΓΤΑΒ	LE	ан -
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
opens upon tra normal plant co test fail a leaka leakage while ir	nsfer to ECCS sum ooldown. A back sea ge test must be per	p recirculation. It test is required formed to verify exceed the capa	This valve al to be perfo that the leak city of the rel	16.0 Check is closed during the i so closes when the F rmed each refueling p age is less than 30 G ief valve installed to p 804.20,21.	HR system is plac per DCR 87-311. S PM. This ensures	ed in servic should the b that the pol	ce during back seat tential	CBS-RJ-2	X Den Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
opens upon tra normal plant co test fail a leakag leakage while ir	nsfer to ECCS sum oldown. A back sea ge test must be perl	p recirculation. It test is required formed to verify t exceed the capac	This valve al to be perfor that the leak city of the rel	16.0 Check is closed during the i so closes when the R med each refueling p age is less than 30 G ief valve installed to p 804.20,21.	HR system is plac ber DCR 87-311. S PM. This ensures	ed in servic hould the b that the pol	e during ack seat ential	CBS-RJ-2	X Deen Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V149 RHR pump RW RHR operation-	/ST suction relief va In scope per ISTC	2 (B-11) alve. Protects th 1.1. References	C ne low pressi s: P&ID D20	0.75 Relief/Safety ure suction piping fro 233, DCR 87-311.	Self om check valve bac	C sk leakage o	0 Juring		Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CBS-V150 RHR pump RW RHR operation-	/ST suction relief va In scope per ISTC	2 (C-8) alve. Protects th 1.1. References	C le low pressu s: P&ID D20	0.75 Relief/Safety rre suction piping fro 233, DCR 87-311.	Self m check valve bac	C k leakage c	O		Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CBS-V151 RHR pump con leakage during l	tainment sump suc RHR operation- In s	2 (A-10) tion relief valve. cope per ISTC	C Protects the 1.1. Referen	0.75 Relief/Safety low pressure suction ces: P&ID D20233, I	Self piping from chec DCR 87-311.	C sk valve bac	O .k		Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM:	CBS

D20233

PID No.:

# FIGURE F4

Valve Number	Class and Valve		Size (in.)	Size (in.) and Actuator	Positions		Relief Reg		IST Program Plan Commitment								
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LΚ	ΡE	Pi	RT	ST
CBS-V152	2	С	0.75	Self	С	0					$\square$	$\Box$	$\square$	Π		X	
	(A-6)		Relief/Safety							0	pen Te	est Fre	eq:			· · · · · ·	· ــــ
RHR pump containment su	ump suction relief valve	Protects the	e low pressure suctio	n pipina from che	ck valve ba	ck				CI	ose Te	est Fre	eq:				
leakage during RHR operat											RV Te	est Fre	eq: 10	Years	3		
											CVT	Test D	Dir:				
											STI	Test D	Dir:				

SYSTEM: CBS PID No .: D20446

### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class	Valve	Size (in.)	Actuator	F	ositions	Pa		IST Program Plan Commitment
Remarks	and Coord	(CAT)	and Type	Actuator Type	NRM	SAF		lief Req S. Just.	DI FE FS LJ LK PE PI RT ST
CBS-V47	2 (G-12)	8	8.0 Gate	Motor	0	DE			Open Test Freq: Quarterly
SI pump RWST suction iso operation, and closes durin ECCS recirculation per Eng Evaluation 94-031.	ng the recirculation phase	se of ECCS o	peration. There is n	io seat leakage limi	for this valve	e during			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CBS-V48	2 (F-12)	С	8.0 Check	Self	с	DE	**** <u>*********************************</u>		Open Test Freq: Refueling
SI pump RWST suction ch recirculation phase of opera Evaluation 94-031. Referen	neck valve. this valve op ation. There is no seat l	eakage limit f	e injection phase of or this valve during	ECCS recirculation	nd closes du n per Enginee	uring the ering	CB	S-RJ-5	Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V49	2	В	6.0	Motor	0	DE			
	(F-11)		Gate				CBS	S-CSJ-3	Open Test Freq: CSD
SI pump suction isolation va Closure may be required to									Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
									01 100 011 010000
CBS-V51	2 (A-12)	В	8.0 Gate	Motor	0	DE			
SI pump RWST suction iso operation, and closes during ECCS recirculation per Eng	(A-12) blation valve. This valve g the recirculation phas	is normally of e of ECCS of	Gate ben, remains open peration. There is n	during the injection o seat leakage limit	phase of EC	CS e during			
SI pump RWST suction iso peration, and closes during ECCS recirculation per Eng Evaluation 94-031.	(A-12) blation valve. This valve g the recirculation phas	is normally of e of ECCS of	Gate ben, remains open peration. There is n	during the injection o seat leakage limit	phase of EC	CS e during			X       X       X       X         Open Test Freq: Quarterly       X       X         Close Test Freq: Quarterly       X       X         RV Test Freq:       CV Test Dir:         ST Test Dir: Closed       X       X
SI pump RWST suction iso operation, and closes during ECCS recirculation per Eng Evaluation 94-031.	(A-12) olation valve. This valve g the recirculation phas gineering Evaluation 94	is normally op e of ECCS op -031. Referen	Gate ben, remains open beration. There is n ces: P&ID D20446	during the injection o seat leakage limit 5, FSAR Section 6.3	phase of EC for this valve 3, Engineerin	CCS e during Ig			X       X       X       X         Open Test Freq:       Quarterly       X       X         Close Test Freq:       Quarterly       X       X         RV Test Freq:       CV Test Dir:       X       X
SI pump RWST suction iso operation, and closes during ECCS recirculation per Eng Evaluation 94-031. CBS-V52 SI pump RWST suction che recirculation phase of opera	(A-12) plation valve. This valve g the recirculation phas gineering Evaluation 94 2 (A-12) eck valve. This valve op ation. There is no seat lo	is normally op e of ECCS op -031. Referen C C pens during th eakage limit fo	Gate Den, remains open Deration. There is n ces: P&ID D20446 8.0 Check e injection phase o or this valve during	during the injection o seat leakage limit 3, FSAR Section 6.3 Self f ECCS operation a ECCS recirculation	phase of EC for this valve 3, Engineerin C and closes du	CCS e during ng DE uring the	СВ	S-RJ-5	X       X       X       X         Open Test Freq: Quarterly       X       X         Close Test Freq: Quarterly       RV Test Freq: Quarterly         RV Test Freq: CV Test Dir:       ST Test Dir: Closed         X       X       X
SI pump RWST suction iso operation, and closes during ECCS recirculation per Eng Evaluation 94-031. CBS-V52 SI pump RWST suction che ecirculation phase of opera Evaluation 94-031. Reference	(A-12) plation valve. This valve g the recirculation phas gineering Evaluation 94 2 (A-12) eck valve. This valve op ation. There is no seat lo	is normally op e of ECCS op -031. Referen C C pens during th eakage limit fo	Gate Den, remains open Deration. There is n ces: P&ID D20446 8.0 Check e injection phase o or this valve during	during the injection o seat leakage limit 3, FSAR Section 6.3 Self f ECCS operation a ECCS recirculation	phase of EC for this valve 3, Engineerin C and closes du	CCS e during ng DE uring the	СВ	S-RJ-5	X       X       X       X         Open Test Freq: Quarterly       Close Test Freq: Quarterly         RV Test Freq:       CV Test Dir:         ST Test Dir:       Closed         X       X       X         Open Test Freq:       X       X         Open Test Freq:       R       X         Open Test Freq:       Refueling         Close Test Freq:       RV Test Freq:         CV Test Dir:       ST Test Dir:         ST Test Dir:       ST Test Dir:
SI pump RWST suction iso operation, and closes during ECCS recirculation per Eng Evaluation 94-031. CBS-V52 SI pump RWST suction che ecirculation phase of opera Evaluation 94-031. Reference CBS-V53	(A-12) Diation valve. This valve g the recirculation phas gineering Evaluation 94 2 (A-12) eck valve. This valve op ation. There is no seat is notes: P&ID D20446, FS 2 (A-11)	is normally op e of ECCS op -031. Referen C C bens during th eakage limit fo AR Section 6 B	Gate Den, remains open Deration. There is n ces: P&ID D20446 8.0 Check e injection phase o or this valve during .3, Engineering Eva 6.0 Gate	during the injection o seat leakage limit 5, FSAR Section 6.3 Self f ECCS operation a ECCS recirculation aluation 94-031. Motor	phase of EC for this valve 3, Engineerin C and closes du per Enginee	DE DE DE DE DE DE	СВ	S-RJ-5	X       X       X       X         Open Test Freq: Quarterly       X       X         Close Test Freq: Quarterly       RV Test Freq: Quarterly         RV Test Freq:       CV Test Dir:         ST Test Dir: Closed       X       X         Open Test Freq: Refueling       Close Test Freq: Refueling       X         Close Test Freq: Refueling       CV Test Dir:       ST Test Dir:         ST Test Dir:       X       X       X
CBS-V51 SI pump RWST suction iso operation, and closes during ECCS recirculation per Eng Evaluation 94-031. CBS-V52 SI pump RWST suction che recirculation phase of opera Evaluation 94-031. Reference CBS-V53 SI pump suction isolation va Closure may be required to	(A-12) plation valve. This valve g the recirculation phas gineering Evaluation 94 2 (A-12) eck valve. This valve op ation. There is no seat is ces: P&ID D20446, FS 2 (A-11) alve. This valve is normal	is normally op e of ECCS op -031. Referen C C bens during th eakage limit fo AR Section 6 B B ally open and	Gate Den, remains open Deration. There is n ces: P&ID D20446 8.0 Check e injection phase o r this valve during .3, Engineering Eva 6.0 Gate remains open durir	during the injection o seat leakage limit 5, FSAR Section 6.3 Self f ECCS operation a ECCS recirculation aluation 94-031. Motor mg all phases of EC	phase of EC for this valve 3, Engineerin C and closes du per Enginee O CS operatior	DE uring the ering DE	СВ	S-RJ-5	X       X       X       X         Open Test Freq: Quarterly       Close Test Freq: Quarterly       X       X         RV Test Freq:       CV Test Dir:       ST Test Dir: Closed         X       X       X       X       X         Open Test Freq:       Close Test Freq: Refueling       X       X       X         Open Test Freq:       Refueling       X       X       X         Open Test Freq:       Refueling       X       X       X         Open Test Freq:       ST Test Dir:       X       X       X         Open Test Freq:       CV Test Dir:       X       X       X         Open Test Freq:       X       X       X       X         Open Test Freq:       Quarterly       X       X       X
SI pump RWST suction iso operation, and closes during ECCS recirculation per Eng Evaluation 94-031. CBS-V52 SI pump RWST suction che recirculation phase of opera Evaluation 94-031. Reference CBS-V53 SI pump suction isolation va	(A-12) plation valve. This valve g the recirculation phas gineering Evaluation 94 2 (A-12) eck valve. This valve op ation. There is no seat is ces: P&ID D20446, FS 2 (A-11) alve. This valve is normal	is normally op e of ECCS op -031. Referen C C bens during th eakage limit fo AR Section 6 B B ally open and	Gate Den, remains open Deration. There is n ces: P&ID D20446 8.0 Check e injection phase o r this valve during .3, Engineering Eva 6.0 Gate remains open durir	during the injection o seat leakage limit 5, FSAR Section 6.3 Self f ECCS operation a ECCS recirculation aluation 94-031. Motor mg all phases of EC	phase of EC for this valve 3, Engineerin C and closes du per Enginee O CS operatior	DE uring the ering DE	СВ	S-RJ-5	X       X       X         Open Test Freq: Quarterly       X       X         Close Test Freq: Quarterly       RV Test Freq: Quarterly         RV Test Freq:       CV Test Dir:         ST Test Dir: Closed       X       X         Open Test Freq: Refueling       Close Test Freq: Refueling         Close Test Freq: Refueling       Close Test Freq: Refueling         RV Test Freq:       CV Test Dir:         ST Test Dir:       X       X         Qpen Test Freq:       X       X         Open Test Freq:       X       X         CV Test Dir:       X       X         ST Test Dir:       X       X         Open Test Freq:       X       X         Open Test Freq:       X       X         Open Test Freq:       Quarterly

SYSTEM: CBS

D20446

PID No.:

### FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator	I	Position	s	Relief Reg		IST Prog Comr	gram Pl nitment	an			
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE	FS L	J LK	PE	ΡI	RT	ST
CBS-V62	2	с	0.75	Self	С	0								X	
	(B-11)		Relief/Safety						Ор	en Test F	req:				
SI Pump common suction	relief valve. In scope pe	r ISTC 1.1. I	Reference:P&ID D204	146.					Clo	se Test F	req:				
									F	RV Test F	req: 10	) Years	\$		
										CV Test	Dir:				
										ST Test	Dir:				
CBS-V58	2	с	8.0	Self	с	DE				ΠĒ	7			$\square$	
	(C-8)		Check							en Test F	rea: R	efuelin		<u> </u>	L
Charging pump-RWST Su	• •	Fhie valve ie :	normally closed open	e during ECCS ini	iection nha	i bae a	e	CBS-RJ-6	•	se Test F	•		-		
closed during ECCS recirc							3			V Test F	•		0		
FSAR Section 6.3, Engine										CV Test	•				
	•									ST Test					
CBS-V60	2	c	8.0	Self	с	DE					7				
000-000	(C-8)	-	Check		•					en Test F		i Li efueling	, LJ		
	. ,							CBS RJ-6	•	se Test F	•		-		
Charging pump-RWST Su							S	CB3 KJ-0			•	eruenniş	J		
closed during ECCS recirc FSAR Section 6.3, Engine			a direction is not limite	o to a specific value	ue. rkeieren	ice:				V Test F CV Test	•				
- or in coordinate, Engine	oring Engladion of OT,														
										ST Test	UII:				

#### FIGURE F4 IST VALVE TEST TABLE

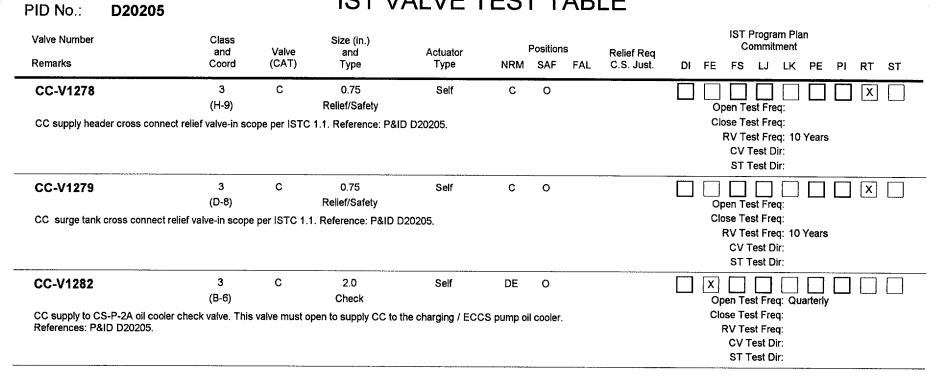
Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	s	Relief Rea	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-TCV2171-1	3 (F-10)	В	24.0 Butterfly	Air/Piston	тн	тн	0	CC-CSJ-1	Open Test Freq: CSD
CC heat exchanger outlet flow co maintain CC HX outlet temperatu fails open on loss of air, directing	ire at a preset valu	ie. Backup a	ir bottles are provided	for operation post	LOP. This	s valve			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CC-TCV2171-2	3 (F-10)	В	24.0 Butterfly	Air/Piston	TH	тн	С	CC-CSJ-1	Open Test Freq: CSD
CC heat exchanger bypass flow of maintain CC HX outlet temperatur fails closed on loss of air, directin	re at a preset valu	ie. Backup ai	r bottles are provided	for operation post	LOP. This	s valve			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1	3 (D-10)	с	24.0 Check	Self	DE	DE			Open Test Freq: Quarterly
CC pump discharge check valve. to prevent bypass flow from the a					ne pump is	secured	ţ		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CC-V4	3 (D-7)	С	24.0 Check	Self	DE	DE			Open Test Freq: Quarterly
CC pump discharge check valve. to prevent bypass flow from the a					ne pump is	secured	1		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CC-V30	3 (C-4)	С	1.5 Relief/Safety	Self	С	0			
CC return header from CS-P2A c	bil cooler relief val	ve-in scope p	per ISTC 1.1. Refere	nce: P&ID D20205.	•				Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V32	3 (D-6)	В	10.0 Butterfly	Air/Piston	0	С	С		Deen Test Freq:
CC supply to SF-E15A isolation va D20205.		normally op	,	' closure signal. Re	ference: P	&ID			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

## FIGURE F4

Valve Number	Class	14-1	Size (in.)	• • •		Positions			IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-V409	3 (E-4)	С	1.5 Relief/Safety	Self	С	0			Open Test Freq;
CC return header from EA	H-AC-2A relief valve-in	scope per IS	•	8ID D20205.					Close Test Freq:
									RV Test Freq: 10 Years
									CV Test Dir: ST Test Dir:
CC-V647	3	С	1.5	Self	с	0			
	(C-4)		Relief/Safety						Open Test Freq:
CC return header from SF-	-E-15A relief valve-in so	ope per ISTC	1.1. Reference: P&	ID D20205.					Close Test Freq:
									RV Test Freq: 10 Years CV Test Dir:
									ST Test Dir:
CC-V944	3	с	1.0	Self	0	с		RR-1	
	(A-12)		Check						Open Test Freq:
CC radiation monitor return									Close Test Freq: Quarterly
Deferences DOID DO0000	DBD.CC.01 revision	4 THIC VALV	IE MAR ADDED TO	THE IST BRAAD	ARE AC A	DECHIT	r		RV Test Freg:
									•
OF THE SECOND TEN Y	EAR INTERVAL REVI	EW on the ba					I		CV Test Dir:
OF THE SECOND TEN Y monitor skid seismic desig	EAR INTERVAL REVI	EW on the ba lion)							CV Test Dir: ST Test Dir:
References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V945	EAR INTERVAL REVI In status needs verificat	EW on the ba	sis of the seismic de					RR-1	CV Test Dir:
OF THE SECOND TEN Y monitor skid seismic desig CC-V945	EAR INTERVAL REVI on status needs verifical 3 (A-12)	EW on the ba tion) C	isis of the seismic de 1.0 Check	sign of the NNS pi	ping- the ra	C	·	RR-1	CV Test Dir: ST Test Dir: X X D D D D D D D D D D D D D D D D D D
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return	EAR INTERVAL REVI on status needs verifical 3 (A-12) I line check valve. This	EW on the ba tion) C valve is norma	isis of the seismic de 1.0 Check ally open and closes	sign of the NNS pi Self to isolate the conne	ping- the ra O ected NNS	C piping.		RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205	EAR INTERVAL REVI on status needs verifical 3 (A-12) I line check valve. This 5, DBD-CC-01, revision	EW on the ba tion) C valve is norma 1.THIS VALV	isis of the seismic de 1.0 Check ally open and closes /E WAS ADDED TC	sign of the NNS pi Self to isolate the conne THE IST PROGR	Ding- the ra O Ected NNS	C Piping. RESULT		RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq:
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y	EAR INTERVAL REVI on status needs verifical 3 (A-12) I line check valve. This 5, DBD-CC-01, revision EAR INTERVAL REVIE	EW on the ba tion) C valve is norm 1.THIS VALV EW on the ba	isis of the seismic de 1.0 Check ally open and closes /E WAS ADDED TC	sign of the NNS pi Self to isolate the conne THE IST PROGR	Ding- the ra O Ected NNS	C Piping. RESULT		RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir:
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig	EAR INTERVAL REVI on status needs verifical (A-12) In line check valve. This DBD-CC-01, revision EAR INTERVAL REVI In status needs verificat	EW on the ba tion) C valve is norma 1.THIS VALV EW on the ba tion)	1.0 1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de	sign of the NNS pi Self to isolate the conne THE IST PROGR sign of the NNS pi	O O Ected NNS RAM AS A Ding- the ra	C piping. RESULT	Γ	RR-1	CV Test Dir: ST Test Dir: X X Den Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig	EAR INTERVAL REVI gn status needs verifical (A-12) a line check valve. This b, DBD-CC-01, revision EAR INTERVAL REVIE In status needs verificat 3	EW on the ba tion) C valve is norm 1.THIS VALV EW on the ba	1.0 1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de	sign of the NNS pi Self to isolate the conne THE IST PROGR	Ding- the ra O Ected NNS	C Piping. RESULT		RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V975	EAR INTERVAL REVI on status needs verifical (A-12) In line check valve. This DBD-CC-01, revision EAR INTERVAL REVIE In status needs verificat 3 (H-11)	EW on the ba tion) C valve is norm 1.THIS VALV EW on the ba tion) B	1.0 1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe	sign of the NNS pi Self to isolate the conne THE IST PROGR sign of the NNS pi Air/Diaphragm	O O Ected NNS RAM AS A ping- the ra	c piping. RESULT ad C	Γ	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Close Test Freq: CV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X Open Test Freq:
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V975 CC radiation monitor inlet is	EAR INTERVAL REVI on status needs verifical (A-12) a line check valve. This b, DBD-CC-01, revision EAR INTERVAL REVIE (n status needs verificat 3 (H-11) solation valve. This valve	EW on the ba tion) C valve is norm 1.THIS VALV EW on the ba tion) B e is normally	1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe	sign of the NNS pi Self to isolate the conne THE IST PROGR sign of the NNS pi Air/Diaphragm	o ccted NNS RAM AS A ping- the ra O	ed C piping. RESULT ad C C Surge	C	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X Open Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: Quarterly
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V975 CC radiation monitor inlet is tank level to isolate the com	EAR INTERVAL REVI gn status needs verifical (A-12) a line check valve. This b DBD-CC-01, revision EAR INTERVAL REVIE in status needs verificat 3 (H-11) solation valve. This valve nected NNS piping. Ref	EW on the ba tion) C valve is norm 1.THIS VALV EW on the ba tion) B e is normally ferences: P&	1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe open and receives ar D D20205, DBD-CC	sign of the NNS pi Self to isolate the conne O THE IST PROGR sign of the NNS pi Air/Diaphragm Air/Diaphragm	ping- the ra O ected NNS RAM AS A ping- the ra O al on low C nis valve wa	C piping. RESULT ad C C surge as added	C	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X Open Test Freq: Close Test Freq: Clos
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V975 CC radiation monitor inlet is tank level to isolate the conito to the IST program in revisi	EAR INTERVAL REVI gn status needs verifical (A-12) a line check valve. This v , DBD-CC-01, revision EAR INTERVAL REVIE In status needs verificat 3 (H-11) solation valve. This valve nected NNS piping. Ref on 10 of the SITR. The	EW on the ba tion) C valve is norm 1.THIS VALV EW on the ba tion) B e is normally ferences: P&	1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe open and receives ar D D20205, DBD-CC	sign of the NNS pi Self to isolate the conne O THE IST PROGR sign of the NNS pi Air/Diaphragm Air/Diaphragm	ping- the ra O ected NNS RAM AS A ping- the ra O al on low C nis valve wa	C piping. RESULT ad C C surge as added	C	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X Open Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: Quarterly
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V975 CC radiation monitor inlet is tank level to isolate the con to the IST program in revisi status was verified by Oper	EAR INTERVAL REVI gn status needs verifical (A-12) a line check valve. This v , DBD-CC-01, revision EAR INTERVAL REVIE In status needs verificat 3 (H-11) solation valve. This valve nected NNS piping. Ref on 10 of the SITR. The	EW on the ba tion) C valve is norm 1.THIS VALV EW on the ba tion) B e is normally ferences: P&	1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe open and receives ar D D20205, DBD-CC	sign of the NNS pi Self to isolate the conne O THE IST PROGR sign of the NNS pi Air/Diaphragm Air/Diaphragm	ping- the ra O ected NNS RAM AS A ping- the ra O al on low C nis valve wa	C piping. RESULT ad C C surge as added	C	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: CV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X X Open Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: CV Test Freq: CV Test Dir:
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V975 CC radiation monitor inlet is tank level to isolate the con to the IST program in revisi status was verified by Oper	EAR INTERVAL REVI gn status needs verifical (A-12) a line check valve. This v , DBD-CC-01, revision EAR INTERVAL REVIE In status needs verificat 3 (H-11) solation valve. This valve nected NNS piping. Review on 10 of the SITR. The rability Determination.	EW on the ba tion) C valve is norma 1.THIS VALV EW on the ba tion) B e is normally ferences: P& e seismic des	1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe open and receives ar ID D20205, DBD-CC ign of the NNS pipin	sign of the NNS pi Self to isolate the conne THE IST PROGR sign of the NNS pi Air/Diaphragm Air/Diaphragm auto closure signa -01, revision 1. Th g- the rad monitor s	o ected NNS AM AS A ping- the ra O al on low C his valve wa skid selsm	C piping. RESULT ad C C surge as added ic design	C	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X X Open Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: CV Test Dir: ST Test Dir: ST Test Dir: ST Test Dir:
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V975 CC radiation monitor inlet is tank level to isolate the com to the IST program in revisi status was verified by Oper CC-V1277	EAR INTERVAL REVI gn status needs verifical (A-12) a line check valve. This v , DBD-CC-01, revision EAR INTERVAL REVIE n status needs verificat 3 (H-11) solation valve. This valve nected NNS piping. Rei on 10 of the SITR. The rability Determination. 3 (B-8)	EW on the battion) C valve is norma 1.THIS VALV EW on the battion) B e is normally of ferences: P& e seismic des C	1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe open and receives ar D D20205, DBD-CC ign of the NNS pipin 0.75 Relief/Safety	sign of the NNS pi Self to isolate the conne O THE IST PROGR sign of the NNS pi Air/Diaphragm Air/Diaphragm auto closure signa c-01, revision 1. Th g- the rad monitor s Self	o ected NNS AM AS A ping- the ra O al on low C his valve wa skid selsm	C piping. RESULT ad C C surge as added ic design	C	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: ST Test Dir: ST Test Dir: CV Test Freq: CV Test Fr
OF THE SECOND TEN Y monitor skid seismic desig CC-V945	EAR INTERVAL REVI gn status needs verifical (A-12) a line check valve. This v , DBD-CC-01, revision EAR INTERVAL REVIE n status needs verificat 3 (H-11) solation valve. This valve nected NNS piping. Rei on 10 of the SITR. The rability Determination. 3 (B-8)	EW on the battion) C valve is norma 1.THIS VALV EW on the battion) B e is normally of ferences: P& e seismic des C	1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe open and receives ar D D20205, DBD-CC ign of the NNS pipin 0.75 Relief/Safety	sign of the NNS pi Self to isolate the conne O THE IST PROGR sign of the NNS pi Air/Diaphragm Air/Diaphragm auto closure signa c-01, revision 1. Th g- the rad monitor s Self	o ected NNS AM AS A ping- the ra O al on low C his valve wa skid selsm	C piping. RESULT ad C C surge as added ic design	C	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: ST Test Dir: CV Test Freq: CV Test Freq: CV Test Freq: CV Test Freq: CV Test Freq: CV Test Freq: CV Test Freq: Close Test Freq: CV Test Freq: Close Test Freq: CV Test Freq: Close Test Freq: CV Test Freq: Close Test Freq: CV Test Fr
OF THE SECOND TEN Y monitor skid seismic desig CC-V945 CC radiation monitor return References: P&ID D20205 OF THE SECOND TEN Y monitor skid seismic desig CC-V975 CC radiation monitor inlet is tank level to isolate the com to the IST program in revisi status was verified by Oper CC-V1277	EAR INTERVAL REVI gn status needs verifical (A-12) a line check valve. This v , DBD-CC-01, revision EAR INTERVAL REVIE n status needs verificat 3 (H-11) solation valve. This valve nected NNS piping. Rei on 10 of the SITR. The rability Determination. 3 (B-8)	EW on the battion) C valve is norma 1.THIS VALV EW on the battion) B e is normally of ferences: P& e seismic des C	1.0 Check ally open and closes /E WAS ADDED TC sis of the seismic de 1.0 Globe open and receives ar D D20205, DBD-CC ign of the NNS pipin 0.75 Relief/Safety	sign of the NNS pi Self to isolate the conne O THE IST PROGR sign of the NNS pi Air/Diaphragm Air/Diaphragm auto closure signa c-01, revision 1. Th g- the rad monitor s Self	o ected NNS AM AS A ping- the ra O al on low C his valve wa skid selsm	C piping. RESULT ad C C surge as added ic design	C	RR-1	CV Test Dir: ST Test Dir: X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: X X X X X X X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: ST Test Dir: ST Test Dir: CV Test Freq: CV Test

SYSTEM: CC

### FIGURE F4 IST VALVE TEST TABLE



# FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	s	Relief Reg	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-V341	3 (B-9)	В	20.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-2	
CC Train A CS-E4 return I essential loads under accid	line isolation valve. This	valve is norn ices: P&ID D	nally open and receiv	ves a "T" closure si , revision 1.	ignal to isol	ate non-		00-033-2	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir:
CC-V342	3	с	0.75	Self	С	0			ST Test Dir: Closed
Seal Water Heat Exchange non-safety loads. Therefore	(B-10) r A relief valve. This lin e, OPP is an issue and	ne is within sa this valve is i	Relief/Safety afety related bounda n scope per ISTC 1.	ry of CC piping foll 1.	owing isola	tion of			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V343	3 (C-9)	С	2.0 Relief/Safety	Self	С	0			Open Test Freq;
Letdown Heat Exchanger re safety loads. Therefore, OF	elief valve. This line is v PP is an issue and this	vithin safety n valve is in sco	elated boundary of C ope per ISTC 1.1.	C piping following	isolation of	f non-			Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V426	3 (H-12)	В	20.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-2	Open Test Freq:
CC Train A SC-3-NNS sup non-essential loads under ad	ply line isolation valve.	This valve is erences: P&I	normally open and re	eceives a "T" closu 2-01, revision 1.	ure signal to	o isolate		000002	Close Test Freq: CV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V427	3 (B-9)	В	20.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-2	
CC Train A SC-3-NNS retu non-essential loads under ad	Irn line isolation valve. T ccident conditions. Refe	his valve is n erences: P&II	ormally open and re D D20206, DBD-CC	ceives a "T" closur -01, revision 1.	e signal to	isolate			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed

# FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator		Positior	าร	Relief Reg	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-V26	3 (E-9)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
CC return header from SI-	P-6A relief valve-in sco	pe per ISTC		D D20205.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V57	2 (H-9)	A	12.0 Butterfly	Air/Piston	0	с	с	CC-CSJ-3	Open Test Freq:
CC supply IRC isolation for isolation signal. Reference:	X20- subject to Appen P&ID D20207, FSAR	ndix J Type C Table 6.2-83	LLRT. This valve is	normally open and	receives a	"P"			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V121	2 (B-6)	A	12.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-3	Open Test Freq:
CC return IRC isolation for isolation signal. Reference:				normally open and r	eceives a "	'P"			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V122	2 (B-7)	A	12.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-3	X     X     X     X     X       Open Test Freq:
CC return ORC isolation for isolation signal. Reference:				normally open and	receives a	"P"			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V135	3 (F-9)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
CC return header from CBS	S-P-9A relief valve-in so	cope per IST	C 1.1. Reference: Pa	&ID D20205.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V137	3 (G-9)	В	14.0 Butterfly	Motor	С	0			Open Test Freq: Quarterly
CC outlet from containment References: P&ID D20207	spray heat exchanger.	This valve is	normally closed and	receives a "P" oper	n signal.				Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open

# FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	s	Relief Reg	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-V141	3	С	0.75	Self	С	0			
	(E-9)		Relief/Safety						Open Test Freq: Close Test Freq:
CC return header from RH	-P-8A relief valve-in sc	ope per IST	C 1.1. Reference: P&	ID D20205.					RV Test Freq: 10 Years
									CV Test Dir:
									ST Test Dir:
CC-V143	3	с	3.0	Self	с	0			
	(D-9)		Relief/Safety						Open Test Freq:
CC return header from RH	-E9A relief valve-in sco	ope per ISTC	1.1. Reference: P&I	D D20205.					Close Test Freq:
									RV Test Freq: 10 Years
									CV Test Dir: ST Test Dir:
CC-V145	3	В	16.0	Motor	С	0			
	(D-9)		Butterfly						Open Test Freq: Quarterly
CC outlet from RHR heat ex	xchanger. This valve is	normally clo	sed and receives a "1	ſ" open signal. Ref	erences: P	&ID			Close Test Freq:
D20207									RV Test Freq: CV Test Dir;
									ST Test Dir: Open
CC-V168	2	Α	12.0	Air/Piston	0	с	с	···· · ·	
CC-V 100	(H-10)	~	Butterfly		Ũ	Ŭ	Ŭ	CC-CSJ-3	Open Test Freq:
CC supply ORC isolation fo	• •	ndiv I Type	•	normally open and	d receives :	a "'D"			Close Test Freq: CSD
isolation signal. Reference:	P&ID D20207, FSAR	Table 6.2-83		rionnany open an					RV Test Freq:
									CV Test Dir:
									ST Test Dir: Closed
CC-V407	3	С	1.5	Self	с	0			
	(G-9)		Relief/Safety						Open Test Freq:
CC return header from CBS	S-E16A relief valve-in s	scope per IS	TC 1.1. Reference: P	&ID D20205.					Close Test Freq:
									RV Test Freq: 10 Years
									CV Test Dir:
									ST Test Dir:
CC-V410	2	A/C	1.5	Self	с	DE			
	(B-6)		Relief/Safety						Open Test Freq:
Penetration X-21 thermal R	V, subject to Appendix	J Type C LL	RT-in scope per IST	C 1.1. Reference: I	P&ID D202	07.			Close Test Freq: Per Appendix J
									RV Test Freq: 10 Years CV Test Dir:
									ST Test Dir:
· · · · · · · · · · · · · · · · · · ·									

SYSTEM:	СС
PID No.:	D20207

## FIGURE F4

Valve Number	Class	Valve	Size (in.) and	Actuator		Position	s	Relief Rea				Progra ommil					
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-V845	2	A/C	1.5	Self	С	DE				$\square$		X		]		X	$\square$
	(H-9)		Relief/Safety							0	pen Te	est Fre	eq:				
Penetration X-20 thermal F	RV. subject to Appendix	J Type C LL	RT-in scope per IST	C 1.1. Reference:	P&ID D202	07				CI	ose Te	est Fre	eq: P	er App	endix	J	
	() and a fact of a defension of				0.0 0100	••••					RV Te	est Fre	eq: 1(	0 Year	s		
											cv.	Test D	Dir:				
											ст <sup>-</sup>	Test D	)ir:				

SYSTEM: CC

PID No.:

D20209

## FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator	Positions	Relief Reg	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM SAF FA	•	· DI FE FS LJ LK PE PI RT ST
CC-MM-762	3 (C-5)	D	10.0 Relief/Safety	Self	сo		Open Test Freq:
RCP thermal barrier loop head following a thermal barrier coil n piping for X-48 and X49 followi	upture. The IST sa	fety function	is OPP for the SC-2	closed loop contai	inment penetration		Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
CC-MM-763	3	D	10.0	Self	c o		
RCP thermal barrier loop head following a thermal barrier coil n piping for X-48 and X49 followi	upture. The IST sat	fety function	is OPP for the SC-2	closed loop contai	inment penetration		Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
CC-V1092	2 (A-11)	в	6.0 Butterfly	Motor	0 C	CC-CSJ-4	
CC to thermal barrier HX contai open and remains open during a abnormality such as penetration commitments contained in 96-T	all plant operating c leakage. This valv SEV0004. Referen	onditions, in e is included ce: P&ID D2	cluding accidents. It i in the IST program a 20209, FSAR Section	would be closed or as a result of the ev 9.2.2.2a, FSAR 1	nly in the event of an valuations and Fable 6.2-83.		RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1095	2 (C-11)	В	6.0 Butterfly	Motor	o c	CC-CSJ-4	Open Test Freq:
CC to thermal barrier HX contail open and remains open during a abnormality such as penetration commitments contained in 96-T	all plant operating c leakage. This valve	onditions, in e is included	cluding accidents. It v in the IST program a	would be closed or is a result of the ev	nly in the event of an valuations and		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1101	2 (F-11)	В	6.0 Butterfly	Motor	ос	CC-CSJ-4	Open Test Freq:
CC to thermal barrier HX contain open and remains open during a abnormality such as penetration commitments contained in 96-T	II plant operating calle and the second s	onditions, in a is included	cluding accidents. It will in the IST program a	would be closed or is a result of the ev	nly in the event of an valuations and		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1105	2	С	0.75	Self	со		
CC containment penetration (X- piping boundary from over press P&ID D20209, Engineering Eval	ure caused by ther	mal expansi	on of trapped fluid un				Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

#### FIGURE F4 SYSTEM: CC **IST VALVE TEST TABLE** PID No.: D20209 IST Program Plan Size (in.) and Valve Number Class Commitment Positions and Valve Actuator Relief Req C.S. Just. Remarks Coord (CAT) Туре Туре NRM SAF FAL DI FE FS LJ LK PE PI RT ST CC-V1109 2 в 6.0 Motor 0 С X X X (G-11) Butterfly CC-CSJ-4 Open Test Freq: Close Test Freq: CSD CC to thermal barrier HX containment isolation valve (X-49)- exempt from Appendix J Type C LLRT. This valve is normally open and remains open during all plant operating conditions, including accidents. It would be closed only in the event of an RV Test Freq: abnormality such as penetration leakage. This valve is included in the IST program as a result of the evaluations and commitments contained in 96-TSEV0004. Reference: P&ID D20209, FSAR Section 9.2.2.2a, FSAR Table 6.2-83. CV Test Dir: ST Test Dir: Closed CC-V1112 С 2 0.75 Self С 0 ا 🏼 آ (C-10) Relief/Safety Open Test Freq: Close Test Freq: CC containment penetration (X-48), relief valve. This valve is required to open to protect the containment penetration piping boundary from over pressure caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20209, Engineering Evaluation SS-EV-960023, Revision 0. RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

# FIGURE F4

Valve Number	Class	Malua	Size (in.)	A		Position	s	DellarDes	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-TCV2271-1	3 (F-10)	В	24.0 Butterfly	Air/Piston	ТН	ТН	0	CC-CSJ-1	Open Test Freq: CSD
CC heat exchanger outlet flow maintain CC HX outlet tempera fails open on loss of air, directin	control valve. This value at a preset value	ue. Backup a	es in conjunction with air bottles are provide	d for operation post	LOP. This	s valve		00-000-1	Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CC-TCV2271-2	3	В	24.0	Air/Piston	тн	TH	С		
CC heat exchanger bypass flow maintain CC HX outlet tempera fails closed on loss of air, direc	iture at a preset valu	ue. Backup a	air bottles are provide	d for operation post	LOP. This	s valve		CC-CSJ-1	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V295	3 (D-10)	С	24.0 Check	Self	DE	DE			Open Test Freq: Quarterly
CC pump discharge check valv to prevent bypass flow from the	/e. This valve opens e alternate pump in	s when the C the same tr	C pump is operating, ain. References: P&	, and closes when th ID D20211	he pump is	secure	d		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CC-V298	3 (D-7)	С	24.0 Check	Self	DE	DE			Open Test Freq: Quarterly
CC pump discharge check valv to prevent bypass flow from the					he pump is	secure	d		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CC-V320	3 (D-4)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
Charging Pump CS-P-128 (PD safety related boundary of CC p scope per ISTC 1.1.	P) oil cooler relief va biping following isola	alve. Althou ation of non∹	gh PDP is not in safe safety loads.  Therefo	ety related scope, th bre, OPP is an issue	ils line is wi e and this v	ithin /alve is i	'n		Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V321	3 (C-4)	С	1.5 Relief/Safety	Self	С	0			Open Test Freq:
CC return header from CS-P2I		ve-in scope	•	nce: P&ID D20211					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class	Mahar	Size (in.)	A	1	Positions	5	Relief Reg	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-V442	3 (E-4)	С	1.5 Relief/Safety	Self	С	0			Open Test Freq:
CC return header from EA	H-AC-2B relief valve-in	scope per IS	ГС 1.1. Reference: F	2&ID D20211.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V946	3 (B-12)	с	1.0 Check	Self	0	С	****	RR-1	X X
CC radiation monitor return References: P&ID D20211 OF THE SECOND TEN YI monitor skid seismic desig	, DBD-CC-01, revision EAR INTERVAL REVIE	1.THIS VAL\ EW on the ba	E WAS ADDED TO	THE IST PROG	RAM AS A	RÉSUL	т		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CC-V947	3 (B-12)	С	1.0 Check	Self	0	С		RR-1	X X Open Test Freq:
CC radiation monitor return References: P&ID D20211 OF THE SECOND TEN YE skid seismic design status	, DBD-CC-01, revision EAR INTERVAL REVIE	1.THIS VAL	E WAS ADDED TO	THE IST PROG	RAM AS A	RÉSUL			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CC-V986	3 (H-11)	В	1.0 Globe	Air/Diaphragm	0	С	С		X     X     X     X     X       Open Test Freq:     X     X     X
CC radiation monitor inlet is tank level to isolate the conr to the IST program in revisi status was verified by Oper	nected NNS piping. Ref on 10 of the SITR. The	erences: P&I	D D20211, DBD-CC	C-01, revision 1.Thi	s valve was	s added			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1283	3	с	2.0 Chaok	Self	DE	0			
CC supply to CS-P-2B oil c References: P&ID D20211.		valve must o	Check pen to supply CC to	the charging / ECC	CS pump oi	l cooler.			Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir:

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### FIGURE F4

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CC-V171	3 (B-10)	С	1.5 Relief/Safety	Self	С	0			Open Test Freq:
CC return header from SF-I	E-15B relief valve-in sco	ope per ISTO	C 1.1. Reference: P8	ID D20212.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V445	3 (B-12)	8	10.0 Butterfly	Air/Piston	0	с	с		X     X     X     X     X       Open Test Freq: Quarterly     X     X
CC supply to SF-E15B isola D20212.	ation valve. This valve is	s normally op	en and receives a "ו"	" close signal. Ref∉	erence: P&	ID			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V447	3 (H-12)	В	20.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-2	Open Test Freq: CSD
CC supply SC-3 / NNS isolaunder accident conditions. I			ben and receives a "T	" close signal to ise	plate NNS	loads			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V448	3 (A-9))	В	20.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-2	Open Test Freq:
CC return SC-3 / NNS isola under accident conditions. F			en and receives a "T	" close signal to iso	late NNS I	oads			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1168	3 (D-10)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
Seal Water Heat Exchanger non-safety loads. Therefore					wing isolal	lion of			Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

# FIGURE F4

Valve Number	Class	Valve	Size (in.)	Actuator	1	Position	IS	Relief Reg	IST Program Plan Commitment
Remarks	and Coord	(CAT)	and Type	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-V175	2 (H-6)	Α	12.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-3	X     X     X     X     X       Open Test Freq:
CC supply ORC isolation for X2 isolation signal. Reference: P&I				is normally open and	f receives a	a "P"			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V176	2 (H-5)	A	12.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-3	Open Test Freq:
CC supply IRC isolation for X23 isolation signal. Reference: P&I				normally open and	receives a	"P"			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V256	2 (B-5)	A	12.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-3	Open Test Freq:
CC return IRC isolation for X22- isolation signal. Reference: P&I	- subject to Append D D20213, FSAR	dix J Type C Table 6.2-83.	LLRT. This valve is	normally open and r	eceives a "	'P"			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V257	2 (B-6)	A	12.0 Butterfly	Air/Piston	0	С	С	CC-CSJ-3	Open Test Freq:
CC return ORC isolation for X22 isolation signal. Reference: P&II			LLRT. This valve is	normally open and	receives a	"P"			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V262	3 (F-5)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
CC return header from CBS-P-	9B relief valve-in s	cope per IST	C 1.1. Reference: P	&ID D20213.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V264	3 (G-4)	С	1.5 Relief/Safety	Self	С	0			Open Test Freq:
CC return header from CBS-E1	6B relief valve-in s	scope per IST	C 1.1. Reference: P	2&ID D20213.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

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## FIGURE F4

Valve Number	Class and	Valve	Size (in.)	Actuator		Position	IS	Deliaf Dea	IST Program Plan Commitment
Remarks	Coord	(CAT)	and Type	Туре	NRM	SAF	FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
CC-V266	3	В	14.0 Butterflu	Motor	С	0			
	(G-4)	<b>. .</b>	Butterfly						Open Test Freq: Quarterly Close Test Freq:
CC outlet from containmen References: P&ID D20213		. This valve i	is normally closed and	receives a "P" op	en signal.				RV Test Freq:
									CV Test Dir:
									ST Test Dir: Open
CC-V269	3	с	0.75	Self	с	0			
	(F-5)		Relief/Safety						Open Test Freq:
CC return header from RH	H-P-8B relief valve-in so	ope per IST	C 1.1. Reference: P&	ID D20213.					Close Test Freq:
									RV Test Freq: 10 Years CV Test Dir:
									ST Test Dir:
		с	2.0						
CC-V271	3 (D-5)	C	3.0 Relief/Safety	Self	С	0			
		1070	•						Open Test Freq: Close Test Freq:
CC return header from RH	1-E9B relief valve-in sco	ope per ISTC	1.1. Reference: P&II	0 020213.					RV Test Freq: 10 Years
									CV Test Dir:
									ST Test Dir:
CC-V272	3	в	16.0	Motor	с	0			
	(D-4)		Butterfly						Open Test Freq: Quarterly
CC outlet from RHR heat e	exchanger. This valve is	normally clo	ised and receives a "T	" open signal. Ref	ferences: P	&ID			Close Test Freq:
D20213		•							RV Test Freq: CV Test Dir:
									ST Test Dir: Open
	3	С		0.1/					
CC-V322	3 (E-5)	C	0.75 Relief/Safety	Self	С	0			Open Test Freq:
CC return header from SI-		ne ner ISTC	•	020213					Close Test Freq:
CO lettin neader noin 31-		he her 1910	1.1. Kelelence, Post	020213.					RV Test Freq: 10 Years
									CV Test Dir:
									ST Test Dir:
CC-V474	2	A/C	1.5	Self	с	0			
	(B-5)		Relief/Safety						Open Test Freq:
Penetration X-22 thermal R	V, subject to Appendix	J Type C LL	RT-in scope per IST(	C 1.1. Reference:	P&ID D202	13.			Close Test Freq: Per Appendix J
									RV Test Freq: 10 Years CV Test Dir:
									ST Test Dir:

S	

# FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator	I	Position	s	Relief Rea					am Pla ment				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	ΡI	RT	ST
CC-V840	2 (H-5)	A/C	1.5 Relief/Safety	Self	С	DE						X est Fre				X	
Penetration X-23 thermal I	RV, subject to Appendix	J Type C LL	RT-in scope per IST	C 1.1. Reference:	P&ID D202	13.					RV Te		eq: 10	er Appe Years		J	
												Test D					

#### FIGURE F4 SYSTEM: CGC **IST VALVE TEST TABLE** PID No.: B20612 **IST Program Plan** Size (in.) and Valve Number Class Commitment Positions Valve **Relief Req** Actuator and Remarks Coord (CAT) SAF DI FE FS LJ LK PE PI RT ST Туре Туре NRM FAL C.S. Just. CGC-V3 2 в 1.0 Manual С X DE X (C-9) Globe Open Test Freq: Quarterly Close Test Freq: Quarterly "A" train hydrogen analyzer return CIV for penetration X72 / X75- exempt from Appendix J Type C LLRT. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen **RV** Test Freq: concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, CV Test Dir: or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve ST Test Dir: as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, FSAR Section 6.2.5, FSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1. 2 в CGC-V4 1.0 Self С 0 X (C-10) Check CGC-CSJ-1 Open Test Freq: CSD Close Test Freq: "A" train hydrogen analyzer return IRC CIV for penetration X72 / X75- exempt from Appendix J Type C LLRT. This check valve is normally closed and opens post LOCA to place the hydrogen analyzer into service. The containment hydrogen RV Test Freq: concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, CV Test Dir: or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve ST Test Dir: as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, FSAR Section 6.2.5, FSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1. CGC-V10 2 в 1.0 X X X Manual С DE

normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these items when necessary). References: P&ID B20612, FSAR Section 6.2.5, FSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

"A" train hydrogen analyzer inlet CIV for penetration X72 / X75- exempt from Appendix J Type C LLRT. This valve is

Globe

Globe

(E-9)

(E-8)

"A" train hydrogen analyzer inlet isolation valve. This valve is normally closed and opened post LOCA to place the hydrogen analyzer into service. The containment hydrogen concentration reading is utilized by the operators, post LOCA, to determine when to place the recombiners into service, or to take other actions as directed by the TSC. Although exempt from App J test requirements, LLRT performed on valve as conservative measure to ensure integrity of piping loop (no leakage) outside containment, through sample bombs and analyzer cabinets (especially useful following maintenance on these Items when necessary). References: P&ID B20612, FSAR Section 6.2.5, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

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Open Test Freq: Quarterly Close Test Freq: Quarterly

**RV Test Freq:** 

CV Test Dir:

ST Test Dir:

**RV Test Freq:** 

CV Test Dir:

ST Test Dir:

Open Test Freq: Quarterly Close Test Freq: Quarterly

X

SYSTEM: PID No.:	CGC B20612			IST \	FIGUR ALVE		TAB	LE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		sitions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
hydrogen analy to determine wh	zer into service. Th	e containment h combiners into s	ydrogen conc ervice, or to t	entration reading is ake other actions a	Manual opened post LOCA s utilized by the ope as directed by the T	to place the rators, post L0	DE OCA, es:		X       Image: Construction of the second seco
CGC-V14 Containment Pu The containmer	irge IRC-CIV for p	2 (G-9) enetration X72 / a defense in de	A X75. This valv	2.0 Globe ve is normally close the redundant- sa	Motor ed and receives a "1 fety related hydroge	Γ" closure sign n recombiners	, and		ST Test Dir:
greater than the air, and is not r	design basis gene equired to function	eration rate. The for SSD or desi	purge subsys on basis accid	stem relies on non-	drogen generation ra safety related syste is valve is subject to 	ems such as se	ervice		CV Test Dir: ST Test Dir: Closed
CGC-V15		2 (G-9)	A	2.0 Globe	Manual	С	С		Open Test Freg:
function. The contract of the recombiners, and was significantly such as service	ontainment purge f d would be placed greater than the c air, and is not req	unction is a defe into service only lesign basis gen uired to function	ense in depth i / if both recom eration rate. ] for SSD or de	backup to the redu Ibiners failed or if t Fhe purge subsyste Isign basis accider	nally closed and has ndant- safety relate he post LOCA hydr em relies on non-sa nt mitigation. This v 6.2-83, OS1023.72	d hydrogen ogen generatio ifety related sys alve is subject	on rate stems		Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:
CGC-V24		2 (C-9)	В	1.0 Globe	Manual	C	DE		Open Test Freq: Quarterly
normally closed concentration re or to take other as conservative analyzer cabinet	and opened post L ading is utilized by actions as directed measure to ensure	OCA to place th the operators, j by the TSC. All integrity of pipir following maint	e hydrogen ar post LOCA, to hough exemp ig loop (no lea enance on the	alyzer into service determine when to t from App J test n kage) outside cont se items when new	endix J Type C LLR . The containment I o place the recomb equirements, LLRT tainment, through sa cessary). Reference	hydrogen iners into servi performed on ample bombs a	ice, valve and		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:

FSAR Section 6.2.5, FSAR Table 6.2-83, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.

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# FIGURE F4

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
	2	B	1.0	Self	C	0			
CGC-V25	(C-10)	Б	Check	Sen	C	0		CGC-CSJ-1	Open Test Freq:
"B" train hydrogen analyzer valve is normally closed and concentration reading is util or to take other actions as o as conservative measure to analyzer cabinets (especiall FSAR Section 6.2.5, FSAR	I opens post LOCA to p ized by the operators, directed by the TSC. Al ensure integrity of pipin y useful following main	place the hydr post LOCA, to though exemp ng loop (no lea tenance on th	ogen analyzer into o determine when t of from App J test r akage) outside con ese items when ne	service. The contair o place the recomb equirements, LLRT tainment, through s cessary). Reference	nment hydro iners into s performed ample boml	ogen ervice, on valve bs and			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CGC-V28	2	А	2.0	Motor	с	С			
	(D-9)		Globe						Open Test Freq:
would be placed into service greater than the design basi air, and is not required to fu LLRT. References: P&ID B	is generation rate. The Inction for SSD or designed	purge subsy: gn basis acci	stem relies on non- tent mitigation. Thi	safety related syste s valve is subject to	ms such as	service			CV Test Dir: ST Test Dir: Closed
CGC-V32	2 (D-9)	В	1.0 Globe	Manual	С	DE			Open Test Freq: Quarterly
"B" train hydrogen analyzer normally closed and opened concentration reading is utill or to take other actions as c	inlet CIV for penetration post LOCA to place th ized by the operators, j directed by the TSC. All ensure integrity of pipir	e hydrogen a post LOCA, to though exemp ng loop (no lea	exempt from Appen nalyzer into service o determine when to to from App J test r akage) outside conf ese items when ne	. The containment to place the recomb equirements, LLRT ainment, through se cessary). Reference	nydrogen iners into se performed ample bomb	ervice, on valve os and			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
analyzer cabinets (especially		1, OS1023.7	1, TS 3.3.3.6, 3.6.	4.1.					
analyzer cabinets (especially FSAR Section 6.2.5, FSAR		1, OS1023.7 B	1, TS 3.3.3.6, 3.6.  1.0	4.1. Manual	С	DE			
as conservative measure to analyzer cabinets (especially FSAR Section 6.2.5, FSAR CGC-V34	Table 6.2-83, EOP-E-				С	DE			X     X     Image: Comparison of the sector of the

#### SYSTEM: CGC B20612 PID No.:

### FIGURE F4 IST VALVE TEST TABLE

Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CGC-V35	2 (C-5)	В	1.0 Globe	Manual	C DE		Open Test Freq: Quarterly
"B" train hydrogen analyzer hydrogen analyzer into serv to determine when to place P&ID B20612, FSAR Section	ice. The containment h the recombiners into s	ydrogen conc ervice, or to t	entration reading is ake other actions a	utilized by the oper	rators, post LOCA,		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CGC-V36	2 (D-9)	A	2.0 Globe	Manual	СС		Open Test Freq:
recombiners, and would be was significantly greater tha such as service air, and is in Appendix J Type C LLRT.	n the design basis gen not required to function References: P&ID B20	eration rate. for SSD or de 612, FSAR S	The purge subsyste esign basis accider ection 6.2.5, Table	em relies on non-sa nt mitigation. This v 6.2-83, OS1023.72	fety related systems alve is subject to 2.		CV Test Dir: ST Test Dir:
CGC-V43	2 (B-8)	A	2.0 Gate	Manual	сс		Open Test Freg:
Containment Purge supply ( safety function. The contair recombiners, and would be was significantly greater tha	nment purge function is placed into service only in the design basis gen	a defense in if both recom eration rate.	depth backup to th biners failed or if th The purge subsyste	e redundant- safety ne post LOCA hydr em relies on non-sa	related hydrogen ogen generation rate fety related systems		Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir:
such as service air, and is r appendix J Type C LLRT.	References: P&ID B20	612, FSAR S	ection 6.2.5, Table	nt mitigation. This vi 6.2-83, OS1023.72	alve is subject to 2.		ST Test Dir:
such as service air, and is r Appendix J Type C LLRT. F CGC-V44	References: P&ID B20 2 (B-8)	612, FSAR Si	2.0 Cate	6.2-83, OS1023.72 Manual	alve is subject to 2. C C		
Appendix J Type C LLRT. F CGC-V44 Containment Purge supply C afety function. The contain ecombiners, and would be p vas significantly greater than such as service air, and is r	References: P&ID B20 2 (B-8) DRC-CIV for penetratio iment purge function is placed into service only n the design basis gen- not required to function	A n X76 / X38. a defense in if both recom eration rate. 1 for SSD or de	2.0 Gate This manual valve depth backup to th biners failed or if th The purge subsyste esign basis accider	6.2-83, OS1023.72 Manual is normally closed a e redundant- safety te post LOCA hydr- tm relles on non-sa at mitigation. This va	C C and has no active related hydrogen ogen generation rate fety related systems alve is subject to		
Appendix J Type C LLRT. I	References: P&ID B20 2 (B-8) DRC-CIV for penetratio iment purge function is placed into service only n the design basis gen- not required to function	A n X76 / X38. a defense in if both recom eration rate. 1 for SSD or de	2.0 Gate This manual valve depth backup to th biners failed or if th The purge subsyste esign basis accider	6.2-83, OS1023.72 Manual is normally closed a e redundant- safety te post LOCA hydr- tm relles on non-sa at mitigation. This va	C C and has no active related hydrogen ogen generation rate fety related systems alve is subject to		Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir:
Appendix J Type C LLRT. F CGC-V44 Containment Purge supply C safety function. The contain ecombiners, and would be p vas significantly greater than such as service air, and is r Appendix J Type C LLRT. F	References: P&ID B20 (B-8) DRC-CIV for penetration ment purge function is placed into service only n the design basis genu not required to function References: P&ID B200 2 (B-8)	A n X76 / X38. a defense in if both recom eration rate. 1 for SSD or de 512, FSAR Se A	2.0 Gate This manual valve depth backup to th biners failed or if th The purge subsyste sign basis accider sction 6.2.5, Table 10.0 Gate	6.2-83, OS1023.72 Manual is normally closed i e redundant- safety he post LOCA hydro em relies on non-sa t mitigation. This va 6.2-83, OS1023.72 Manual	C C and has no active related hydrogen ogen generation rate fety related systems alve is subject to C C		Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:

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SYSTEM:	CGC
PID No.:	B20612

#### FIGURÉ F4 IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Reg	IST Program Plan Commitment								
Remarks					NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CGC-V46	(B-10)	A/C	10.0 Check	Self	с	С					pen T	X est Fr	] 🗌				
Containment Purge supply IRC safety function. The containmer recombiners, and would be pla was significantly greater than ti such as service air, and is not Appendix J Type C LLRT. Ref Remove from FSAR Active Val	ent purge function is ced into service onl ne design basis ger required to functior rerences: P&ID B20	is a defense in ly if both recor neration rate. n for SSD or d	depth backup to the nbiners failed or if t The purge subsyste esign basis accident	e redundant- safety he post LOCA hydr em relies on non-sa nt mitigation. This v	related hyd ogen gener fety related alve is subje	drogen ation rat system ect to	te S				RV T CV	est Fr est Fr Test I Test I	Dir:	er App	endix	J	

### FIGURE F4 IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CO-V421	3	(0,11) C	2.0	Self	DE	<u>с</u>			
00-4421	(G-10)		Check					CO-CSJ-2	Open Test Freq:
Condensate transfer pump function, and if open, must	discharge to CST chec		3-NNS interface). Ti			open			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CO-V422	3	с	2.0	Self	DE	С			
00-4422	(G-10)	-	Check			-		CO-CSJ-2	Open Test Freg:
Condensate transfer pump function, and if open, must									RV Test Freq: CV Test Dir: ST Test Dir:
CO-V434	3	С	4.0	Self	С	с			
	(G-10)		Check					CO-CSJ-3	Open Test Freq: Quarterly
Startup aux feedwater pump when the SUFP is operating D20426, TS 3.7.1.2.									Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CO-V435	3 (G-10)	С	4.0 Check	Self	С	С		CO-CSJ-3	Open Test Freq: Quarterly
Startup aux feedwater pump when the SUFP is operating D20426, TS 3.7.1.2.									Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

 SYSTEM:
 COP

 PID No.:
 D20504

## FIGURE F4

Valve Number	Class	Valve	Size (in.)	Actuator		Position	s	Relief Reg	IST Program Plan Commitment
Remarks	and Coord	(CAT)	and Type	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
COP-V1	2 (D-8)	A	8.0 Butterfly	Air/Piston	С	С	С		Open Test Freq:
Containment online purge valve may be open during j References: P&ID D20504	power operation and rec								Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
COP-V2	2 (D-8)	A	8.0 Butterfly	Air/Piston	С	С	С		Open Test Freq:
Containment online purge may be open during power P&ID D20504, FSAR Tabl	operation and receives								Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
COP-V3	2 (E-8)	A	8.0 Butterfly	Air/Piston	С	С	С		Open Test Freq:
Containment online purge ( valve may be open during p References: P&ID D20504	oower operation and rec								Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
COP-V4	2 (E-8)	A	8.0 Butterfly	Air/Piston	с	С	С		Open Test Freq:
Containment online purge ov valve may be open during p References: P&ID D20504	power operation and rec								Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

### SYSTEM: CS PID No.: D20233

## FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	IS	Relief Rea	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CS-LCV112D	2	В	8.0	Motor	С	DE			
	(G-8)		Gate					CS-CSJ-1	Open Test Freq: CSD
RWST to CCP suction isolat	tion valve. This valve i	is normally clo	sed, opens to align	the CCP suction to	the RWS1	T for			Close Test Freq: CSD
ECCS injection and for SSD,							٥r		RV Test Freg:
					at foundage				CV Test Dir:
this valve per Engineering Ev					an iounago				CV Test Dir: ST Test Dir: Open/Closed
					C	DE			
this valve per Engineering Ev		erences: P&ID	D20233, FSAR S	ections 7.4, 6.3.	-			CS-CSJ-1	ST Test Dir: Open/Closed
this valve per Engineering Ev	valuation 94-031. Ref 2 (G-8)	erences: P&ID B	8.0 6 D20233, FSAR S 8.0 6 Gate	ections 7.4, 6.3. Motor	c	DE		CS-CSJ-1	ST Test Dir: Open/Closed
this valve per Engineering Ev CS-LCV112E RWST to CCP suction isolat	valuation 94-031. Ref 2 (G-8) tion valve. This valve i	erences: P&ID B is normally close	8.0 Gate sed, opens to align	ections 7.4, 6.3. Motor the CCP suction to	C o the RWS1	DE T for		CS-CSJ-1	ST Test Dir: Open/Closed
this valve per Engineering Ev	valuation 94-031. Ref 2 (G-8) tion valve. This valve i , and is closed during	B B B B B B B B B B B B B B B B B B B	8.0 Gate sed, opens to align recirculation. The	ections 7.4, 6.3. Motor the CCP suction to re are no specific s	C o the RWS1 eat leakage	DE T for e limits fo	or	CS-CSJ-1	ST Test Dir: Open/Closed

SYSTEM:	CS
PID No.:	D20722

## FIGURE F4

Valve Number	Class	Mahua	Size (in.)	6 aluatau		Position	s	Delief Dem	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
CS-V142	2 (C-7)	В	3.0 Gate	Motor	0	С		CS-CSJ-2	X     X     X       Open Test Freq:
CVCS normal charging head P&ID 1-CS-D20722, FSAR		en during nor	mal plant operation a	and closes on SI si	gnal. Refer	ences:			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V143	2 (C-8)	В	3.0 Gate	Motor	0	с		CS-CSJ-2	Open Test Freq:
CVCS normal charging head containment isolation valve ex 6.2-83.							e		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V144	2	С	3.0 Check	Self	0	0		CS-CSJ-XX	Open Test Freq: CSD
Normal charging IRC check v This valve is credited to open accident conditions. Referenc Evaluation SS-EV-960023, R	to protect penetration ces: P&ID D20722, F	i X-33 from o	verpressurization du	e to fluid thermal e	xpansion u	nder			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V148	2 (G-9)	С	2.0 Relief/Safety	Self	С	0			Open Test Freq:
Letdown line relief valve desig in the event of containment is ISTC 1.1 References: EWR	olation with upstream						}		Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CS-V149	2 (F-9)	A	3.0 Gate	Motor	0	с		CS-CSJ-2	X     X     X     X       Open Test Freq:
Normal letdown IRC isolation References: P&ID D20722, F				wn is not required f	for safe shu	utdown.			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V150	2 . (F-8)	A	3.0 Gate	Air/Diaphragm	0	С	С	CS-CSJ-2	Open Test Freq:
Normal letdown ORC isolatio References: P&ID D20722, F				own is not required	for safe sh	utdown.			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed

### SYSTEM: CS PID No.: D20722

## FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator		Positions	6	Relief Req	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CS-V177	2 (E-12)	В	3.0 Globe	Air/Diaphragm	DE	0	0	CSJ-11	Open Test Freq: CSD
Normal charging to loop 4 are relied upon to open and trapped fluid under accider Rev. 0.	isolation valve. Normall d remain open to preciu	de overpress	urization of penetri	ation X-33 due to the	rmal expa	nsion of			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CS-V178	1 (E-12)	С	3.0 Check	Self	DE	DE		CS-CSJ-12	Open Test Freq: CSD
Loop 4 charging line check expansion of trapped fluid n loop 1 to preclude two k 960023, Rev. 0.	under accident condition	ns. This valve	e must also close to	o prevent reverse flow	following	a LOCA			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V179	1 (E-12)	С	3.0 Check	Self	DE	DE		CS-CSJ-12	Open Test Freq: CSD
			مريم ملينا حميية حلام	Second and the second sec	افصف مريام 12	harmal			Close Test Freq: CSD
expansion of trapped fluid in loop 1 to preclude two k	under accident condition	ns. This valve	e must also close to	o prevent reverse flow	following	a LOCA			RV Test Freq: CV Test Dir: ST Test Dir:
expansion of trapped fluid n loop 1 to preclude two k 360023, Rev. 0.	under accident condition	ns. This valve	e must also close to	o prevent reverse flow	following	a LOCA	0	CSJ-11	CV Test Dir:
expansion of trapped fluid of n loop 1 to preclude two to 360023, Rev. 0. <b>CS-V180</b> Normal charging to loop 1 are relied upon to open and rapped fluid under accider	under accident condition pops feeding one pipe ru 2 (E-12) isolation valve. Normalh d remain open to preclu	ns. This valve upture. Refere B y either V177 de overpress	e must also close to ences; P&ID D207 3.0 Globe or V180 is open. urization of penetri	o prevent reverse flow '22, FSAR Section 3.6 Air/Diaphragm These valves have no ation X-33 due to the	following 5 5(N).2.3, S DE SSD func	a LOCA SS-EV- O ction, but		CSJ-11	CV Test Dir: ST Test Dir:
expansion of trapped fluid in n loop 1 to preclude two to 360023, Rev. 0. CS-V180 Normal charging to loop 1 are relied upon to open and rapped fluid under accider Rev. 0.	under accident condition pops feeding one pipe ru 2 (E-12) isolation valve. Normalh d remain open to preclu	ns. This valve upture. Refere B y either V177 de overpress	e must also close to ences; P&ID D207 3.0 Globe or V180 is open. urization of penetri	o prevent reverse flow '22, FSAR Section 3.6 Air/Diaphragm These valves have no ation X-33 due to the	following 5 5(N).2.3, S DE SSD func	a LOCA SS-EV- O ction, but		CSJ-11 CS-CSJ-12	CV Test Dir: ST Test Dir: Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir:
expansion of trapped fluid in n loop 1 to preclude two k 360023, Rev. 0. CS-V180 Normal charging to loop 1 are relied upon to open and rapped fluid under accider Rev. 0. CS-V181 Loop 1 charging line check expansion of trapped fluid to n loop 4 to preclude two k	under accident condition pops feeding one pipe ru 2 (E-12) isolation valve. Normall d remain open to preciu nt conditions. Reference 1 (D-12) k valve. This valve is reliv under accident condition	ns. This valve upture, Refere B y either V177 de overpress s: P&ID D20 C c ed upon to op ns. This valve	a must also close to ences; P&ID D207 3.0 Globe or V180 is open. urization of penetra 722, FSAR Sectio 3.0 Check ben to preclude over a must also close to	o prevent reverse flow 22, FSAR Section 3.6 Air/Diaphragm These valves have no ation X-33 due to the ns 5.4.7, 7.4, 9.3.4, 5 Self erpressurization of X-3 o prevent reverse flow	following 5(N).2.3, S DE SSD fund trmal expa SS-EV-960 DE DE I3 due to th following	a LOCA SS-EV- O ction, but nsion of 0023, DE hermal a LOCA			CV Test Dir: ST Test Dir: Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
expansion of trapped fluid of n loop 1 to preclude two to 360023, Rev. 0. <b>CS-V180</b> Normal charging to loop 1 are relied upon to open and rapped fluid under accider Rev. 0. <b>CS-V181</b> Loop 1 charging line check expansion of trapped fluid to n loop 4 to preclude two to 360023, Rev. 0.	under accident condition pops feeding one pipe ru 2 (E-12) isolation valve. Normall d remain open to preclu nt conditions. Reference 1 (D-12) c valve. This valve is reliv under accident condition pops feeding one pipe ru	ns. This valve upture, Refere B y either V177 de overpress s: P&ID D20 C c ed upon to op ns. This valve	a must also close to ences; P&ID D207 3.0 Globe or V180 is open. urization of penetra 722, FSAR Sectio 3.0 Check ben to preclude ove e must also close to ences; P&ID D207 3.0	o prevent reverse flow 22, FSAR Section 3.6 Air/Diaphragm These valves have no ation X-33 due to the ns 5.4.7, 7.4, 9.3.4, 5 Self erpressurization of X-3 o prevent reverse flow	following 5(N).2.3, S DE SSD fund trmal expa SS-EV-960 DE DE I3 due to th following	a LOCA SS-EV- O ction, but nsion of 0023, DE hermal a LOCA		CS-CSJ-12	CV Test Dir: ST Test Dir: Open Test Freq: CSD Close Test Freq: CV Test Dir: ST Test Dir: Open X Open Test Freq: CSD Close Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: ST Test Dir:
Loop 4 charging line check expansion of trapped fluid i in loop 1 to preclude two k 960023, Rev. 0. CS-V180 Normal charging to loop 1 are relied upon to open and trapped fluid under accider Rev. 0. CS-V181 Loop 1 charging line check expansion of trapped fluid to 10 cop 4 to preclude two k 960023, Rev. 0. CS-V182 Loop 1 charging line check expansion of trapped fluid to n loop 4 to preclude two k	under accident condition pops feeding one pipe ru 2 (E-12) isolation valve. Normall d remain open to preclu nt conditions. Reference 1 (D-12) c valve. This valve is relia under accident condition pops feeding one pipe ru 1 (D-12) c valve. This valve is relia under accident condition	ns. This valve upture, Refere B y either V177 de overpress as: P&ID D20 C ed upon to op ns. This valve upture. Refere C ed upon to op ns. This valve	a must also close to ences; P&ID D207 3.0 Globe or V180 is open. urization of penetra 722, FSAR Sectio 3.0 Check ben to preclude ove e must also close to a.0 Check ben to preclude ove a.0 Check ben to preclude ove a.0 Check	Air/Diaphragm Air/Diaphragm These valves have no ation X-33 due to the ns 5.4.7, 7.4, 9.3.4, 5 Self erpressurization of X-3 o prevent reverse flow (22, FSAR Section 3.6 Self erpressurization of X-3 o prevent reverse flow	following 5(N).2.3, S DE SSD fund smal expa SS-EV-960 DE 03 due to th following 5(N).2.3, S DE 03 due to th following s	a LOCA SS-EV- O ction, but nsion of 0023, DE hermal a LOCA SS-EV- DE hermal a LOCA			CV Test Dir: ST Test Dir: Open Test Freq: CSD Close Test Freq: CV Test Dir: ST Test Dir: Open X Open Test Freq: CSD Close Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

 SYSTEM:
 CS

 PID No.:
 D20725

### FIGURE F4

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF F/	Relief Req	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
		B		· · · · · · · · · · · · · · · · · · ·	0	с, "		
CS-LCV112B	2 (E-6)	в	4.0 Gate	Motor	0	C	CS-CSJ-4	Open Test Freq:
VCT outlet isolation valve. Thi closed during rapid boration f	s valve is normally o	pen and is aut erences: P&I	omatically closed d	uring ECCS actuat section 6.3, procedu	ion, and ma ire OS1202	nually 2.04.	00-000-4	Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-LCV112C	2	В	4.0	Motor	0	С		
	(E-6)		Gate				CS-CSJ-4	Open Test Freq:
VCT outlet isolation valve. Thi closed during rapid boration f								Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V192	2	С	4.0 Check	Self	0	DE	CS-CSJ-3	Open Test Freq: CSD
VCT outlet check valve. This we must remain open when the V Reverse closure is required to under certain small break scent Leakage in the closed direction Engineering Evaluation 94-31,	CT is isolated to retu preclude discharge narios where the RH n is not limited to a s	urn charging p of post LOCA R pump disch	ump recirculation f recirculated sump arge pressure cou	low to the pump suc fluid via the seal w id exceed the relief	ction when i ater HX relie valve setpoi	required. ef valve int.		RV Test Freq: CV Test Dir: ST Test Dir:
CS-V196	2	В	2.0	Motor	0	DE		
C3-V150	(C-11)	5	Globe		·	52		Open Test Freq: Quarterly
CCP min-flow isolation MOVs should pump flow drop below	. These valves are n		receive an "S" clos		open autom	atically		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V197	2 (D-10)	В	2.0 Globe	Motor	0	DE		Open Test Freq: Quarterly

SYSTEM: CS PID No.: D20725

### FIGURE F4 IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CS-V199	2 (D-10)	С	2.0 Check	Self	DE DE		Open Test Freq: Quarterly
Centrifugal charging pump is required to close to preve References: P&ID D20725.	ent CCP recirc flow dive						Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V200	2	С	4.0	Self	DE DE	RR-1	
CCP discharge check valve diversion through an idle CC revised; Relief Request RR	CP. References; P&ID	D20725. [Pa				CS-RJ-1	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:
CS-V209	2 (B-11)	С	4.0 Check	Self	DE DE		Open Test Freq: Refueling
CCP discharge check valve diversion through an idle CC revised; Relief Request RR	CP. References; P&ID	D20725. [Pa				CS-RJ1	Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:
CS-V210	2 (B-12)	в	4.0 Gate	Manual	0 C		Open Test Freq:
CCP manual discharge value boration flow path via the RC Procedures OS1200.01, OS Redundant flow paths from Because the SB SGCS des design requirements due to	ve. This valve is normall CP seal water injection S1200.02, OS1202.04. the BATs are provided sign does not include let	header. Refe This valve w for boration tdown capabl	s closed to align the erences P&ID D207 as added to the IST with RWST_used fo	25, D20726, FSAR program in Rev 10 or subsequent RCS	Table 7.4-1, to the SITR. inventory control.		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V211	2	С	2.0	Self	DE DE		
Centrifugal charging pump r is required to close to prever References: P&ID D20725.	nt CCP recirc flow dive						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:

#### SYSTEM: CS D20725 PID No.:

### FIGURE F4 IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CS-V213	2 (E-9)	С	3.0 Check	Self	DE	С			Open Test Freq:
Charging PDP (P-128) disc operation is not required for References: P&ID D20725	r SSD or accident mitig	ation, therefor	e the check valve h			P-128			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V219	2 (C-11)	В	3.0 Globe	Manual	С	тн		CS-CSJ-13	Open Test Freq: CSD
CCP manual discharge cro alternate boration flow path 1, Procedures OS1200.01, Redundant flow paths from Because the SB SGCS des design requirements due to	via the RCP seal water OS1200.02, OS1202.0 the BATs are provided sign does not include let	injection hea )4. This valve for boration v tdown capabi	der. References P& was added to the I vith RWST_used for	kID D20725, D2072 ST program in Rev or subsequent RCS	6, FSAR T 10 to the S inventory c	able 7.4 ITR. control.			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V220	2 (C-12)	B	4.0 Gate	Manual	0	С			Open Test Freq:
CCP manual discharge values boration flow path via the R Procedures OS1200.01, OS Redundant flow paths from Because the SB SGCS design requirements due to	CP seal water injection S1200.02, OS1202.04. the BATs are provided sign does not include let	header. Refe This valve wa for boration v down capabi	rences P&ID D207 as added to the IST vith RWST_used fo	25, D20726, FSAR program in Rev 10 or subsequent RCS	Table 7.4-4 to the SITF inventory c	1, R. control.			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V221	2	В	3.0	Manual	с	тн			
CCP manual discharge cro alternate boration flow path 1, Procedures OS1200.01, Redundant flow paths from Because the SB SGCS des design requirements due to	via the RCP seal water OS1200.02, OS1202.0 the BATs are provided sign does not include let	injection hear 4. This valve for boration w down capabil	der. References P8 was added to the I vith RWST_used for	ID D20725, D2072 ST program in Rev subsequent RCS	6, FSAR Ti 10 to the SI inventory c	able 7.4- ITR. ontrol.	9	CS-CSJ-13	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V227	2	С	0.75	Self	с	DE			
Charging pump suction relie	(A-8) ef valve. In scope per IS	TC 1.1. Refe	Relief/Safety rence P&ID D2072	5.					Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir:

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### SYSTEM: CS PID No.: D20725

# FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator	I	Positions	6	Relief Reg	IST Program Plan Commitment	
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C S. Just.	DI FE FS LJ LK PE PI RT	ST
CS-V460	2	В	6.0	Motor	С	DE				X
	(A-6)		Gate						Open Test Freq: Quarterly	
SI-CS pump suction cross-	-connect valve- This val	lve is normally	closed and is oper	n during the sump r	ecirculation	phase of	f		Close Test Freq: Quarterly	
ECCS operation, and may	be closed in the long te	rm to isolate a	an ECCS limited pa	ssive failure. Refere	ence: FSAR	Section	ł		RV Test Freq:	
6.3.									CV Test Dir:	
									ST Test Dir: Open/Closed	
CS-V461	2	В	6.0	Motor	С	DE				X
	(A-6)		Gate						Open Test Freq: Quarterly	
SI-CS pump suction cross-	-connect valve- This val	lve is normally	closed and is oper	o during the sump r	ecirculation	phase o	f		Close Test Freq: Quarterly	
ECCS operation, and may I									RV Test Freq:	
6.3.	•								CV Test Dir:	
									ST Test Dir: Open/Closed	
CS-V475	2	В	6.0	Motor	0	DE				X
	(A-6)		Gate							<u> </u>
	(···•)								Open Test Freq:	
SI-CS pump suction cross	. ,	This valve is	s normally open and	l will remain open u	niess close	d to			Close Test Freq: Quarterly	
SI-CS pump suction cross isolate a passive failure in the	-connect isolation valve									
SI-CS pump suction cross isolate a passive failure in the FSAR Section 6.3.	-connect isolation valve								Close Test Freq: Quarterly	

#### SYSTEM: CS PID No.: D20

## FIGURE F4

/alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM SAF	Relief Re FAL C.S. Just	
CS-V2	1 (A-10)	С	2.0 Check	Self	O DE	CS-CSJ-	
RCP seal water injection R mitigation. References: P&I its closure function to isolat Appendix 3A.	ID D20726, FSAR Sec	tions 5.4.7, 7.4	4, 9.3.4. This valve	was updated in Re	v 10 of the SITR for	1	Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V4	2	С	2.0	Self	0 0		
	(A-9)		Check			CS-CSJ-	
RCP seal water injection IR	C isolation check valve	e. This valve is	normally open and	remains open for t	both SSD and		Close Test Freq: CSD RV Test Freq:
accident mitigation. This Cl 5.4.7, 7.4, 9.3.4, FSAR Tat		pendix J Type	C LLR I. Reference	es: P&ID D20726,	FSAR Sections		CV Test Dir:
							ST Test Dir:
CS-V18	1	с	2.0	Self	O DE		
63-410	(B-10)	Ū.	Check			CS-CSJ-	
	( ,						
RCP seal water injection R	CPB check valve. This	valve is norma	ally open and remai	ns open during SS	D and accident		Close Test Freq: CSD
mitigation, References; P&I	ID D20726, FSAR Sec	tions 5.4.7, 7.4	4 9.3.4. This valve	was updated in Re	v 10 of the SITR for		RV Test Freq:
mitigation. References: P&I its closure function to isolate	ID D20726, FSAR Sec	tions 5.4.7, 7.4	4 9.3.4. This valve	was updated in Re	v 10 of the SITR for	i	RV Test Freq: CV Test Dir:
mitigation. References: P&I its closure function to isolate	ID D20726, FSAR Sec	tions 5.4.7, 7.4	4 9.3.4. This valve	was updated in Re	v 10 of the SITR for	1	RV Test Freq:
mitigation. References: P&I Its closure function to isolate Appendix 3A.	ID D20726, FSAR Sec te the RCS following a	tions 5.4.7, 7.4	4 9.3.4. This valve	was updated in Re	v 10 of the SITR for	1	RV Test Freq: CV Test Dir: ST Test Dir:
mitigation. References: P&I Its closure function to isolate Appendix 3A.	ID D20726, FSAR Sec te the RCS following a	tions 5.4.7, 7. HELB in the in	4, 9.3.4. This valve njection line outside	was updated in Re containment per F	v 10 of the SITR for SAR Section 3.6 and	l CS-CSJ-	RV Test Freq: CV Test Dir: ST Test Dir:
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve	tions 5.4.7, 7.4 HELB in the in C e. This valve is	4, 9.3.4. This valve njection line outside 2.0 Check s normally open and	was updated in Re containment per F Self remains open for t	v 10 of the SITR for SAR Section 3.6 and O O poth SSD and	1	RV Test Freq: CV Test Dir: ST Test Dir: 1 Open Test Freq: CSD Close Test Freq: CSD
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App	tions 5.4.7, 7.4 HELB in the in C e. This valve is	4, 9.3.4. This valve njection line outside 2.0 Check s normally open and	was updated in Re containment per F Self remains open for t	v 10 of the SITR for SAR Section 3.6 and O O poth SSD and	1	RV Test Freq: CV Test Dir: ST Test Dir: 1 Open Test Freq: CSD Close Test Freq: CSD RV Test Freq:
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App	tions 5.4.7, 7.4 HELB in the in C e. This valve is	4, 9.3.4. This valve njection line outside 2.0 Check s normally open and	was updated in Re containment per F Self remains open for t	v 10 of the SITR for SAR Section 3.6 and O O poth SSD and	1	RV Test Freq: CV Test Dir: ST Test Dir: 1 Open Test Freq: CSD Close Test Freq: CSD
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tab	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83.	tions 5.4.7, 7. HELB in the in C e. This valve is pendix J Type	4, 9.3.4. This valve njection line outside 2.0 Check normally open and C LLRT. Referenc	was updated in Re containment per F Self remains open for t es: P&ID D20726,	v 10 of the SITR for SAR Section 3.6 and O O poth SSD and FSAR Sections	1	RV Test Freq: CV Test Dir: ST Test Dir: X D D D D D D D 1 Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tab	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83.	tions 5.4.7, 7.4 HELB in the in C e. This valve is	4, 9.3.4. This valve njection line outside 2.0 Check c normally open and C LLRT. Referenc 2.0	was updated in Re containment per F Self remains open for t	v 10 of the SITR for SAR Section 3.6 and O O poth SSD and	CS-CSJ-	RV Test Freq: CV Test Dir: ST Test Dir: 1 Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: X X D D D D D D D D D D D D D D D D D D
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tat <b>CS-V34</b>	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83. 1 (C-10)	tions 5.4.7, 7./ HELB in the in C e. This valve is pendix J Type C	4, 9.3.4. This valve njection line outside 2.0 Check c normally open and C LLRT. Referenc 2.0 Check	was updated in Re containment per F Self remains open for t es: P&ID D20726, Self	v 10 of the SITR for SAR Section 3.6 and O O poth SSD and FSAR Sections O DE	1	RV Test Freq: CV Test Dir: ST Test Dir: 1 Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tat <b>CS-V34</b> RCP seal water injection RC mitigation. References: P&I	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83. 1 (C-10) CPB check valve. This ID D20726, FSAR Sec	tions 5.4.7, 7.4 HELB in the in C e. This valve is pendix J Type C valve is normations 5.4.7, 7.4	4, 9.3.4. This valve njection line outside 2.0 Check chormally open and C LLRT. Referenc 2.0 Check ally open and remai 4, 9.3.4. This valve	was updated in Re containment per F Self remains open for t es: P&ID D20726, Self ns open during SS was updated in Re	v 10 of the SITR for SAR Section 3.6 and O O Sooth SSD and FSAR Sections O DE D and accident v 10 of the SITR for	I CS-CSJ- CS-CSJ-1	RV Test Freq:         CV Test Dir:         ST Test Dir:         1       Open Test Freq: CSD         Close Test Freq:         CV Test Dir:         ST Test Dir:         ST Test Dir:         ST Test Dir:         ST Test Dir:         4
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tat <b>CS-V34</b> RCP seal water injection RG mitigation. References: P&I its closure function to isolate	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83. 1 (C-10) CPB check valve. This ID D20726, FSAR Sec	tions 5.4.7, 7.4 HELB in the in C e. This valve is pendix J Type C valve is normations 5.4.7, 7.4	4, 9.3.4. This valve njection line outside 2.0 Check chormally open and C LLRT. Referenc 2.0 Check ally open and remai 4, 9.3.4. This valve	was updated in Re containment per F Self remains open for t es: P&ID D20726, Self ns open during SS was updated in Re	v 10 of the SITR for SAR Section 3.6 and O O Sooth SSD and FSAR Sections O DE D and accident v 10 of the SITR for	I CS-CSJ- CS-CSJ-1	RV Test Freq:         CV Test Dir:         ST Test Dir:         1       Open Test Freq: CSD         Close Test Freq:         CV Test Dir:         ST Test Dir:         ST Test Dir:         X       X         Qpen Test Freq:         Quarterly         Close Test Freq:         CV Test Dir:         X       X         Qpen Test Freq:       Quarterly         Close Test Freq:       CSD         RV Test Freq:       CSD         RV Test Freq:       CV Test Dir:
RCP seal water injection RG mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tat <b>CS-V34</b> RCP seal water injection RG mitigation. References: P&I its closure function to isolate Appendix 3A.	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83. 1 (C-10) CPB check valve. This ID D20726, FSAR Sec	tions 5.4.7, 7.4 HELB in the in C e. This valve is pendix J Type C valve is normations 5.4.7, 7.4	4, 9.3.4. This valve njection line outside 2.0 Check chormally open and C LLRT. Referenc 2.0 Check ally open and remai 4, 9.3.4. This valve	was updated in Re containment per F Self remains open for t es: P&ID D20726, Self ns open during SS was updated in Re	v 10 of the SITR for SAR Section 3.6 and O O Sooth SSD and FSAR Sections O DE D and accident v 10 of the SITR for	I CS-CSJ- CS-CSJ-1	RV Test Freq:         CV Test Dir:         ST Test Dir:         1       Open Test Freq: CSD         Close Test Freq:         CV Test Dir:         ST Test Dir:         ST Test Dir:         X       X         Qpen Test Freq:         Quarterly         Close Test Freq:         CV Test Dir:         ST Test Dir:         Y         Qpen Test Freq:         Quarterly         Close Test Freq:         CSD         RV Test Freq:         CSD         RV Test Freq:
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tat <b>CS-V34</b> RCP seal water injection RG mitigation. References: P&I its closure function to isolate Appendix 3A.	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83. 1 (C-10) CPB check valve. This ID D20726, FSAR Sec	tions 5.4.7, 7.4 HELB in the in C e. This valve is pendix J Type C valve is normations 5.4.7, 7.4	4, 9.3.4. This valve njection line outside 2.0 Check chormally open and C LLRT. Referenc 2.0 Check ally open and remai 4, 9.3.4. This valve	was updated in Re containment per F Self remains open for t es: P&ID D20726, Self ns open during SS was updated in Re	v 10 of the SITR for SAR Section 3.6 and O O Sooth SSD and FSAR Sections O DE D and accident v 10 of the SITR for	I CS-CSJ- CS-CSJ-1	RV Test Freq:         CV Test Dir:         ST Test Dir:         1       Open Test Freq: CSD         Close Test Freq:         CV Test Dir:         ST Test Dir:         ST Test Dir:         X       X         Qpen Test Freq:         Quarterly         Close Test Freq:         CV Test Dir:         X       X         Qpen Test Freq:       Quarterly         Close Test Freq:       CSD         RV Test Freq:       CSD         RV Test Freq:       CV Test Dir:
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tat <b>CS-V34</b> RCP seal water injection RG mitigation. References: P&I its closure function to isolate Appendix 3A.	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83. 1 (C-10) CPB check valve. This ID D20726, FSAR Sec te the RCS following a	tions 5.4.7, 7.4 HELB in the in C e. This valve is pendix J Type C valve is normations 5.4.7, 7.4 HELB in the in	4, 9.3.4. This valve njection line outside 2.0 Check 5 normally open and C LLRT. Referenc 2.0 Check ally open and remai 4, 9.3.4. This valve njection line outside	was updated in Re containment per F Self remains open for t es: P&ID D20726, Self ns open during SS was updated in Re containment per F	v 10 of the SITR for SAR Section 3.6 and O O ooth SSD and FSAR Sections O DE D and accident v 10 of the SITR for SAR Section 3.6 and	I CS-CSJ- CS-CSJ-1	RV Test Freq:         CV Test Dir:         ST Test Dir:         1       Open Test Freq: CSD         Close Test Freq:         CV Test Dir:         ST Test Dir:         ST Test Dir:         X       X         Qpen Test Freq:         Quarterly         Close Test Freq:         CV Test Dir:         ST Test Dir:         Close Test Freq:         Quarterly         Close Test Freq:         CV Test Dir:         ST Test Dir:
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tat <b>CS-V34</b> RCP seal water injection RC mitigation. References: P&I its closure function to isolate Appendix 3A. <b>CS-V36</b> RCP seal water injection IR	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83. 1 (C-10) CPB check valve. This ID D20726, FSAR Sec te the RCS following a 2 (C-9) RC isolation check valve	tions 5.4.7, 7.4 HELB in the in C e. This valve is pendix J Type C valve is norma tions 5.4.7, 7.4 HELB in the in C c e. This valve is	4, 9.3.4. This valve njection line outside 2.0 Check anormally open and C LLRT. Referenc 2.0 Check ally open and remai 4, 9.3.4. This valve njection line outside 2.0 Check a normally open and	was updated in Re containment per F Self remains open for t es: P&ID D20726, Self ns open during SS was updated in Re containment per F Self remains open for t	v 10 of the SITR for SAR Section 3.6 and O O ooth SSD and FSAR Sections O DE D and accident v 10 of the SITR for SAR Section 3.6 and O O ooth SSD and	1 CS-CSJ-1 CS-CSJ-1	RV Test Freq:         CV Test Dir:         ST Test Dir:         1       Open Test Freq: CSD         Close Test Freq:         CV Test Dir:         ST Test Dir:         ST Test Dir:         ST Test Dir:         X       X         Qpen Test Freq:         CV Test Dir:         ST Test Dir:         Y         Qpen Test Freq:         Close Test Freq:         Close Test Freq:         CV Test Dir:         ST
mitigation. References: P&I its closure function to isolat Appendix 3A. <b>CS-V20</b> RCP seal water injection IR accident mitigation. This CI 5.4.7, 7.4, 9.3.4, FSAR Tat <b>CS-V34</b> RCP seal water injection RC mitigation. References: P&I its closure function to isolate Appendix 3A. <b>CS-V36</b>	ID D20726, FSAR Sec te the RCS following a 2 (B-9) RC isolation check valve IV is excluded from App ble 6.2-83. 1 (C-10) CPB check valve. This ID D20726, FSAR Sec te the RCS following a 2 (C-9) RC isolation check valve IV is excluded from App	tions 5.4.7, 7.4 HELB in the in C e. This valve is pendix J Type C valve is norma tions 5.4.7, 7.4 HELB in the in C c e. This valve is	4, 9.3.4. This valve njection line outside 2.0 Check anormally open and C LLRT. Referenc 2.0 Check ally open and remai 4, 9.3.4. This valve njection line outside 2.0 Check a normally open and	was updated in Re containment per F Self remains open for t es: P&ID D20726, Self ns open during SS was updated in Re containment per F Self remains open for t	v 10 of the SITR for SAR Section 3.6 and O O ooth SSD and FSAR Sections O DE D and accident v 10 of the SITR for SAR Section 3.6 and O O ooth SSD and	1 CS-CSJ-1 CS-CSJ-1	RV Test Freq:         CV Test Dir:         ST Test Dir:         1       Open Test Freq: CSD         Close Test Freq:         CV Test Dir:         ST Test Dir:         ST Test Dir:         X       X         Qpen Test Freq:         Quarterly         Close Test Freq:         CV Test Dir:         ST Test Dir:         Close Test Freq:         Quarterly         Close Test Freq:         CV Test Dir:         ST Test Dir:

#### SYSTEM: CS

#### PID No.: **D20726**

## FIGURE F4

Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CS-V50	1 (D-10)	С	2.0 Check	Self	0	DE		CS-CSJ-14	X X D C C C C C C C C C C C C C C C C C
RCP seal water injection R mitigation. References: P& its closure function to isolal Appendix 3A.	ID D20726, FSAR Sec	tions 5.4.7, 7.	4, 9.3.4. This valve	was updated in Re	v 10 of the S	SITR for	ł		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V52	2	С	2.0	Self	0	0			
BCD and unfor injection ID	(D-9)	This value is	Check	d ramaina anan far l	adh CCD a	<b>.</b>		CS-CSJ-11	Open Test Freq: CSD Close Test Freq: CSD
RCP seal water injection IR accident mitigation. This Cl 7.4, 9.3.4, FSAR Table 6.2	IV is excluded from App						I		RV Test Freq: CV Test Dir: ST Test Dir:
CS-V154	2	В	2.0	Motor	0	0			
	(D-8)		Globe						Open Test Freq: 2 Years
mitigation. Its open position 4.1. This CIV is excluded f FSAR Table 6.2-83, EWR	from Appendix J Type C 97-095.	C LLRT. Refe							RV Test Freq: CV Test Dir: ST Test Dir:
CS-V158	2 (C-8)	В	2.0 Globe	Motor	0	0			
									Open Test Freg: 2 Years
nitigation. Its open position 4.1. This CIV is excluded fr	i is therefore an importa rom Appendix J Type C	int passive fur	iction and will be te	ested by position inc	lication per	ISTC			Open Test Freq: 2 Years Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
mitigation. Its open position 4.1. This CIV is excluded fr FSAR Table 6.2-83, EWR	t is therefore an importa rom Appendix J Type C 97-095. 2	int passive fur	action and will be te ences: P&ID D207 2.0	ested by position inc	lication per	ISTC			Close Test Freq: RV Test Freq: CV Test Dir:
mitigation. Its open position 4.1. This CIV is excluded fr FSAR Table 6.2-83, EWR	i is therefore an importa rom Appendix J Type C 97-095.	nt passive fur LLRT. Refer	action and will be te ences: P&ID D207	ested by position inc 26, FSAR Sections	lication per 5.4.7, 7.4,	ISTC 9.3.4,			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: 2 Years
mitigation. Its open position 4.1. This CIV is excluded fr FSAR Table 6.2-83, EWR CS-V162 RCP seal water injection OI mitigation. Its open position 4.1. This CIV is excluded fr	t is therefore an importa rom Appendix J Type C 97-095. 2 (B-8) RC isolation valve. This is therefore an importa rom Appendix J Type C	ILLRT. Refer B s valve is norm nt passive fur	action and will be te ences: P&ID D207 2.0 Globe ally open and rema action and will be te	ested by position inc 26, FSAR Sections Motor ains open for both S	SD and action per	ISTC 9.3.4, O cident ISTC			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
mitigation. Its open position 4.1. This CIV is excluded fr FSAR Table 6.2-83, EWR CS-V162 RCP seal water injection OI mitigation. Its open position 4.1. This CIV is excluded fr FSAR Table 6.2-83, EWR	t is therefore an importa rom Appendix J Type C 97-095. 2 (B-8) RC isolation valve. This is therefore an importa rom Appendix J Type C 97-095. 2	ILLRT. Refer B s valve is norm nt passive fur	2.0 Globe and will be te 2.0 Globe ally open and rema action and will be te ences: P&ID D207; 2.0	ested by position inc 26, FSAR Sections Motor ains open for both S	SD and action per	ISTC 9.3.4, O cident ISTC			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: 2 Years Close Test Freq: RV Test Freq: CV Test Dir: ST Test DIr: X
RCP seal water injection O mitigation. Its open position 4.1. This CIV is excluded fr FSAR Table 6.2-83, EWR s CS-V162 RCP seal water injection Of mitigation. Its open position 4.1. This CIV is excluded fr FSAR Table 6.2-83, EWR s CS-V166	t is therefore an importa rom Appendix J Type C 97-095. 2 (B-8) RC isolation valve. This is therefore an importa rom Appendix J Type C 97-095.	Int passive fur LLRT. Refer B s valve is norm nt passive fur LLRT. Refer	2.0 Globe ally open and rema ction and will be te ences: P&ID D207	ested by position inc 26, FSAR Sections Motor ains open for both S ested by position inc 26, FSAR Sections	SD and action per 5.4.7, 7.4, 0 SD and actication per 5.4.7, 7.4,	ISTC 9.3.4, O cident ISTC 9.3.4,			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: 2 Years Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: CS PID No.: D20726

## FIGURE F4

Valve Number	Class		Size (in.)			Positions		IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
CS-V167	2 (G-11)	A	2.0 Globe	Motor	0	С	CS-CSJ-6	Open Test Freq:
RCP seal water return IRC iso subject to Type C LLRT per FS return is not required for SSD o	SAR Table 6.2-83.	This valve ha	s no safety function	in the open directic				Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V168	2 (G-12)	A	2.0 Globe	Motor	0	С	CS-CSJ-6	Open Test Freq:
RCP seal water return IRC isol subject to Type C LLRT per FS is not required for SSD or accir	ation valve. This val SAR Table 6.2-83. h	is valve has i	y open and receives no safety function in	the open direction				Close Test Freq: CV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V173	2 (F-12)	С	2.0 Relief/Safety	Self	С	0		Open Test Freq:
Seal water return header relief thermal expansion of trapped fl Engineering Evaluation SS-EV-	uid under accident o							Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CS-V250	2 (G-7)	С	2.0 Relief/Safety	Self	С	DE		Open Test Freq:
RCP seal water return relief val The min-flow recirc function is References: P&ID D20726, FS	required for CCP pr							Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CS-V471	1 (A-10)	С	2.0 Check	Self	0	DE	CS-CSJ-14	X X Open Test Freq: Quarterly
RCP seal water injection RCPE mitigation. References: P&ID D its closure function to isolate the Appendix 3A.	20726, FSAR Secti	ons 5.4.7, 7.	4, 9.3.4. This valve v	vas updated in Rev	10 of the S	SITR for		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V472	1	С	2.0	Self	0	DE		$\times$ $\times$ $\Box$ $\Box$ $\Box$ $\Box$ $\Box$ $\Box$ $\Box$ $\Box$
RCP seal water injection RCPB mitigation. References: P&ID D its closure function to isolate the Appendix 3A.	20726, FSAR Secti	ons 5.4.7, 7.	4, 9.3.4. This valve v	vas updated in Rev	10 of the S	SITR for	CS-CSJ-14	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

### SYSTEM: CS PID No.: D20726

## FIGURE F4

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	6	Relief Reg					am P tmenl					
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PI	E F	P	RT	ST
CS-V473	1	С	2.0	Self	0	DE			X	X				] [	][			
	(C-10)		Check					CS-CSJ-14		•			eq: Q		riy			
RCP seal water injection RCF													eq: C	SD				
mitigation. References: P&ID											RV Te		•					
its closure function to isolate t	the RCS following a l	HELB in the in	njection line outside	containment per F3	SAR Sectio	in 3.6 an	d				CVI							
Appendix 3A.											STI	est	Dir:					
CS-V474	1	с	2.0	Self	0	DE			X	X	Π				ÌГ	ר		<b>_</b>
	(D-10)		Check					CS-CSJ-11		Öp	en Te	st Fr	eq: Q	uarte	rlv 🗌	_		
		valve is norm		s open during SSI	D and accir	ient		CS-CSJ-11					eq: Q eq: C		rly	_		
RCP seal water injection RCF	PB check valve. This		ally open and remain					CS-CSJ-11		Clo		st Fr	eq: C		rly			
	PB check valve. This D20726, FSAR Sec	tions 5.4.7, 7.	ally open and remair 4, 9.3.4. This valve	was updated in Rev	v 10 of the	SITR for		CS-CSJ-11	_	Clo	se Te	st Fr st Fr	eq: C eq:		rly			
RCP seal water injection RCF mitigation. References: P&ID	PB check valve. This D20726, FSAR Sec	tions 5.4.7, 7.	ally open and remair 4, 9.3.4. This valve	was updated in Rev	v 10 of the	SITR for		CS-CSJ-11		Clo	se ⊤e ≀V Te	st Fr st Fr 'est I	eq: C eq: Dir:		rly			
RCP seal water injection RCF mitigation. References: P&ID its closure function to isolate t Appendix 3A.	PB check valve. This D20726, FSAR Sec	tions 5.4.7, 7.	ally open and remair 4, 9.3.4. This valve	was updated in Rev	v 10 of the	SITR for in 3.6 an		CS-CSJ-11		Clo	se Te RV Te CV 1	st Fr st Fr 'est I	eq: C eq: Dir:		rly			
RCP seal water injection RCP mitigation. References: P&ID its closure function to isolate t	PB check valve. This D20726, FSAR Sec the RCS following a l	tions 5.4.7, 7. HELB in the ir	ally open and remair 4, 9.3.4. This valve of njection line outside 0.75	was updated in Recontainment per FS	v 10 of the SAR Sectio	SITR for		CS-CSJ-11			Se Te RV Te CV 1 ST 1	st Fr st Fr est I est I	eq: C eq: Dir: Dir:				X	
RCP seal water injection RCF mitigation. References: P&ID its closure function to isolate t Appendix 3A. <b>CS-V794</b>	PB check valve. This D20726, FSAR Sec the RCS following a l 2 (G-12)	tions 5.4.7, 7. HELB in the ir  A/C	ally open and remain 4, 9.3.4. This valve njection line outside 0.75 Relief/Safety	was updated in Re containment per FS Self	v 10 of the SAR Sectio	SITR for in 3.6 an DE		CS-CSJ-11			se Te 2V Te CV 1 ST 1 En Te	st Fr fest f fest f fest f X st Fr	eq: C eq: Dir: Dir: Dir:		riy		X	
RCP seal water injection RCF mitigation. References: P&ID its closure function to isolate t Appendix 3A. <b>CS-V794</b> RCP seal water return contair	PB check valve. This D20726, FSAR Sec the RCS following a l 2 (G-12) nment penetration X3	tions 5.4.7, 7. HELB in the ir A/C B7B thermal re	ally open and remain 4, 9.3.4. This valve ojection line outside 0.75 Relief/Safety slief valve. This conta	was updated in Recontainment per FS	v 10 of the SAR Sectio C alve provide	SITR for in 3.6 an DE Sover		CS-CSJ-11		Clo I Op Clo	se Te CV Te CV T ST T En Te se Te	st Fr est I est I est I X st Fr st Fr	eq: C eq: Dir: Dir: Dir: eq: eq:	SD	][		X	
RCP seal water injection RCF mitigation. References: P&ID its closure function to isolate t Appendix 3A. <b>CS-V794</b>	PB check valve. This D20726, FSAR Sec the RCS following a l 2 (G-12) nment penetration X3 caused by thermal ex	tions 5.4.7, 7. HELB in the ir A/C B7B thermal re	ally open and remair 4, 9.3.4. This valve onjection line outside 0.75 Relief/Safety elief valve. This conta apped fluid under ac	was updated in Recontainment per FS Self ainment isolation vacident conditions.	v 10 of the SAR Sectio C alve provide This valve i	SITR for n 3.6 an DE s over s also		CS-CSJ-11		Clo I Op Clo	se Te CV Te CV T ST T En Te se Te	st Fr est I est I est I X st Fr st Fr	eq: C eq: Dir: Dir: eq: eq: eq: 10	SD	][		X	

SYSTEM: CS PID No.: D20729

## FIGURE F4

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	I NRM	Positions SAF	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CS-V410	3 (E-11)	В	4.0 Gate	Manual	0	DE	 	Open Test Freq: Quarterly
Boric acid tank outlet isolation depending on the required tar are provided for boration with not include letdown capability of water required.	nk alignment. Referer RWST_used for sub	ces: P&ID D sequent RCS	20729, OS1200.01. S inventory control. E	Redundant flow pa Because the SB Secouse	aths from th GCS desigr	e BATs n does		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V416	3 (E-8)	В	4.0 Gate	Manual	0	DE	 	Open Test Freq: Quarterly
Boric acid tank outlet isolation depending on the required tar are provided for boration with not include letdown capability, of water required.	nk alignment. Referei RWST used for sub	nces: P&ID D sequent RCS	20729, OS1200.01. S inventory control.	Redundant flow p secause the SB S	aths from th GCS design	ne BATs n does		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V423	3 (D-7)	В	2.0 Saunders Weir	Manual	0	DE		Open Test Freq: Quarterly
Boric acid pump discharge iso OS1200.01 depending on the from the BATs are provided for design does not include letdow large volume of water required	required tank alignm or boration with RWS wn capability, boratior	ent. Referen Tused for si	ces: P&ID D20729, ubsequent RCS inve	OS1200.01. Reduntory control. Bec	ndant flow p ause the St	3 SGCS		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V424	3 (C-11)	В	2.0 Saunders Weir	Manual	0	0	 	Open Test Freq:
P-3A discharge header isolation weekly recirc or for BAT Pump OS1200.01 but should remain	p quarterly surveilland	e test. This y	alve is not listed in F	SAR Table 7.4-1	rated during or operated	BAT in		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V426	2 (D-5)	В	2.0 Globe	Motor	С	DE	 CS-CSJ-7	Open Test Freq: CSD
Emergency boration to CCP so the BA transfer pumps to the	uction isolation MOV CCP suction. Refere	This valve is nces; P&ID [	normally closed and 020729, FSAR Secti	l opened to direct ons 5.4.7, 7.4, 9.3	the discharg .4.	ge from		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open

### SYSTEM: CS PID No.: D20729

# FIGURE F4

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
CS-V427	2 (E-5)	С	2.0 Check	Self	С	0	CS-CSJ-7	Open Test Freq: CSD Close Test Freq: CSD
Emergency boration to CCP BA transfer pumps to the C D20729, FSAR Sections 5.4	CP suction. This valve	This valve is n does not hav	ormally closed and o ve a safety related cl	opens to direct the osure function. Re	discharge ferences: F	from the P&ID		RV Test Freq: CV Test Dir: ST Test Dir:
CS-V430	3 (C-7)	В	2.0 Saunders Weir	Manual	0	0		Open Test Freq: Close Test Freq:
P-3B discharge header isola weekly recirc or for BAT Pul OS1200.01 but should rema	mp quarterly surveillan	ce test. This '	valve is not listed in I	n except when ope FSAR Table 7.4-1	rated durin or operated	g BAT d in		RV Test Freq: CV Test Dir: ST Test Dir:
CS-V431	3 (D-11)	В	2.0 Saunders Weir	Manual	0	DE		Open Test Freq: Quarterly
Boric acid pump discharge i OS1200.01 depending on th from the BATs are provided design does not include leto large volume of water requir	he required tank alignn for boration with RWS lown capability, boratio	nent. Referen	ces: P&ID D20729, subsequent RCS invi	oS1200.01. Redu entory control. Be	cause the S	55 3663		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V437	3 (D-10)	В	4.0 Saunders Weir	Manual	С	DE		Open Test Freq: Quarterly
Boric acid tank outlet cross- to the suction of P-3B. Refe provided for boration with R include letdown capability, t water required.	-connect. This valve is erence: P&ID D20729	Procedure OS	S1200.01. Redundar	ause the SB SGC	S design d	oes not		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V439	3	В	4.0	Manual	С	0	CS-CSJ-10	Open Test Freq: CSD
Gravity boration common lin to the CCP suction. Referent provided for boration with R include letdown capability, the water required.	nces: P&ID D20729, F	SAR Section	s 5.4., 7.4, 9.3.4. Re ventory control. Bec	ause the SB SGC	s from the S design d	oes not	00-000-10	Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: CS PID No.: D20729

#### FIGURÉ F4 IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT S <sup></sup>
CS-V440	3 (D-8)	С	4.0 Check	Self	С	0	CS-CSJ-8	Open Test Freq: CSD Close Test Freq:
Gravity boration common I to the CCP suction. Refere provided for boration with I include letdown capability, water required.	ences: P&ID D20729, F	SAR Section	is 5.4., 7.4, 9.3.4. Review of the rest of	dundant flow path: use the SB SGCS	s from the design do	BA is are les not		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V442	3 (D-9)	В	4.0 Gate	Manual	С	0	CS-CSJ-10	Open Test Freq: CSD Close Test Freq:
Gravity boration common I to the CCP suction. Refer provided for boration with include letdown capability, water required.	ences: P&ID D20729, F	SAR Section	is 5.4., 7.4, 9.3.4. Re iventory control. Beca	dundant flow path use the SB SGCS	s from the 6 design do	BAIS are les not		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V449	3 (C-11)	С	Check	Self	С	DE		Open Test Freq: Quarterly
Boric acid pump discharge diversion when the transfe	check valve. This valve	opens to dir References	rect boric acid to the C	CP suction and c R Sections 5.4.7, 7	loses to pr 7.4 9.3.4.	event flow		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V453	3 (B-7)	С	Check	Self	С	DE		Open Test Freq: Quarterly
	(~ ' ' )				locae to pr	and and flame		Close Test Freq: Quarterly
Porio acid numn discharg	e check valve. This valv r pump is not operating	e opens to di . References	rect boric acid to the C : P&ID D20729, FSAI	CCP suction and c R Sections 5.4.7,	7.4 9.3.4.	event now		RV Test Freq: CV Test Dir: ST Test Dir:
	e check valve. This valve r pump is not operating 3 (D-10)	e opens to dii . References B	rect boric acid to the C : P&ID D20729, FSAI 4.0 Saunders Weir	CCP suction and c R Sections 5.4.7, Manual	03253 (0 pr 7.4 9.3.4. 0	DE		CV Test Dir:

### SYSTEM: CS PID No.: D20843

#### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class	) (alua	Size (in.) and	Actuator	1	Position	s	Relief Rea	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
CS-V175	1 (A-11)	В	1.0 Giobe	Air/Diaphragm	с	С	С	CS-CSJ-9	X     X     X     X       Open Test Freq:
Excess letdown RCS RC operation should normal I RCPB. References: P&IE	etdown be unavailable. T	his valve has	no open safety fui	y be opened during not nction, but must close	mai plant to isolate t	the			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V176	1 (A-11)	8	1.0 Globe	Air/Diaphragm	с	С	С	CS-CSJ-9	Open Test Freq:
Excess letdown RCS RC operation should normal I RCPB. References: P&IE	etdown be unavailable. T	his valve has	no open safety fui	y be opened during no nction, but must close	mal plant to isolate	the			Close Test Freq: CSD RV Test Freq: CV Test Dir:

 SYSTEM:
 DG

 PID No.:
 D20459

### FIGURE F4

Valve Number	Class	Mahua	Size (in.)	Actuator	1	Positions	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Туре	NRM	SAF FAL	C.S. Just. DI FE FS LJ LK PE PI RT ST
DG-V115	3 (B-10)	С	1.0 Check	Self	С	0	X     Image: Comparison of the second s
Fuel oil transfer pump discharge OX1426.10. Closure to prevent r References: P&ID D20459, DBE	everse flow is not	required sine	ed open function only ce the transfer line en	which is verified ters the top of the	quarterly by day tank.	,	Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
DG-V118	3 (C-9)	С	Relief/Safety	Self	с	0	Open Test Freq:
Fuel oil transfer pump discharge	relief valve- In IS	T scope per l	STC 1.1. References	s: P&ID D20459, I	DBD-DG-01	Ι.	Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
DG-V62A	3 (F-9)	С	0.75 Relief/Safety	Self	С	0	Open Test Freq:
Starting air receiver relief valve- i	n scope per ISTC	1.1. Referer	nces: P&łD D20460,	DBD-DG-01.			Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
DG-V66A	3 (G-9)	С	0.75 Relief/Safety	Self	С	0	Open Test Freq:
Starting air receiver relief valve- i	n scope per ISTC	1.1. Referer	nces: P&ID D20460,	DBD-DG-01.			Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
DG-V69A	3 (G-9)	С	0.75 Check	Self	С	DE	Open Test Freq: Quarterly
EDG starting air receiver inlet ch receiver pressure. Both the open 01, OX1426.14.							Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
DG-V70A	3 . (F-9)	С	0.75 Check	Self	С	DE	Open Test Freq: Quarterly
EDG starting air receiver inlet ch receiver pressure. The open func closed functions are verified in O	tion is adequately	/ demonstrate	ed during normal surv	eillance testing . I			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM:	DG
PID No.:	D20461

### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	s	Relief Reg				Progra ommit		an			
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
DG-V211A	3	с	0.75	Self	С	0										X	
	(A-9)		Relief/Safety								pen To		-				
EDG CC heat exchanger r	elief valve- in IST scope	e as defined i	n ISTC 1.1. Reference	es: P&ID D20461	, DBD-DG-	01.					ose Te		•				
·											RV Te		•	Years	3		
												Test D					
											ST	Test D	Dir:				
DG-V121	3	С	1.0	Self	с	0				X							
	(B-10)		Check							0	pen To	est Fre	eq: Qi	uarteri	y 🛄	•	
Fuel oil transfer pump disc	• •	a cafety relati	ed open function only	which is verified	quarterly h	,					ose Te				-		
OX1426.10. Closure to pre	event reverse flow is not	t required sin	ce the transfer line en	ters the top of the	day tank.						RV To	est Fre	eq:				
References: P&ID D20463				•	•						CV	Test D	)ir:				
											ST	Test D	)ir:				
DG-V124	3	C		Self	С	0			Π	$\square$		Π			П	X	
09-4124	(C-9)	-	Relief/Safety								pen Te	est Fre	er:			L	·
Fuel oil transfer nume disc	. ,	T scope per	ISTC 1.1 References	P8ID D20464						CI	ose Te	est Fre	eq:				
Fuel oil transfer pump disc	. ,	T scope per	ISTC 1.1. References	: P&ID D20464, I	DBD-DG-01	Ι.					ose Te RV Te		•	Years	6		
Fuel oil transfer pump disc	. ,	T scope per	ISTC 1.1. References	s: P&ID D20464, I	DBD-DG-01	Ι.					RV Te		eq: 10	) Years	6		

### SYSTEM: DG PID No.: D20465

### FIGURE F4

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
DG-V62B	3 (F-9)	с	0.75 Relief/Safety	Self	С	0			Open Test Freq:
Starting air receiver relief v	alve- in scope per ISTC	: 1.1. Referer	nces: P&ID D20465,	DBD-DG-01.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
DG-V66B	3 (G-9)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
Starting air receiver relief va	alve- in scope per ISTC	1.1. Referer	nces: P&ID D20465,	DBD-DG-01.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
DG-V69B	3 (G-9)	с	0.75 Check	Self	с	DE			Open Test Freq: Quarterly
EDG starting air receiver in receiver pressure. Both the 01, OX1426.14.									Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
DG-V70B	3 (F-9)	С	0.75 Check	Self	С	DE	,		Open Test Freq: Quarterly
EDG starting air receiver in receiver pressure. The ope closed functions are verified	n function is adequately	/ demonstrate	ed during normal surv	veillance testing .					Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
DG-V211B	3 (A-9)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
EDG CC heat exchanger re	elief valve- in IST scope	as defiend ir	n ISTC 1.1. Reference	es: P&ID D20466	, DBD-DG-(	01.			Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM:	DM

### FIGURE F4 IST VALVE TEST TABLE

ID NO.: E Valve Number Remarks	D20349	Class and Coord	Valve (CAT)	Size (in.) and Type	ALVE I Actuator Type	Positions NRM SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
DM-V611	ter supply to the C Ist close to provide	3 (A-8) :ST- SC/3-NN	C S boundary is	6.0 Check olation check valve. N. References: P&II	Self This valve is open D D20349.	DE C to fill the CST (NSR	DM-CSJ-1	X       Image: Construction         Open Test Freq:         Close Test Freq:         CV Test Freq:         CV Test Dir:         ST Test Dir:
DM-V612 Demineralized wat function) , and mu	ter supply to the C ist close to provide	3 (A-8) CST- SC/3-NN e safety / non-s	C S boundary is safety isolatior	6.0 Check olation check valve. n. References: P&II	Self This valve is open O D20349.	DE C to fill the CST (NSR	DM-CSJ-1	Open Test Freq: Close Test Freq: CV Test Freq: CV Test Dir: ST Test Dir:
DM-V4 Demineralized wat is locked closed an	ter supply to conta nd has no active s	2 (D-11) ainment-ORC- safety function.	A CIV for penetr References:	1.0 Gate ation X-36, subject P&ID D20352, FSA	Manual to Appendix J Type R Table 6.2-83.	C C		Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
DM-V5 Demineralized wal is locked closed an	ter supply to conta nd has no active s	2 (D-10) ainment-IRC-C safety function.	A IV for penetra References:	1.0 Gate tion X-36, subject to P&ID D20352, FSA	Manual o Appendix J Type R Table 6.2-83.	C C C LLRT. This valve		Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
DM-V18 Containment pene caused by thermal SS-EV-960023, re	I expansion of trap	2 (D-10) ) relief valve, su pped fluid unde	A/C ubject to Appe er accident co	1.5 Relief/Safety Indix J Type C LLR Indition. References	Self T. This valve opens ; P&ID D20352, Er	C DE to relieve pressure ngineering Evaluation		Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: PID No.:	FP D20271			IST V	FIGUR ALVE 7			ABI	LE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF		Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
FP-V588 Fire Protection closed in Mode	water IRC-CIV for s 1-4, and has no a	2 (G-5) penetration X-3 active safety fun	A/C 8 / 76- subjec ction. Referen	4.0 Check t to Appendix J Typ ces: P&ID D20271	Self e C LLRT. This val , FSAR Table 6.2-8	C ve is norm 3.	C ally			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:
					Manual vpe C LLRT. This va 020271, FSAR Tabl		C nally			Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir:
										ST Test Dir:

 $\sim$ 

FW

D20686

SYSTEM:

PID No.:

### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class	Valve	Size (in.)	Actuator	Positions	Relief Rea	IST Program Plan Commitment
Remarks	and Coord	(CAT)	and Type	Туре	NRM SAF FA		DI FE FS LJ LK PE PI RT ST
FW-V30	2 (F-8)	В	18.0 Gate	Air/Piston	0 C	FW-CSJ-2	Open Test Freq: CSD
SG# 1 main feedwater head normally open, closes on a							Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-V39	2 (D-8)	В	18.0 Gate	Air/Piston	0 C	FW-CSJ-2	Open Test Freq: CSD
SG# 2 main feedwater head normally open, closes on a l	ler containment isolatic FW isolation signal. Re	n valve ( X-6) eferences: P&	-exempt from Appe ID D20686, TS 4.7	ndix J Type C LLRT .1.2.2.b, FSAR TAt	7. This valve is le 6.2-83.		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-V48	2 (C-8)	В	18.0 Gate	Air/Piston	ос	FW-CSJ-2	Open Test Freq: CSD
SG# 3 main feedwater head normally open, closes on a f							Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-V57	2 (H-8)	В	18.0 Gate	Air/Piston	0 C	FW-CSJ-2	Open Test Freq: CSD
SG# 4 main feedwater head normally open, closes on a f							Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-V76	2 (E-8)	С	4.0 Stop check	Manual	C DE	FW-CSJ-3	Open Test Freq: CSD
SG# 1 EFW header contain normally closed, is required to low to the SG. This is also Revision 1, FSAR Table 3.6	to close to prevent reve a HELB boundary valve	rse flow from	the main feedwate	r header, and opens	s to deliver EFW		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V82	2 (C-8)	С	4.0 Stop check	Manual	C DE	FW-CSJ-3	Open Test Freq: CSD
SG# 2 EFW header contain normally closed,is required t low to the SG. This is also Revision 1, FSAR Table 3.6	to close to prevent reve a HELB boundary valve	rse flow from	the main feedwate	r header, and opens	to deliver EFW		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

#### SYSTEM: **FW** PID No.: **D20686**

### FIGURE F4 IST VALVE TEST TABLE

.

Valve Number	Class		Size (in.)	<b>A</b> . <b>b</b> . <b>a</b> b . <b>a</b>		Positions	Dellaf De a	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
FW-V88	2 (B-8)	С	4.0 Stop check	Manual	С	DE	FW-CSJ-3	Open Test Freq: CSD
SG# 3 EFW header containme normally closed, is required to c flow to the SG. This is also a H Revision 1, FSAR Table 3.6(B)	lose to prevent reve ELB boundary valv	erse flow from	n the main feedwate	r header, and open	s to deliver	EFW		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V94	2 (G-8)	С	4.0 Stop check	Manual	С	DE	FW-CSJ-3	Open Test Freq: CSD
SG# 4 EFW header containme normally closed, is required to c flow to the SG. This is also a H Revision 1, FSAR Table 3.6(B)	lose to prevent reve ELB boundary valv	erse flow from	n the main feedwate	r header, and open	s to deliver	EFW		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V330	2 (F-7)	С	18.0 Check	Self	0	С	FW-CSJ-4	X     Image: CSD
SG# 1 main feedwater header EFW to prevent reverse flow. R					s upon initia	ation of		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V331	2 (D-7)	С	18.0 Check	Self	0	С	FW-CSJ-4	Open Test Freq: CSD
SG# 2 main feedwater header EFW to prevent reverse flow. R					s upon initia	ation of		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V332	2 (C-7)	С	18.0 Check	Self	0	С	FW-CSJ-4	Open Test Freq: CSD
SG# 3 main feedwater header EFW to prevent reverse flow. R					s upon initia	ation of		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V333	2 (H-7)	С	18.0 Check	Self	0	C.	FW-CSJ-4	X     Image: CSD
SG# 4 main feedwater header EFW to prevent reverse flow. R					s upon initia	ation of		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: FW

D20688

PID No.:

# FIGURE F4

	Class and	Valve	Size (in.) and Time	Actuator Type	F NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
Remarks FW-FV4214A	Coord 3 (G-5)	(CAT) B	Type 4.0 Gate	Motor	0	DE		FW-CSJ-8	X     X     X     X       Open Test Freq:     CSD     X     X
EFW discharge to SG # 1 is automatically closed on high	isolation valve. This va EFW header flow. R	alve is normally eferences; P&	y open, may be thro AD D20688, DBD-I	ottled to control feed EFW-01, Revision	i rate, and is 1.	5			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-FV4214B	3 (G-5)	В	4.0 Gate	Motor	0	DE		FW-CSJ-8	Open Test Freq: CSD
EFW discharge to SG # 1 is automatically closed on high	isolation valve. This va EFW header flow. R	alve is normally eferences; P&	y open, may be thro ID D20688, DBD-	ottled to control feed EFW-01, Revision	t rate, and is 1.	3			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-FV4224A	3 (G-7)	В	4.0 Gate	Motor	0	DE		FW-CSJ-8	Open Test Freq: CSD
									Close Test Freq: CSD
EFW discharge to SG # 2 i automatically closed on high	isolation valve. This van EFW header flow. R	alve is normally eferences; P8	y open, may be thro ID D20688, DBD-	ottled to control feed EFW-01, Revision	d rate, and is 1.	5			RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
utomatically closed on high	isolation valve. This va EFW header flow. R 3 (G-7)	alve is normally eferences; P& B	y open, may be thro kID D20688, DBD- 4.0 Gate	ottled to control feed EFW-01, Revision Motor	d rate, and is 1. O	DE		FW-CSJ-8	CV Test Dir: ST Test Dir: Open/Closed
EW-FV4224B	EFW header flow. R 3 (G-7) isolation valve. This va	eferences; P8 B alve is normall	4.0 Gate v open, may be thre	EFW-01, Revision Motor	1. O d rate, and is	DE		FW-CSJ-8	CV Test Dir: ST Test Dir: Open/Closed
automatically closed on high F <b>W-FV4224B</b> EFW discharge to SG # 2 i automatically closed on high	EFW header flow. R 3 (G-7) isolation valve. This va	eferences; P8 B alve is normall	4.0 Gate v open, may be thre	EFW-01, Revision Motor	1. O d rate, and is	DE		FW-CSJ-8 FW-CSJ-8	CV Test Dir: ST Test Dir: Open/Closed ST Test Dir: Open/Closed Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X QPen Test Freq: CSD
EFW discharge to SG # 2 is automatically closed on high FW-FV4224B EFW discharge to SG # 2 is automatically closed on high FW-FV4234A EFW discharge to SG # 3 is automatically closed on high	EFW header flow. R 3 (G-7) isolation valve. This va EFW header flow. R 3 (G-9) isolation valve. This va	eferences; P8 B alve is normally eferences; P8 B alve is normally	4.0 Gate y open, may be thro kID D20688, DBD- 4.0 Gate y open, may be thro	EFW-01, Revision Motor ottled to control feed EFW-01, Revision Motor	1. O d rate, and is 1. O d rate, and is	DE S DE			CV Test Dir: ST Test Dir: Open/Closed ST Test Dir: Open/Closed Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X
automatically closed on high FW-FV4224B EFW discharge to SG # 2 i automatically closed on high FW-FV4234A	EFW header flow. R 3 (G-7) isolation valve. This va EFW header flow. R 3 (G-9) isolation valve. This va	eferences; P8 B alve is normally eferences; P8 B alve is normally	4.0 Gate y open, may be thro kID D20688, DBD- 4.0 Gate y open, may be thro	EFW-01, Revision Motor ottled to control feed EFW-01, Revision Motor	1. O d rate, and is 1. O d rate, and is	DE S DE			CV Test Dir: ST Test Dir: Open/Closed ST Test Dir: Open/Closed Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X Open Test Freq: CSD Close Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir:

SYSTEM:	FW
PID No.:	D20688

## FIGURE F4

	Class and	Valve	Size (in.) and	Actuator		Positions	5	Relief Reg	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
FW-FV4244A	3 (G-11)	В	4.0 Gate	Motor	0	DE		FW-CSJ-8	Open Test Freq: CSD
EFW discharge to SG # 4 is automatically closed on high	solation valve. This va EFW header flow. R	alve is norma eferences; P	lly open, may be thro &ID D20688, DBD-E	ottled to control feed EFW-01, Revision	d rate, and is 1.	S			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-FV4244B	3 (G-11)	В	4.0 Gate	Motor	0	DE		FW-CSJ-8	Open Test Freq: CSD
EFW discharge to SG # 4 is automatically closed on high	olation valve. This va	alve is norma eferences; P	lly open, may be thro &ID D20688, DBD-E	ttled to control feed EFW-01, Revision	d rate, and is 1.	s			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-V64	3 (D-5)	С	6.0 Check	Self	С	DE		FW-CSJ-5	Open Test Freq: CSD
					_	t beak			Close Test Freq: CSD
			EFW pump is opera	ting, and must clos	se to preven				RV Test Freq: CV Test Dir: ST Test Dir:
flow through an idle pump. Re			EFW pump is opera 6.0 Check	ting, and must clos	c se to preven	DE		FW-CSJ-5	CV Test Dir:
flow through an idle pump. Re FW-V70 EFW pump discharge check v	eferences P&ID D20 3 (C-11) valve. This valve ope	688. C ns when the	6.0 Check	Self	с	DE		FW-CSJ-5	CV Test Dir: ST Test Dir:
flow through an idle pump. Re FW-V70 EFW pump discharge check v flow through an idle pump. Re	eferences P&ID D20 3 (C-11) valve. This valve ope	688. C ns when the	6.0 Check	Self	с	DE		FW-CSJ-5 FW-CSJ-6	CV Test Dir: ST Test Dir: Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir:
EFW pump discharge check v flow through an idle pump. Re <b>FW-V70</b> EFW pump discharge check v flow through an idle pump. Re <b>FW-V216</b> Startup feedwater pump disch References: P&ID D20688, Ta	3 (C-11) valve. This valve ope eferences P&ID D200 3 (E-4) narge to EFW check	C C ns when the 588. C	6.0 Check EFW pump is opera 6.0 Stop check	Self ting, and must clos Self	C se to preven C	DE t back C			CV Test Dir: ST Test Dir: Open Test Freq: CSD Close Test Freq: CV Test Dir: ST Test Dir:
flow through an idle pump. Re FW-V70 EFW pump discharge check v flow through an idle pump. Re FW-V216 Startup feedwater pump disch	3 (C-11) valve. This valve ope eferences P&ID D200 3 (E-4) narge to EFW check	C C ns when the 588. C	6.0 Check EFW pump is opera 6.0 Stop check	Self ting, and must clos Self	C se to preven C	DE t back C			CV Test Dir: ST Test Dir: Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: X Open Test Freq: CSD Close Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir:

					FIGUR				and the second
YSTEM: PID No.:	FW D20688			IST V	ALVE 1	[ES]	ΓΤΑΒ	LE	
Valve Number		Class and	Valve	Size (in.) and	Actuator	I	Positions	Relief Req	IST Program Plan Commitment
Remarks		Coord	(CAT)	Туре	Туре	NRM	SAF FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
FW-V347		3 (D-9)	В	4.0 Globe	Motor	С	DE		Open Test Freq: Quarterly
valve may be o	perion isolation va pened and closed in i pump flow requireme	response to sv	stem flow real	uirements to ensure	adequate flow is d	lelivered to	tled. This the SG		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-V349		3 (A-11)	С	4.0 Check	Self	с	DE		X     Image: CSD
EFW pump re reverse closure	circulation common a function for this valu	line check valv ve. References	e. This valve o P&ID D2068	ppens when the EF\ 3.	V pumps are opera	ating. There	e is no		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
FW-V350		3 (D-7)	С	3.0 Check	Self	С	DE	FW-CSJ-5	X     Image: CSD
EFW pump re back flow throu	circulation check val Igh an idle pump. Re	ve. This valve ferences P&ID	opens when ti D20688.	ne EFW pump is op	erating, and must (	close to pre	event		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V351		3 (B-7)	С	1.0 Check	Self	C	DE		Open Test Freq: Quarterly
from the turbin	EFW pump cooler o e bearing oil cooler to Inction. Reference: I	utlet check value of the EFW com	re. This valve Imon recircula	opens when the pur ttion line to the CST	np is operating, to . This valve does n	discharge v not have a s	water afety		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
FW-V353		3 (D-9)	С	3.0 Check	Self	С	DE	FW-CSJ-5	Open Test Freq: CSD
EFW pump re back flow throu	circulation check va Igh an idle pump. Re	lve. This valve ferences P&ID	opens when the D20688.	he EFW pump is op	erating, and must	close to pre	event		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V357		3 (E-4)	С	6.0 Check	Self	С	С	FW-CSJ-6	Open Test Freq: CSD
Startup feedwa References: P	iter pump discharge f &ID D20688, TS 4.7.	to EFW check 1.2.2.b.	valve. This va	lve is normally close	ed for SC-3/NNS b	oundary iso	blation.		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: PID No.:	IA D20643			IST \	FIGURI		ГΤ	AB	LE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
IA-V531 IA IRC contain 6.2-83.	ment isolation valve	2 (F-9) ≱ (X-68)- subjec	A/C t to Appendix	2.0 Check J Type C LLRT. F	Self References: P&ID D20	DE 643, FSA	C R Table	1	IA-CSJ-1	X       X       X         Open Test Freq:       Close Test Freq:         Close Test Freq:       CSD         RV Test Freq:       CV Test Dir:         ST Test Dir:       ST Test Dir:
IA-V530		2 (E-6)	A	2.0 Globe	Air/Diaphragm	DE	с	С		Open Test Freq:
IA ORC conta 6.2-83.	nment isolation val	/e (X-68)- subje	ct to Appendi	k J Type C LLRT.	References: P&ID D2	0645, FS	AR Tabl	e		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

YSTEM: PID No.:	LD D20864			IST V	FIGUR		ΓТА	٩BI	LE	s
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
LD-V1 Locked closed Table 6.2-83.	-IRC -CIV for penet	2 (B-8) tration X-74- sub	A ject to Append	0.75 Globe dix J Type C LLRT	Manual . References: P&ID	C D20864, F	C SAR			Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir:
LD-V2		2 (B-7)	A	0.75 Globe	Manual	С	с			ST Test Dir:           Open Test Freq:
Locked closed Table 6.2-83.	ORC -CIV for pene		bject to Apper	ndix J Type C LLR'	T. References: P&I	D D20864,	FSAR			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:

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## FIGURE F4

SYSTEM:

MS

ID No.: <b>D20580</b>								
Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF F/	Relief Req AL C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT S
MS-PV3001	2 (D-10)	В	10.0 Globe	Air/Piston	С	DE (	0	Open Test Freq: Quarterly
SG #1 atmospheric relief valve the condenser and associated penetration X-1- exempt from 6.2-83.	l secondary systems	are unavaila	ble. This valve is also	o a containment iso	lation valve	e for		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
MS-PV3004	2 (H-10)	В	10.0 Globe	Air/Piston	С	DE (	0	Open Test Freq: Quarterly
SG #4 atmospheric relief valve the condenser and associated penetration X-4- exempt from 6.2-83.	e. This valve is norm	are unavaila	ble. This valve is also	o a containment iso	lation valve	e for		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
MS-V6	2 (C-8)	С	6.0 Relief/Safety	Self	С	0		Open Test Freq:
SG #1 safety valve. This valve decay heat removal, and is a c	e provides over press	sure protectio	n for the steam gene	rator / MS system,	provides fo	or reactor		Close Test Freq: RV Test Freq: 5 Years
References: P&ID D20580, F	SAR Section 5.4.7,	7.4, 10.3, Ta	ble 6.2-83.	Trom Appendix 5	туре о ссл	<b>XI.</b>		CV Test Dir: ST Test Dir:
References: P&ID D20580, F	SAR Section 5.4.7, 7	C	6.0	Self	C	0		CV Test Dir: ST Test Dir:
References: P&ID D20580, Fi MS-V7 SG #1 safety valve. This valve decay heat removal, and is a c	SAR Section 5.4.7, 2 (C-8) e provides over press containment isolation	7.4, 10.3, Ta C sure protectic	6.0 6.0 Relief/Safety on for the steam gene netration X-1- exempt	Self rator / MS system,	C provides fo	O or reactor		CV Test Dir: ST Test Dir:
References: P&ID D20580, Fi MS-V7 SG #1 safety valve. This valve decay heat removal, and is a c References: P&ID D20580, Fi	SAR Section 5.4.7, 2 (C-8) e provides over press containment isolation	7.4, 10.3, Ta C sure protectic	6.0 6.0 Relief/Safety on for the steam gene netration X-1- exempt	Self rator / MS system,	C provides fo	O or reactor		CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir: Open Test Freq:
References: P&ID D20580, Fi MS-V7 SG #1 safety valve. This valve decay heat removal, and is a c References: P&ID D20580, Fi MS-V8 SG #1 safety valve. This valve decay heat removal, and is a c	2 (C-8) provides over press containment isolation SAR Section 5.4.7, 2 (C-7) provides over press containment isolation	7.4, 10.3, Ta C sure protection valve for per 7.4, 10.3, Ta C sure protection valve for per	6.0 Relief/Safety on for the steam gene hetration X-1- exempt ble 6.2-83. 6.0 Relief/Safety on for the steam gene hetration X-1- exempt	Self rator / MS system, from Appendix J <sup></sup> Self rator / MS system,	C provides fo Fype C LLF C provides fo	O pr reactor RT. O pr reactor		CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V7 SG #1 safety valve. This valve decay heat removal, and is a c References: P&ID D20580, F: MS-V8 SG #1 safety valve. This valve decay heat removal, and is a c References: P&ID D20580, F: MS-V9	2 (C-8) provides over press containment isolation SAR Section 5.4.7, 2 (C-7) provides over press containment isolation	7.4, 10.3, Ta C sure protection valve for per 7.4, 10.3, Ta C sure protection valve for per	6.0 Relief/Safety on for the steam gene hetration X-1- exempt ble 6.2-83. 6.0 Relief/Safety on for the steam gene hetration X-1- exempt	Self rator / MS system, from Appendix J <sup></sup> Self rator / MS system,	C provides fo Fype C LLF C provides fo	O pr reactor RT. O pr reactor		CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir:

 SYSTEM:
 MS

 PID No.:
 D20580

### FIGURE F4 IST VALVE TEST TABLE

	Class	Valve	Size (in.) and	Actuator		Positions	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
Remarks	Coord	(CAT)	Туре	Туре	NRM		0.3. Just.	
MS-V10	2 (C-6)	С	6.0 Relief/Safety	Self	С	0		Open Test Freq:
SG #1 safety valve. This v	valve provides over press	sure protectio	n for the steam gene	rator / MS system	, provides fo	or reactor		Close Test Freq: RV Test Freq: 5 Years
decay heat removal, and is References: P&ID D2058	s a containment isolation 0, FSAR Section 5.4.7,	i valve for per 7.4, 10.3, Tal	hetration X-1- exempt ble 6.2-83.	from Appenaix J	Type C LLN	(1.		CV Test Tier: ST Test Dir:
MS-V50	2	с	6.0	Self	с	0	 	
	(G-8)		Relief/Safety					Open Test Freq:
SG #4 safety valve. This v lecay heat removal, and is References: P&ID D2058	s a containment isolation	valve for per	netration X-4- exempt	rator / MS system from Appendix J	, provides fo Type C LLF	or reactor RT.		Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V51	2	С	6.0	Self	С	0		
	(G-8)		Relief/Safety					Open Test Freq: Close Test Freq:
SG #4 salety fure. This t			A ALL AND A A ALL AND A	for a set A same a set of the A	Time OIL F	דר		
decay heat removal, and is	s a containment isolation	valve for per	netration X-4- exempt	from Appendix J	Type C LLF	RT.	 	RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
decay heat removal, and is References: P&ID D2058	s a containment isolation	valve for per	netration X-4- exempt	from Appendix J	Type C LLF	ντ. Ο	 	CV Test Dir:
decay heat removal, and is References: P&ID D2058 MS-V52 SG #4 safety valve. This v decay heat removal, and is	s a containment isolation 10, FSAR Section 5.4.7, 2 (G-7) valve provides over press s a containment isolation	rvalve for per 7.4, 10.3, Ta C sure protection valve for per	netration X-4- exempl ble 6.2-83. 6.0 Relief/Safety on for the steam gene netration X-4- exempl	from Appendix J Self rator / MS system	Type C LLF C	O O Or reactor	 	CV Test Dir: ST Test Dir:
decay heat removal, and is References: P&ID D2058 MS-V52 SG #4 safety valve. This v decay heat removal, and is References: P&ID D2058	s a containment isolation 10, FSAR Section 5.4.7, 2 (G-7) valve provides over press s a containment isolation	rvalve for per 7.4, 10.3, Ta C sure protection valve for per	netration X-4- exempl ble 6.2-83. 6.0 Relief/Safety on for the steam gene netration X-4- exempl	from Appendix J Self rator / MS system	Type C LLF C	O O Or reactor	 	CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir:
decay heat removal, and is References: P&ID D2058 MS-V52 SG #4 safety valve. This v decay heat removal, and is References: P&ID D2058 MS-V53 SG #4 safety valve. This v decay heat removal, and is	s a containment isolation 10, FSAR Section 5.4.7, 2 (G-7) valve provides over press s a containment isolation 10, FSAR Section 5.4.7, 2 (G-6) valve provides over press s a containment isolation	r valve for per 7.4, 10.3, Ta C Sure protection r valve for per 7.4, 10.3, Ta C Sure protection r valve for per	6.0 Relief/Safety on for the steam gene netration X-4- exempt ble 6.2-83. 6.0 Relief/Safety on for the steam gene netration X-4- exempt	from Appendix J Self rator / MS system from Appendix J Self rator / MS system	Type C LLF C n, provides fo Type C LLF C	O or reactor RT. O or reactor	 	CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
decay heat removal, and is References: P&ID D2058 MS-V52 SG #4 safety valve. This value is the second secon	s a containment isolation 10, FSAR Section 5.4.7, 2 (G-7) valve provides over press s a containment isolation 10, FSAR Section 5.4.7, 2 (G-6) valve provides over press s a containment isolation 10, FSAR Section 5.4.7, 2 2	r valve for per 7.4, 10.3, Ta C Sure protection r valve for per 7.4, 10.3, Ta C Sure protection r valve for per	6.0 Relief/Safety on for the steam gene netration X-4- exempt ble 6.2-83. 6.0 Relief/Safety on for the steam gene netration X-4- exempt	from Appendix J Self rator / MS system from Appendix J Self rator / MS system	Type C LLF C n, provides fo Type C LLF C	O or reactor RT. O or reactor		CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq Close Test Freq Close Test Freq Close Test
SG #4 safety valve. This v decay heat removal, and is References: P&ID D2058 <b>MS-V52</b> SG #4 safety valve. This v decay heat removal, and is References: P&ID D2058 <b>MS-V53</b> SG #4 safety valve. This v decay heat removal, and is References: P&ID D2058 <b>MS-V54</b> SG #4 safety valve. This v decay heat removal, and is References: P&ID D2058	s a containment isolation 10, FSAR Section 5.4.7, 2 (G-7) valve provides over press s a containment isolation 10, FSAR Section 5.4.7, 2 (G-6) valve provides over press s a containment isolation 10, FSAR Section 5.4.7, 2 (G-6) valve provides over press s a containment isolation	I valve for per 7.4, 10.3, Ta C Sure protection valve for per 7.4, 10.3, Ta C Sure protection valve for per 7.4, 10.3, Ta C Sure protection valve for per C	6.0 Relief/Safety on for the steam gene netration X-4- exemptible 6.2-83. 6.0 Relief/Safety on for the steam gene netration X-4- exemptible 6.2-83. 6.0 Relief/Safety on for the steam gene netration X-4- exemption	from Appendix J Self rator / MS system from Appendix J Self rator / MS system from Appendix J Self	Type C LLF C n, provides fo Type C LLF C n, provides fo Type C LLF C	O or reactor T. O or reactor T. O or reactor		CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir: X

 SYSTEM:
 MS

 PID No.:
 D20581

### FIGURE F4 IST VALVE TEST TABLE

/alve Number	Class and	Valve	Size (in.) and	Actuator		Positions		Relief Req	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
MS-PV3002	2	В	10.0	Air/Piston	С	DE	С		
	(G-10)		Globe						Open Test Freq: Quarterly Close Test Freq: Quarterly
SG #2 atmospheric relief va the condenser and associate penetration X-2- exempt fror 6.2-83.	ed secondary systems	s are unavailat	ole. This valve is als	o a containment iso	lation valve	for			RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
MS-PV3003	2	В	10.0	Air/Piston	С	DE	С		
	(D-10)		Globe						Open Test Freq: Quarterly
SG #3 atmospheric relief va he condenser and associat penetration X-3- exempt fror 5.2-83.	ed secondary systems	are unavailal	ole. This valve is als	o a containment isc	lation valve	for			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
MS-V22	2	С	6.0	Self	С	0			
	(G-8)		Relief/Safety						Open Test Freq:
References: P&ID D20581,	FSAR Section 5.4.7	7.4, 10.3, Tal	ole 6.2-83.						CV Test Dir:
MS-V23	2	C	6.0	Self	с	0			ST Test Dir:
MS-V23	2 (G-7)	С	6.0 Relief/Safety	Self	С	0			Open Test Freq:
GG #2 safety valve. This val lecay heat removal, and is a	(G-7) Ive provides over press a containment isolatior	sure protection valve for per	Relief/Safety n for the steam gen letration X-2- exemp	erator / MS system,	provides fo	r reactor	, ,		Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V23 SG #2 safety valve. This val decay heat removal, and is a References: P&ID D20581, MS-V24	(G-7) lve provides over press a containment isolatior FSAR Section 5.4.7, 2	sure protection valve for per	Rellef/Safety n for the steam gen letration X-2- exemp le 6.2-83. 6.0	erator / MS system,	provides fo	r reactor	,		Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
SG #2 safety valve. This val decay heat removal, and is a References: P&ID D20581, WS-V24	(G-7) lve provides over press a containment isolatior FSAR Section 5.4.7, 2 (G-7)	sure protection n valve for per 7.4, 10.3, Tat C	Rellef/Safety n for the steam gen letration X-2- exemp ole 6.2-83. 6.0 Rellef/Safety	erator / MS system, tfrom Appendix J Self	provides fo Type C LLR C	or reactor CT.			Open Test Freq:       X         Close Test Freq:       X         RV Test Freq:       5 Years         CV Test Dir:       X         ST Test Dir:       X         Open Test Freq:       X
SG #2 safety valve. This val decay heat removal, and is a References: P&ID D20581, <b>MS-V24</b> SG #2 safety valve. This val decay heat removal, and is a	(G-7) Ive provides over press a containment isolatior FSAR Section 5.4.7, 2 (G-7) Ive provides over press a containment isolatior	sure protection n valve for per 7.4, 10.3, Tat C sure protection n valve for per	Rellef/Safety n for the steam gen letration X-2- exemp ole 6.2-83. 6.0 Rellef/Safety n for the steam gen letration X-2- exemp	erator / MS system, tf rom Appendix J Self erator / MS system,	provides fo Type C LLR C provides fo	or reactor T. O			Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
SG #2 safety valve. This val lecay heat removal, and is a References: P&ID D20581, <b>VIS-V24</b> SG #2 safety valve. This val lecay heat removal, and is a References: P&ID D20581,	(G-7) Ive provides over press a containment isolatior FSAR Section 5.4.7, 2 (G-7) Ive provides over press a containment isolatior	sure protection n valve for per 7.4, 10.3, Tat C sure protection n valve for per	Rellef/Safety n for the steam gen letration X-2- exemp ole 6.2-83. 6.0 Rellef/Safety n for the steam gen letration X-2- exemp	erator / MS system, tf rom Appendix J Self erator / MS system,	provides fo Type C LLR C provides fo	or reactor T. O			Open Test Freq:       X         Close Test Freq:       X         RV Test Freq:       5 Years         CV Test Dir:       X         ST Test Dir:       X         Open Test Freq:       X         Open Test Freq:       X         Close Test Freq:       X         CV Test Dir:       Years
SG #2 safety valve. This val decay heat removal, and is a References: P&ID D20581, <b>MS-V24</b> SG #2 safety valve. This val decay heat removal, and is a References: P&ID D20581, <b>MS-V25</b> SG #2 safety valve. This val	(G-7) Ive provides over press a containment isolatior FSAR Section 5.4.7, 2 (G-7) Ive provides over press a containment isolatior FSAR Section 5.4.7, 2 (G-6) Ive provides over press	sure protection n valve for per 7.4, 10.3, Tat C sure protection n valve for per 7.4, 10.3, Tat C sure protectio	Rellef/Safety n for the steam gen letration X-2- exemp le 6.2-83. 6.0 Rellef/Safety n for the steam gen letration X-2- exemp le 6.2-83. 6.0 Rellef/Safety n for the steam gen	erator / MS system, of from Appendix J Self erator / MS system, of from Appendix J Self erator / MS system,	provides fo Type C LLR C provides fo Type C LLR C provides fo	or reactor T. O or reactor T. O or reactor	r		Open Test Freq:       X         Close Test Freq:       X         RV Test Freq:       5 Years         CV Test Dir:       X         ST Test Dir:       X         Open Test Freq:       X         Close Test Freq:       X         Open Test Freq:       X         Close Test Freq:       X         Close Test Freq:       X         Close Test Freq:       X         CV Test Dir:       X         ST Test Dir:       X         Open Test Freq:       X         Open Test Freq:       X         Open Test Freq:       X         Close Test Freq:       X
SG #2 safety valve. This val decay heat removal, and is a References: P&ID D20581,	(G-7) Ive provides over press a containment isolatior FSAR Section 5.4.7, 2 (G-7) Ive provides over press a containment isolatior FSAR Section 5.4.7, 2 (G-6) Ive provides over press a containment isolatior	sure protection n valve for per 7.4, 10.3, Tat C sure protection n valve for per 7.4, 10.3, Tat C sure protection n valve for per	Rellef/Safety In for the steam gen letration X-2- exemp le 6.2-83. 6.0 Rellef/Safety In for the steam gen letration X-2- exemp le 6.2-83. 6.0 Rellef/Safety n for the steam gen hetration X-2- exemp	erator / MS system, of from Appendix J Self erator / MS system, of from Appendix J Self erator / MS system,	provides fo Type C LLR C provides fo Type C LLR C provides fo	or reactor T. O or reactor T. O or reactor	r		Open Test Freq:       X         Close Test Freq:       X         RV Test Freq:       5 Years         CV Test Dir:       X         ST Test Dir:       X         Open Test Freq:       X         Close Test Freq:       X         Open Test Freq:       X         Close Test Freq:       X         Close Test Freq:       X         Close Test Freq:       X         CV Test Dir:       ST Test Dir:         ST Test Dir:       X         Open Test Freq:       X         Open Test Freq:       X

SYSTEM:	MS
PID No.:	D20581

# FIGURE F4

/alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF F	Relief Req FAL C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
MS-V26	2 (G-5)	С	6.0 Relief/Safety	Self	С	0		Open Test Freq:
SG #2 safety valve. This v decay heat removal, and is References: P&ID D2058	s a containment isolation	valve for per	netration X-2- exempt	rator / MS system : from Appendix J	, provides fo Type C LLF	or reactor RT.		Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V36	2 (C-8)	С	6.0 Relief/Safety	Self	С	0		Open Test Freq:
SG #3 safety valve. This v decay heat removal, and is References: P&ID D2058	s a containment isolation	n valve for pe	netration X-3- exempl	rator / MS system t from Appendix J	, provides fo Type C LLF	or reactor RT.		Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V37	2 (C-8)	С	6.0 Relief/Safety	Self	с	0		Open Test Freq:
SG #3 safety valve. This v decay heat removal, and is References: P&ID D2058	s a containment isolation	n valve for pe	netration X-3- exempl	rator / MS system t from Appendix J	, provides fo Type C LLF	or reactor RT.		Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V38	2 (C-7)	С	6.0 Relief/Safety	Self	С	0		Open Test Freq:
SG #3 safety valve. This v decay heat removal, and is References: P&ID D2058	s a containment isolatior	a valve for pe	netration X-3- exempl	rator / MS system t from Appendix J	, provides fo Type C LLF	or reactor RT.		Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V39	2 (C-6)	с	6.0 Relief/Safety	Self	С	0		Open Test Freq:
SG #3 safety valve. This v decay heat removal, and is References: P&ID D2058	s a containment isolatior	n valve for pe	netration X-3- exempt	rator / MS system t from Appendix J	, provides fo Type C LLF	or reactor RT.		Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
	2	с	6.0	Self	С	0		
MS-V40	(C-6)		Relief/Safety					Open Test Freg:

SYSTEM:	MS
PID No.:	D20582

## FIGURE F4

Valve Number	Class	Makin	Size (in.)	Actuator	1	Positions	5	Relief Rea	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
MS-V94	3 (E-9)	С	6.0 Check	Self	С	DE		MS-CSJ-1	Open Test Freq: CSD
Main steam supply to FW-TI the EFW turbine and must c EFW-01, revision 1.	D-2 from SG#1 check lose to prevent reverse	valve. This v e flow to a fat	alve is normally clo Ilted steam genera	sed, opens when stea tor. References: P&II	am is adm D D20582,	itted to DBD-			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
MS-V96	3 (E-9)	С	6.0 Check	Self	С	DE		MS-CSJ-1	X     X     X       Open Test Freq: CSD
Main steam supply to FW-TI the EFW turbine and must c EFW-01, revision 1.	D-2 from SG#2 check lose to prevent reverse	valve. This v e flow to a fau	alve is normally clo ulted steam genera	sed, opens when stea tor. References: P&II	am is adm D D20582,	itted to DBD-			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
MS-V127	2 (H-12)	В	4.0 Gate	Manual	0	0			Open Test Freq:
Normally Locked Open valve Passive function only. Remo	supplying steam to To te position indication to	urbine Driver esting per IS	n EFW Pump FW-I TC 4.1 only.	P-37A main steam st	upply head	ler.			Close Test Freq: RV Test Freq: CV Test Dir: S⊤ Test Dir:
MS-V128	2 (B-12)	В	4.0 Gate	Manual	0	0			Open Test Freq:
Normally Locked Open valve Passive function only. Remo	supplying steam to T	urbine Driver esting per IS	1 EFW Pump FW-I TC 4.1 only.	P-37A main steam si	upply head	ler.			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
MS-V393	2 (H-10)	В	4.0 Globe	Air/Diaphragm	с	DE	0		Open Test Freq: Quarterly
Turbine driven steam supply signal to open. This is also a References: P&ID D20582,	containment isolation	valve for per	lve is normally clos netration X-1- exem	ed and receives an B pt from Appendix J T	EFW actua ype C LLF	ation RT.			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
MS-V394	2 (B-10)	В	4.0 Globe	Air/Diaphragm	С	DE	0		Open Test Freq: Quarterly
Turbine driven steam supply signal to open. This is also a References: P&ID D20582,	isolation valve from S containment isolation	valve for per	lve is normally clos netration X-2- exem	ed and receives an I pt from Appendix J T	EFW actur ype C LLF	ation RT.			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

SYSTEM: MS

### FIGURE F4 IST VALVE TEST TABLE

/alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Po	ositions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
MS-V395	3 (E-8))	В	6.0 Globe	Air/Diaphragm	С	0 0		Open Test Freq: Quarterly Close Test Freq:
Turbine driven common ste to open. References: P&ID	am supply isolation va D20582, FSAR Sectio	live. This valv In 6.8.	e is normally close	ed and receives an El	FW actuatio	on signal		RV Test Freq: CV Test Dir: ST Test Dir:
MS-V400	3 (F-11)	C	0.75 Check	Self	0	DE	MS-RJ-1	X Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S
Main steam to FW-TD-2 dr line, and closes when the si	ain line check valve. Th team line isolation valve	his valve is no: es open. Refe	rmally open to dra rences: P&ID D20	in condensate from th 582, DBD-EFW-01, 1	revision 1.	рріу		RV Test Freq: CV Test Dir: ST Test Dir:
MS-V401	3 (F-11)	С	0.75 Check	Self	0	DE		X     Image: Comparison of the second s
Main steam to FW-TD-2 dr ine, and closes when the si	ain line check valve. Th team line isolation valve	nis valve is no es open. Refe	rmally open to dra rences: P&ID D20	in condensate from th 5582, DBD-EFW-01, t	e steam suj revision 1.	pply	MS-RJ-1	Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
MS-V404	3	С	0.75 Check	Self	0	DE		X     Image: Comparison of the second s
	(C-7)							
Main steam to FW-TD-2 dr	(C-7) ain line check valve. Th team line isolation valve	his valve is no es open. Refe	rmally open to dra rences: P&ID D20	in condensate from th 1582, DBD-EFW-01, 1	ie steam suj revision 1.	pply	MS-RJ-1	Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
Main steam to FW-TD-2 dr ine, and closes when the s	rain line check valve. Th team line isolation valve 3	his valve is no es open. Refe C	rmally open to dra rences: P&ID D20 0.75 Check	in condensate from th 1582, DBD-EFW-01, 1 Self	e steam sup revision 1. O	DE	MS-RJ-1	RV Test Freq: CV Test Dir: ST Test Dir: X Open Test Freq: Per Disassembly S
Main steam to FW-TD-2 dr line, and closes when the s <b>MS-V405</b> Main steam to FW-TD-2 dr line, and closes when the s	ain line check valve. Th team line isolation valve 3 (C-7) rain line check valve. Th	es open. Refe C his valve is no	0.75 Check Check trailing open to dra	562, DBD-EFW-01, Self	O e stearn sup	DE	MS-RJ-1	RV Test Freq: CV Test Dir: ST Test Dir:
Main steam to FW-TD-2 dr ine, and closes when the s MS-V405 Main steam to FW-TD-2 dr	ain line check valve. Th team line isolation valve 3 (C-7) rain line check valve. Th	es open. Refe C his valve is no	0.75 Check Check trailing open to dra	562, DBD-EFW-01, Self	O e stearn sup	DE		RV Test Freq: CV Test Dir: ST Test Dir: X Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir:

SYSTEM: MS

PID No.:

D20582

### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class	Valve	Size (in.) and	Actuator	1	Position	s	Relief Rea				Progra ommil	am Pla ment	n			
Remarks	and Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	Di	FE	FS	LJ	LK	PE	Ы	RT	ST
MS-V418	3 (D-11)	с	0.75 Check	Self	0	DE			X			est Fre	a: Pe	r Disa	ssem	biv S	
Main steam to FW-TD-2 d line, and closes when the s	rain line check valve. Th	nis valve is nor es open. Refe	rmally open to drain	condensate from t 582, DBD-EFW-01,	he steam si revision 1.	upply		MS-RJ-1		C	ose Te RV Te CV T	est Fre est Fre Test D	eq:Pe eq:Pe Dir:	er Disa		•	
											ST	Test E	Dir:				

PID No.:

D20583

# FIGURE F4

Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	F NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
MS-V86	2 (F-11)	В	30.0 Gate	Hydraulic/NDA	0	с	MS-CSJ-2	Open Test Freq:
SG #1 main steam isolation is also a containment isola D20583, FSAR Section 10	ation valve for penetratior	rmally open aı ג X-1- exempt	nd receives a mair from Appendix J	i steam isolation (clos Type C LLRT. Referer	ure) signa Ices: P&IC	I. This )		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
MS-V88	2 (D-11)	В	30.0 Gate	Hydraulic/NDA	0	С	MS-CSJ-2	Open Test Freq:
SG #2 main steam isolatic is also a containment isola D20583, FSAR Section 10	ation valve for penetratior	rmally open aı ז X-2- exempt	nd receives a mair from Appendix J	i steam isolation (clos Type C LLRT. Referer	ure) signa aces: P&IC	I. This )		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
MS-V90	2 (C-11)	В	30.0 Gate	Hydraulic/NDA	0	С	MS-CSJ-2	X     X     X     X       Open Test Freq:
SG #3 main steam isolatic is also a containment isola D20583, FSAR Section 10	ation valve for penetration	rmaily open ai x-3- exempt	nd receives a main from Appendix J	n steam isolation (clos Type C LLRT. Referer	sure) signa nces: P&IC	II. This )		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
MS-V92	2 (G-11)	В	30.0 Gate	Hydraulic/NDA	0	С	MS-CSJ-2	X     X     X     X       Open Test Freq:
	(G-11)							Open restried.
is also a containment isola	on valve. This valve is no ation valve for penetration	rrnally open a 1 X-4- exempt	nd receives a maii from Appendix J <sup>-</sup>	n steam isolation (clos Type C LLRT. Referer	sure) signa nces: P&IE	ıl. This )		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
is also a containment isola D20583, FSAR Section 10	on valve. This valve is no ation valve for penetration	rrnally open a 1 X-4- exempt B	nd receives a main from Appendix J 4.0 Globe	n steam isolation (clos Type C LLRT. Referen 	sure) signa nces: P&IC C	II. This ) C		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
SG #4 main steam isolatic is also a containment isola D20583, FSAR Section 10 <b>MS-V204</b> SG#1, main steam bypass main steam isolation valve is also a containment isola D20583, FSAR Section 10	on valve. This valve is no ation valve for penetration 0.3 Table 6.2-83. 2 (E-11) s valve. This valve is ope as. It is closed during po ation valve for penetration	n X-4- exempt B en to warm up wer operation	from Appendix J 4.0 Globe the main steam st and receives a m	Type C LLRT. Referen Motor /stem and equalize pro	C C Sure acr	C oss the I. This		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
is also a containment isola D20583, FSAR Section 10 MS-V204 SG#1, main steam bypass main steam isolation valve is also a containment isola	on valve. This valve is no ation valve for penetration 0.3 Table 6.2-83. 2 (E-11) s valve. This valve is ope as. It is closed during po ation valve for penetration	n X-4- exempt B en to warm up wer operation	from Appendix J 4.0 Globe the main steam st and receives a m	Type C LLRT. Referen Motor /stem and equalize pro	C C Sure acr	C oss the I. This		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed X X X X X Open Test Freq: Close Test Freq: CV Test Freq: CV Test Dir:

		FIGURE F4									
SYSTEM: PID No.:	MS D20583	IST VALVE TEST TABLE									
Vaive Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	; FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST	
MS-V206		2 (B-11)	В	4.0 Globe	Motor	С	С			Open Test Freq:	
main steam iso is also a contai	lation valves. It is c	losed during po for penetration	wer operation	and receives a mai	stem and equalize p n steam isolation cl ype C LLRT. Refere	osure sign	al. This			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed	
MS-V207		2 (G-11)	В	4.0 Globe	Motor	С	с			Open Test Freq:	
main steam iso is also a contai	lation valves. It is o	closed during po le for penetration	wer operation	and receives a mai	stem and equalize p n steam isolation cl ype C LLRT. Refer	osure sign	al. This			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed	

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- 24 C					FIGUR	E F4			
YSTEM: PID No.:	MSD D20587			IST V	ALVE 1	res <sup>-</sup>	TTA	BLE	• ·
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF f	Relief Req FAL C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
MSD-V44		2 (D-11)	В	1.0 Giobe	Motor	0	с		Open Test Freq:
system and rec	ceives a main stean	n isolation closu	re signal. Thi	ally open to remove is is also a contain 583, FSAR Section	condensate from ti nent isolation valve 10.3, Table 6.2-5.	he main ste for penetra	eam ation X-1-		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
MSD-V45		2 (G-11)	В	1.0 Globe	Motor	0	с		Open Test Freq:
system and rec	ceives a main stean	tion valve. This in isolation closu	re signal. Thi	ally open to remove	condensate from ti nent isolation valve 10.3, Table 6.2-5.	he main ste for penetra	eam ation X-2-		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
MSD-V46		2 (F-11)	В	1.0 Globe	Motor	0	С		Open Test Freq:
receives a main	n steam isolation clo	sure signal. Th	is is also a c	to remove condens ontainment isolatior ection 10.3, Table 6	ate from the main s n valve for penetratio 5.2-5.	steam syste on X-3- exe	em and empt from		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
MSD-V47		2 (C-11)	В	1.0 Globe	Motor	0	С		Open Test Freq:
receives a main	steam isolation clo	sure signal. Th	is is also a c	to remove conden ontainment isolatior ection 10.3, Table 6	sate from the main a n valve for penetration 3.2-5.	steam syst on X-4- exe	em and empt from		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

#### FIGURE F4 IST VALVE TEST TABLE

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NG

SYSTEM:

′alve Number temarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	I NRM	Positions SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
NG-FV4609	2 (C-10)	A	1.0 Globe	Solenoid	С	С	с	VG-2	Open Test Freq:
Low pressure nitrogen supply LLRT. This valve is open to s References: P&ID D20136, Fi	upply nitrogen to var	onents ORC-0 ious compone	CIV for penetration ents inside contain	X40- subject to Appe ment, and receives a '	ndix J Ty 'T" closur	pe C e signal.			Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
NG-FV4610	2 (C-9)	A	1.0 Globe	Solenoid	С	С	С	VG-2	Open Test Freq:
ow pressure nitrogen supply LRT. This valve is open to s References: P&ID D20136, F	upply nitrogen to var	onents IRC-C ious compone	IV for penetration 2 ents inside contain	X40- subject to Apper ment, and receives a '	idix J Typ 'T" closur	e C e signal	•		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
NG-V13	2 (F-10)	A	1.0 Globe	Air/Diaphragm	С	С	С		Open Test Freq:
High pressure nitrogen supply LRT. This valve is open to ch D20136, FSAR Table 6.2-83.	r to the ECCS accur narge the ECCS acc	nulators- ORC sumulators, an	C-CIV for penetration d receives a "T" cl	on X36- subject to Ap osure signal. Referen	pendix J 1 ces: P&IE	Гуре С )			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
NG-V14	2 (F-9)	A	1.0 Globe	Air/Diaphragm	С	с	с		Open Test Freq:
High pressure nitrogen supply LRT. This valve is open to cl D20136, FSAR Table 6.2-83.	to the ECCS accur harge the ECCS acc	nulators- IRC- cumulators, an	CIV for penetration d receives a "T" cl	n X36- subject to App losure signal. Referen	endix J Ty ces: P&IC	/pe C )			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
NG-V17	2 (F-7)	В	1.0 Globe	Air/Diaphragm	С	С	С		Open Test Freq:
ECS accumulator nitrogen su periodically opened to pressur n the open direction. Referer	rize the accumulator.	. Considered a	a passive valve per	C-2/NNS boundary), a FEWR 97-095 due to	nd may b their limite	e ed servio	ce		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
NG-V19	2 (G-7)	В	1.0 Globe	Air/Diaphragm	c	C	c		Open Test Freq:
ECS accumulator nitrogen su periodically opened to pressu	noty isolation valve.	This valve is n	ormally closed (SC	C-2/NNS boundary), a	nd may b	e ed servid	ce		Close Test Freq: Quarterly RV Test Freq:

SYSTEM: PID No.:	NG D20136			IST	FIGURE			AB	LE	
Valve Number Remarks		Class and Coord	Vaive (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
periodically ope	tor nitrogen suppty ned to pressurize t ction. References:	the accumulator.	Considered a	a passive valve pe	Air/Diaphragm C-2/NNS boundary), a r EWR 97-095 due to t	C nd may b their limite	C e ed servio	C		X       X       X       X         Open Test Freq:       Close Test Freq:       X       X         RV Test Freq:       CV Test Dir:       X       X         ST Test Dir:       Closed       X       X
NG-V23	tor nitrogen supply	2 (F-7) v isolation valve.	B This valve is n	1.0 Globe formally closed (S	Air/Diaphragm :C-2/NNS boundary), a	C nd may b	C	С		Open Test Freq: Close Test Freq: Quarterly
periodically op	ened to pressurize tection. References:	the accumulator.	Considered a	a passive valve pe	er EWR 97-095 due to	their limit	ed servio	ce		RV Test Freq: CV Test Dir: ST Test Dir: Closed

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SYSTEM:	RC
PID No.:	D20518

# FIGURE F4

Valve Number	Class		Size (in.)						IST Program Plan Commitment
	and	Valve (CAT)	and Type	Actuator Type	NRM	Position SAF	S FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
Remarks	Coord	(0,41)	Туре		111.(17)				
RC-FV2830	2	A	0.5	Solenoid	DE	С	С	VG-2	
	(H-11)		Globe						Open Test Freq:
Pressurizer steam space sa	ample valve- IRC-CIV f	or penetration	n X-35, subject to A	ppendix J Type C L	RT. This	valve is			Close Test Freq: 2 Years
opened to obtain a sample a	and receives a "T" clos	ure signal. R	eferences: P&ID D2	20518, FSAR Table	6.2-83.				RV Test Freq: CV Test Dir:
									ST Test Dir: Closed
	2	Α	0.5	Solenoid	с	с	с	VG-2	
RC-FV2831	(G-11)	~	Globe						Open Test Freq:
					DT This y	alvo io			Close Test Freq: 2 Years
Pressurizer liquid space sar opened to obtain a sample a	mple valve- IRC-CIV fo	or penetration	X-35, SUDJECT TO AP	0518 ESAR Table	6 2-83	aive is			RV Test Freq:
opened to obtain a sample a	and receives a 1 clus	ule signal. N	elerences. Ford D2		0.2-00.				CV Test Dir:
									ST Test Dir: Closed
	2	Α	0.5	Solenoid	С	DE	С	VG-2	
RC-FV2832		~	Globe	Coloridia	-		-		Open Test Freq: 2 Years
	(E-11)			OLIDE THE SEA		-1 <b>4</b> -			•
RC Loop 1 sample valve- IR	RC-CIV for penetration	X-35, subjec	t to Appendix J Typ	e C LLRT. This valv	e is opene	d to	1		Close Test Freq: 2 Years RV Test Freq:
obtain a sample and receive	RC-CIV for penetration	This valve is	t to Appendix J Typ utilized to obtain ar	NRCS sample for b	oron conce	entration	/		Close Test Freq: 2 Years
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo	RC-CIV for penetration es a "T" closure signal ng cold shutdown. If o pric acid injected into th	. This valve is btaining a sai	t to Appendix J Typ utilized to obtain ar	RCS sample for b , the operators verify	oron conce / adequate	SDM by	1		Close Test Freq: 2 Years RV Test Freq:
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200.	RC-CIV for penetration es a "T" closure signal ng cold shutdown. If o pric acid injected into th	. This valve is btaining a sai	t to Appendix J Typ utilized to obtain ar	RCS sample for b , the operators verify	oron conce / adequate	SDM by	c	VG-2	Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200.	RC-CIV for penetration and cold shutdown. If o pric acid injected into th .01.	. This valve is btaining a sai ne RCS. Refe	t to Appendix J Typ a utilized to obtain ar mple is not possible rences: P&ID D205 0.5	n RCS sample for b , the operators verify 18, FSAR Sections	oron conce adequate 5.4.7, 7.4,	SDM by Table		VG-2	Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. RC-FV2833	RC-CIV for penetration es a "T" closure signal, ng cold shutdown. If o pric acid injected into th .01. 2 (D-11)	. This valve is btaining a sai ne RCS. Refe A	t to Appendix J Typ s utilized to obtain ar mple is not possible rences: P&ID D205 0.5 Globe	n RCS sample for b , the operators verify 18, FSAR Sections Solenoid	oron conce / adequate 5.4.7, 7.4, C	Entration SDM by Table DE		VG-2	Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. RC-FV2833 RC Loop 3 sample valves IE	RC-CIV for penetration and cold shutdown. If o pric acid injected into the .01. 2 (D-11) RC-CIV for penetration	. This valve is btaining a sa he RCS. Refe A A X-35. subjec	t to Appendix J Typ ; utilized to obtain ar nple is not possible rences: P&ID D205 0.5 Globe t to Appendix J Typ	n RCS sample for b the operators verify 18, FSAR Sections Solenoid e C LLRT. This value	oron conce v adequate 5.4.7, 7.4, C re is opene	Table DE d to	C	VG-2	Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2833</b> RC Loop 3 sample valve- IF obtain a sample and receive analysis to verify SDM durin	RC-CIV for penetration es a "T" closure signal. ng cold shutdown. If o rric acid injected into th .01. 2 (D-11) RC-CIV for penetration es a "T" closure signal.	. This valve is btaining a sai ne RCS. Refe A X-35, subjec . This valve is btaining a sai	t to Appendix J Typ a utilized to obtain ar mple is not possible rences: P&ID D205 0.5 Globe t to Appendix J Typ a utilized to obtain ar mple is not possible	n RCS sample for b the operators verify 18, FSAR Sections Solenoid e C LLRT. This valv n RCS sample for b the operators verifi	oron conce / adequate 5.4.7, 7.4, C re is opene oron conce / adequate	DE d to SDM by DE	C	VG-2	Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X X X X X X X X X X X X X X X
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2833</b> RC Loop 3 sample valve- IF obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo	RC-CIV for penetration and cold shutdown. If o pric acid injected into the .01. 2 (D-11) RC-CIV for penetration es a "T" closure signal and cold shutdown. If o pric acid injected into the	. This valve is btaining a sai ne RCS. Refe A X-35, subjec . This valve is btaining a sai	t to Appendix J Typ a utilized to obtain ar mple is not possible rences: P&ID D205 0.5 Globe t to Appendix J Typ a utilized to obtain ar mple is not possible	n RCS sample for b the operators verify 18, FSAR Sections Solenoid e C LLRT. This valv n RCS sample for b the operators verifi	oron conce / adequate 5.4.7, 7.4, C re is opene oron conce / adequate	DE d to SDM by DE	C	VG-2	Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X X X 2 Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq:
RC Loop 1 sample valve- IR obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2833</b> RC Loop 3 sample valve- IR obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200.	RC-CIV for penetration and cold shutdown. If o pric acid injected into the .01. 2 (D-11) RC-CIV for penetration es a "T" closure signal and cold shutdown. If o pric acid injected into the	. This valve is btaining a sai ne RCS. Refe A X-35, subjec . This valve is btaining a sai	t to Appendix J Typ a utilized to obtain ar mple is not possible rences: P&ID D205 0.5 Globe t to Appendix J Typ a utilized to obtain ar mple is not possible	n RCS sample for b the operators verify 18, FSAR Sections Solenoid e C LLRT. This valv n RCS sample for b the operators verifi	oron conce / adequate 5.4.7, 7.4, C re is opene oron conce / adequate	DE d to SDM by DE	C	VG-2 VG-2	Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X X X X X X X X X X X X X X X
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2833</b> RC Loop 3 sample valve- IF obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200.	RC-CIV for penetration es a "T" closure signal. ng cold shutdown. If o pric acid injected into th .01. 2 (D-11) RC-CIV for penetration es a "T" closure signal ng cold shutdown. If o pric acid injected into th .01. 2	. This valve is btaining a sat ne RCS. Refe A X-35, subjec . This valve is btaining a sat ne RCS. Refe	t to Appendix J Typ e utilized to obtain ar mple is not possible rences: P&ID D205 0.5 Globe t to Appendix J Typ e utilized to obtain ar mple is not possible rences: P&ID D205	n RCS sample for b the operators verify 18, FSAR Sections Solenoid e C LLRT. This value n RCS sample for b the operators verify 18, FSAR Sections	oron conce / adequate 5.4.7, 7.4, C re is opene oron conce / adequate 5.4.7, 7.4,	entration SDM by Table DE d to entration SDM by , Table	C		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X X X X X X X X X X X X X X X
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2833</b> RC Loop 3 sample valve- IF obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2836</b>	RC-CIV for penetration ag cold shutdown. If o pric acid injected into the .01. 2 (D-11) RC-CIV for penetration es a "T" closure signal and cold shutdown. If o pric acid injected into the .01. 2 (C-11)	This valve is btaining a sam ne RCS. Refe A X-35, subject This valve is btaining a sam ne RCS. Refe A	t to Appendix J Typ a utilized to obtain ar mple is not possible rences: P&ID D205 0.5 Globe at to Appendix J Typ a utilized to obtain ar mple is not possible prences: P&ID D205 0.5 Globe	RCS sample for b the operators verify 18, FSAR Sections Solenoid e C LLRT. This value RCS sample for b the operators verify 18, FSAR Sections Solenoid	oron conce / adequate 5.4.7, 7.4, C // c / adequate 5.4.7, 7.4, C C C C C	d to SDM by DE DE d to entration SDM by , Table	C C C		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X X X 7 Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X X X 7 X X X 2
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2833</b> RC Loop 3 sample valve- IF obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2836</b> PRT cas space sample valve	RC-CIV for penetration ag cold shutdown. If o pric acid injected into the .01. 2 (D-11) RC-CIV for penetration es a "T" closure signal ang cold shutdown. If o pric acid injected into the .01. 2 (C-11) ve- IRC-CIV for penetration	This valve is btaining a sai ne RCS. Refe A X-35, subjec This valve is btaining a sai ne RCS. Refe A	t to Appendix J Typ a utilized to obtain ar mple is not possible rences: P&ID D205 0.5 Globe at to Appendix J Typ a utilized to obtain ar mple is not possible prences: P&ID D205 0.5 Globe ubject to Appendix .	RCS sample for b the operators verify 18, FSAR Sections Solenoid e C LLRT. This valv RCS sample for b the operators verify 18, FSAR Sections Solenoid	oron conce / adequate 5.4.7, 7.4, C // c / adequate 5.4.7, 7.4, C C C C C	d to SDM by DE DE d to entration SDM by , Table	C C C		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X X X 7 Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed X X X X X X 7 Open Test Freq:
obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2833</b> RC Loop 3 sample valve- IF obtain a sample and receive analysis to verify SDM durin monitoring the volume of bo 6.2-83, procedure OS1200. <b>RC-FV2836</b>	RC-CIV for penetration ag cold shutdown. If o pric acid injected into the .01. 2 (D-11) RC-CIV for penetration es a "T" closure signal ang cold shutdown. If o pric acid injected into the .01. 2 (C-11) ve- IRC-CIV for penetration	This valve is btaining a sai ne RCS. Refe A X-35, subjec This valve is btaining a sai ne RCS. Refe A	t to Appendix J Typ a utilized to obtain ar mple is not possible rences: P&ID D205 0.5 Globe at to Appendix J Typ a utilized to obtain ar mple is not possible prences: P&ID D205 0.5 Globe ubject to Appendix .	RCS sample for b the operators verify 18, FSAR Sections Solenoid e C LLRT. This valv RCS sample for b the operators verify 18, FSAR Sections Solenoid	oron conce / adequate 5.4.7, 7.4, C // c / adequate 5.4.7, 7.4, C C C C C	d to SDM by DE DE d to entration SDM by , Table	C C C		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed XXXXX Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed XXXXX Open Test Freq: Close Test Freq: Close Test Freq: 2 Years

RC SYSTEM: PID No.:

D20518

### FIGURE F4 IST VALVE TEST TABLE

Vaive Number	Class		Size (in.)		1	Position	ie.	<b>B</b>    ( B)	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DIFEFSLJLK PEPIRTST
RC-FV2837	2 (C-9)	A	0.5 Globe	Solenoid	DE	С	С	VG-2	Open Test Freq:
PRT gas space sample valv obtain a sample and receive:	e- ORC-CIV for penel s a "T" closure signal.	ration X-40, s References:	ubject to Appendix P&ID D20518, FSA	J Type C LLRT. Th ∖R Table 6.2-83.	is valve is o	opened	to		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
RC-FV2840	2 (H-9)	A	0.5 Globe	Solenoid	DE	С	С	VG-2	Open Test Freq:
Pressurizer sample valve- O obtain a sample and receive:	RC-CIV for penetratic s a "T" closure signal.	n X-35, subje References:	ct to Appendix J Ty P&ID D20518, FSA	pe C LLRT. This va \R Table 6.2-83.	live is open	ied to			Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
RC-FV2874	2 (E-9)	A	0.5 Globe	Solenoid	DE	С	С	VG-2	X     X     X     X     X       Open Test Freq:
RCS Loop 1 sample valve- ( obtain a sample and receive:	DRC-CIV for penetrati s a "T" closure signal.	on X-35, subj References:	ect to Appendix J T P&ID D20518, FSA	ype C LLRT. This v \R Table 6.2-83.	alve is ope	ned to			Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
RC-FV2876	2 (D-9)	A	0.5 Globe	Solenoid	DE	С	С	VG-2	X     X     X     X     X       Open Test Freq:
RCS Loop 3 sample valve- ( obtain a sample and receive	DRC-CIV for penetrati s a "T" closure signal.	on X-35, subj References:	ect to Appendix J T P&ID D20518, FSA	ype C LLRT. This v NR Table 6.2-83.	alve is ope	ned to			Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
RC-FV2894	2 (E-9)	Α	0.5 Globe	Solenoid	С	DE	С	VG-2	Open Test Freq: 2 Years
RC Loop 1 sample valve- Ol obtain a sample and receive analysis to verify SDM durin monitoring the volume of bor 6.2-83, procedure OS1200.0	s a "T" closure signal. g cold shutdown. If oi ric acid injected into th	This valve is btaining a san	utilized to obtain an pple is not possible,	RCS sample for b the operators verify	oron conce / adequate	entration SDM by	ו y		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

SYSTEM:	RC				FIGUR		ΓΤΔΓ		and a second
PID No .:	D20518								
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAI	Relief Req L C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
RC-FV2896		2 (D-9)	A	0.5 Globe	Solenoid	С	DE C	VG-2	Open Test Freq: 2 Years
obtain a sample analysis to veri monitoring the	e and receives a "T' fv SDM during cold	' closure signal. shuldown. If ob	This valve is taining a sar	ct to Appendix J Typ utilized to obtain an Inple is not possible, f rences: P&ID D2051	RCS sample for b he operators verify	oron conce	entration SDM by		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RC-V312		2 (H-11)	A	0.75 Relief/Safety	Self	С	DE		Open Test Freq:
closed and ope	mple line containme ens to provide overp ferences: P&ID D2	ent penetration th ressure protection	on caused by	ralve- IRC-CIV for pe thermal expansion o	netration X-35. Th f trapped fluid und	is valve is r ler accident	normally t		Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
RC-V314		2 (F-10)	A	0.75 Relief/Safety	Self	С	DE		Open Test Freq:
closed and ope	ample line containm ens to provide overp rerences: P&ID D20	ent penetration t ressure protection	on caused by	valve- IRC-CIV for p thermal expansion o	enetration X-35. Ti f trapped fluid und	his valve is ler accident	normally		Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
RC-V337		2 (E-11)	A	0.75 Relief/Safety	Self	С	DE		Open Test Freq:
closed and ope	ample line containm ens to provide overp ferences: P&ID D20	ressure protection	on caused by	valve- IRC-CIV for p thermal expansion o	enetration X-35. Th f trapped fluid und	his valve is ler accident	normally		Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

1-F4.86

### SYSTEM: RC PID No.: D20841

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#### FIGURE F4 IST VALVE TEST TABLE

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Valve Number	Class and	Valve	Size (in.) and	Actuator	Po	sitions	Relief Req	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
RC-V22	1 (A-9)	A	12.0 Gate	Motor	С	DE	RC-CSJ-1	Open Test Freq: CSD
RHR -RCS loop 1 suction i the RHR system into opera pressure isolation valve not system. References: P&ID	tion to cool the RCS be t subject to TS 4.4.6.2.2	elow 350F. Ti 2d testing. T	his valve is identified i his valve may also be	n TRM Section 2. closed to isolate a	18 as an RCS	3		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RC-V23	1	A	12.0	Motor	С	DE		
	(A-11)		Gate				RC-CSJ-1	Open Test Freq: CSD Close Test Freq: CSD
place the RHR system into Appendix J Type C LLRT, 4 4.4.6.2.2d testing. This values Section 5.4.7, ECA 1.2, TR	and is identified in TRN ve may also be closed t	1 Section 2.1	8 as an RCS pressur	e isolation valve n	ot subject to T	rs		RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RC-V24	2	С	3.0	Self	С	DE		
RC-V24	2 (A-12)	С	3.0 Relief/Safety	Self	С	DE		Open Test Freq:
RHR Suction line relief value provides LTOP for the RC penetration X-9- subject to	(A-12) ve. This RV protects the S in conjunction with th	e low pressu ne pressurize	Relief/Safety re portion of the RHR r PORVs. This RV is	system from over also a containme	pressure, and nt isolation val	l also lve for		
RHR Suction line relief valv provides LTOP for the RC penetration X-9- subject to Table 6.2-83.	(A-12) ve. This RV protects the S in conjunction with th Appendix J Type C LLI	e low pressu ne pressurize	Relief/Safety re portion of the RHR r PORVs. This RV is ces: P&ID D20841, T 0.75	system from over also a containme	pressure, and nt isolation val	l also lve for		Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir:
RHR Suction line relief valv provides LTOP for the RC penetration X-9- subject to Table 6.2-83. <b>RC-V360</b>	(A-12) ve. This RV protects the S in conjunction with th Appendix J Type C LLI 2 (A-11)	e low pressu he pressurize RT. Reference C	Relief/Safety re portion of the RHR r PORVs. This RV is ces: P&ID D20841, T 0.75 Relief/Safety	system from over also a containme S 3.4.9.3, FSAR S Self	pressure, and nt isolation val Section 5.4.7.2	l also lve for 2,		Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: Close Test Freq:
RHR Suction line relief valv provides LTOP for the RC penetration X-9- subject to Table 6.2-83.	(A-12) ve. This RV protects the S in conjunction with th Appendix J Type C LLI 2 (A-11)	e low pressu he pressurize RT. Reference C	Relief/Safety re portion of the RHR r PORVs. This RV is ces: P&ID D20841, T 0.75 Relief/Safety	system from over also a containme S 3.4.9.3, FSAR S Self	pressure, and nt isolation val Section 5.4.7.2	l also lve for 2,		Open Test Freq: Close Test Freq: CV Test Freq: 10 Years CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: Close Test Freq: RV Test Freq: 10 Years
RHR Suction line relief valv provides LTOP for the RC penetration X-9- subject to Table 6.2-83. <b>RC-V360</b>	(A-12) ve. This RV protects the S in conjunction with th Appendix J Type C LLI 2 (A-11)	e low pressu he pressurize RT. Reference C	Relief/Safety re portion of the RHR r PORVs. This RV is ces: P&ID D20841, T 0.75 Relief/Safety	system from over also a containme S 3.4.9.3, FSAR S Self	pressure, and nt isolation val Section 5.4.7.2	l also lve for 2,		Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: Close Test Freq:
RHR Suction line relief valv provides LTOP for the RC penetration X-9- subject to Table 6.2-83. <b>RC-V360</b> RHR suction line thermal r	(A-12) ve. This RV protects the S in conjunction with th Appendix J Type C LLI 2 (A-11)	e low pressu he pressurize RT. Reference C	Relief/Safety re portion of the RHR r PORVs. This RV is ces: P&ID D20841, T 0.75 Relief/Safety	system from over also a containme S 3.4.9.3, FSAR S Self	pressure, and nt isolation val Section 5.4.7.2	l also lve for 2,		Open Test Freq: Close Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: Close Test Freq: Close Test Freq: RV Test Freq: CV Test Dir:
RHR Suction line relief valv provides LTOP for the RC penetration X-9- subject to Table 6.2-83. <b>RC-V360</b> RHR suction line thermal r	(A-12) ve. This RV protects the S in conjunction with th Appendix J Type C LLI 2 (A-11) relief valve In scope p	e low pressui ne pressuize RT. Reference C er ISTC 1.1.	Relief/Safety re portion of the RHR r PORVs. This RV is ces: P&ID D20841, T 0.75 Relief/Safety Reference: P&ID D20	system from over also a containme S 3.4.9.3, FSAR S Self 0841.	pressure, and nt isolation val Section 5.4.7.2	l also lve for 2, O	RC-CSJ-5	Open Test Freq:         Close Test Freq:         RV Test Freq:         OV Test Dir:         ST Test Dir:         Open Test Freq:         Close Test Freq:         CV Test Dir:         ST Test Dir:         Open Test Freq:         CV Test Dir:         ST Test Dir:         Open Test Freq:         CST Test Dir:
RHR Suction line relief valv provides LTOP for the RC penetration X-9- subject to Table 6.2-83. <b>RC-V360</b> RHR suction line thermal r <b>RC-V475</b> RC-V475	(A-12) ve. This RV protects the S in conjunction with th Appendix J Type C LLI 2 (A-11) relief valve In scope p 2 (A-10) valve. This valve open	e low pressui ne pressurize RT. Reference C er ISTC 1.1. A/C as to equalize	Relief/Safety re portion of the RHR r PORVs. This RV is ces: P&ID D20841, T 0.75 Relief/Safety Reference: P&ID D20 0.5 Check	system from over also a containme S 3.4.9.3, FSAR S Self 0841. Self	pressure, and nt isolation val Section 5.4.7.2 C C	l also lve for 2, O DE ssure	RC-CSJ-5	Open Test Freq:         Close Test Freq:         RV Test Freq:         10 Years         CV Test Dir:         ST Test Dir:         Open Test Freq:         Close Test Freq:         Close Test Freq:         RV Test Freq:         10 Years         CV Test Dir:         ST Test Dir:         ST Test Dir:         Open Test Freq:         10 Years         CV Test Dir:         ST Test Dir:         Open Test Freq:         CSD         Close Test Freq:         CSD
RHR Suction line relief valu provides LTOP for the RC penetration X-9- subject to Table 6.2-83. <b>RC-V360</b>	(A-12) ve. This RV protects this S in conjunction with the Appendix J Type C LLI 2 (A-11) relief valve In scope p 2 (A-10) valve. This valve open ent bypass flow around	e low pressui ne pressuize RT. Reference C er ISTC 1.1. A/C sto equalize RC-V22. Th	Relief/Safety re portion of the RHR r PORVs. This RV is ces: P&ID D20841, T 0.75 Relief/Safety Reference: P&ID D20 0.5 Check pressure across RC is valve is designated	system from over also a containme S 3.4.9.3, FSAR S Self 0841. Self	pressure, and nt isolation val Section 5.4.7.2 C C	l also lve for 2, O DE ssure	RC-CSJ-5	Open Test Freq:         Close Test Freq:         RV Test Freq:         OV Test Dir:         ST Test Dir:         Open Test Freq:         Close Test Freq:         CV Test Dir:         ST Test Dir:         Open Test Freq:         CV Test Dir:         ST Test Dir:         Open Test Freq:         CV Test Dir:         ST Test Dir:         ST Test Dir:         ST Test Dir:         ST Test Dir:         Open Test Freq: CSD

# FIGURE F4

SYSTEM:

RC

PID No.: D20843	3								ICT Dreamen Dian
Valve Number	Class and	Valve	Size (in.) and	Actuator		Position	5	Relief Req	IST Program Plan Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
RC-LCV459	1	В	3.0	Air/Diaphragm	0	С	С		
	(A-6)		Globe					RC-CSJ-2	Open Test Freq:
RCS Loop 3 normal letdown	isolation valves-(RCF	PB). These val	ives are normally	open and close (fail cl	osed) to i	solate			Close Test Freq: CSD
letdown on low pressurizer le		_,		The second second state of the second	· · · · · · · · · · · · · · · · · · ·				RV Test Freg:
leadown on iow pressurizer ie	evel. They have no op	en salety fund	ction since letdowi	n is not required to ach	leve sate				•
shutdown. These valves form	n the reactor coolant p	pressure boun	ndary CL 1/2 boun	h is not required to ach idary to meet the requir	ieve sate rements o	f 10CFR	ł		CV Test Dir:
shutdown. These valves form 50.55.a (c).2.ii. References	n the reactor coolant p	pressure boun	ndary CL 1/2 boun	n is not required to ach adary to meet the requir	ieve sare rements o	f 10CFR			•
shutdown. These valves form 50.55.a (c).2.ii. References	n the reactor coolant p	pressure boun	ndary CL 1/2 boun	h is not required to ach idary to meet the requir Air/Diaphragm	ements o	f 10CFR	c		CV Test Dir: ST Test Dir: Closed
shutdown. These valves form	n the reactor coolant p	pressure boun R Section 5.2	ndary CL 1/2 boun	idary to meet the requir	ements o	f 10CFN		RC-CSJ-2	CV Test Dir: ST Test Dir: Closed
shutdown. These valves form 50.55.a (c).2.ii. References RC-LCV460	n the reactor coolant ; : P&ID D20843, FSA 1 1 (A-8)	pressure boun R Section 5.2 B	adary CL 1/2 boun 3.0 Globe	dary to meet the requir Air/Diaphragm	o O	C		RC-CSJ-2	CV Test Dir: ST Test Dir: Closed X X X X X X X X Open Test Freq: Close Test Freq: CSD
shutdown. These valves form 50.55.a (c).2.ii. References RC-LCV460 RCS Loop 3 normal letdown jetdown on low pressurizer let	n the reactor coolant ; : P&ID D20843, FSA 1 (A-8) isolation valves-(RCF evel. They have no op	Pressure boun R Section 5.2 B B PB). These val	adary CL 1/2 boun 3.0 Globe Ives are normally ction since letdowi	dary to meet the requir Air/Diaphragm open and close (fail cl n is not required to ach	osed) to initiate	C Solate	С	RC-CSJ-2	CV Test Dir: ST Test Dir: Closed
shutdown. These valves form 50.55.a (c).2.ii. References RC-LCV460	n the reactor coolant ; : P&ID D20843, FSA 1 (A-8) isolation valves-(RCF evel. They have no op n the reactor coolant j	Pressure boun R Section 5.2 B PB). These val en safety func pressure bour	3.0 Globe Ives are normally ction since letdown	dary to meet the requir Air/Diaphragm open and close (fail cl n is not required to ach	osed) to initiate	C Solate	С	RC-CSJ-2	CV Test Dir: ST Test Dir: Closed

					FIGUR	E F4			
SYSTEM: PID No.:	RC D20844			IST V	ALVE 1		TAB	BLE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		sitions SAF FAL	Rellef Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
RC-V87		1 (G-7)	A	12.0 Gate	Motor	с	DE	RC-CSJ-1	Open Test Freq: CSD
the RHR syste	m into operation to o ion valve not subjec	cool the RCS be t to TS 4.4.6.2.2	low 350F. TI d testing. T	osed during plant pow nis valve is identified ii his valve may also be 1.2, TRM Section 2.1	n TRM Section 2. closed to isolate a	18 as an RCS	5		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RC-V88		1 (H-8)	A	12.0 Gate	Motor	С	DE	RC-CSJ-1	Open Test Freq: CSD
the RHR syste Appendix J Ty 4.4.6.2.2d test	m into operation to o	cool the RCS be dentified in TRM also be closed t	low 350F. TI Section 2.1	osed during plant pown nis valve is an IRC CI 8 as an RCS pressure ak in the RHR system	V for penetration > e isolation valve no	X-10, subject ot subject to 1	to "S		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RC-V89		2 (H-8)	С	3.0 Relief/Safety	Self	С	DE		Open Test Freq:
nrovides LTOF	P for the RCS in col	niunction with th	e pressurize	re portion of the RHR r PORVs. This RV is nces: P&ID D20844, 1	also a containmer	nt isolation va	ve for		Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
RC-V361		2 (H-7)	С	0.75 Relief/Safety	Self	с	0		Open Test Freq:
RHR suction I	ine thermal relief va	ive in scope p	er ISTC 1.1.	Reference: P&ID D20	)844.				Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
RC-V479		2 (G-7)	A/C	0.5 Check	Self	С	DE	RC-CSJ-5	Open Test Freq: CSD
locking, and cl	s line check valve. oses to prevent bypa 2.18. References P&	ass flow around	RC-V87. Th	pressure across RC- is valve is designated 18, DCR 95-023.	V87 to preclude d as an RCS press	differential pre	ssure /alve in		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

# FIGURE F4

SYSTEM:

PID No.:

RC

D20845

Valve Number	Class	Valve	Size (in.)	Actuator		Position	s	Relief Reg	IST Program Plan Commitment
Remarks	and Coord	(CAT)	and Type	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
RC-FV2881	2 (G-7)	В	0.75 Globe	Solenoid	с	DE	С	VG-2	X     X     X     X     X       Open Test Freq: 2 Years
Reactor head vent isolation RCPB. References: P&ID	valve. This valve open D20845, FSAR Sectior	s to vent nond n 5.2.6, TS 3.4	condensibles from t 4.11.	he reactor head and	closes to i	isolate th	18		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RC-V323	2 (G-7)	В	0.75 Globe	Motor	с	DE		RC-CSJ-4	X     X     X     X       Open Test Freq: CSD     X     X
Reactor head vent isolation RCPB. References: P&ID	valve. This valve open D20845, FSAR Section	s to vent nonc n 5.2.6, TS 3.4	condensibles from t 4.11.	he reactor head and	closes to i	isolate th	ıe		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

#### SYSTEM: RC PID No.: D20846

# FIGURE F4

/alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
RC-PCV456A	1 (G-7)	В	3.0 Globe	Solenoid	С	DE	С	RC-CSJ-3	Open Test Freq: CSD
Pressurizer PORV. This valv actuation ( non-safety function temperature, RCS nonconder FSAR Sectins 5.2.2.11, 5.4.	on). The safety related ensibles venting, and F	l functions inc RCS depress	clude LTOP with RC	CS at reduced press	sure and				Close Test Freq: CSD RV Test Freq: 5 Years CV Test Dir: ST Test Dir: Open/Closed
RC-PCV456B	1 (F-7)	В	3.0 Globe	Solenoid	С	DE	С	RC-CSJ-3	Open Test Freq: CSD
Pressurizer PORV. This value actuation ( non-safety function temperature, RCS nonconder FSAR Sectins 5.2.2.11, 5.4.	on). The safety related ensibles venting, and <b>i</b>	l functions ind RCS depress	clude LTOP with RC	CS at reduced press	sure and				Close Test Freq: CSD RV Test Freq: 5 Years CV Test Dir: ST Test Dir: Open/Closed
RC-V115	1 (G-6)	С	6.0 Relief/Safety	Self	С	DE			Open Test Freq:
RCS-Pressurizer safety valv D20846, FSAR Section 5.2.	2, ŤS 3.4.2.2.			Self	C	DE			RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
RC-V116	1 (H-6)	С	6.0 Relief/Safety	Self	ι L	DE			Open Test Freq:
RCS-Pressurizer safety valv D20846, FSAR Section 5.2.		ure protectior	n for the RCS-In sco	ope per ISTC 1.1. R	eferences	: P&ID			Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
RC-V117	1 (G-6)	С	6.0 Relief/Safety	Self	С	DE			Open Test Freq:
RCS-Pressurizer safety valv D20846, FSAR Section 5.2.	e- provides overpress	ure protection	•	ope per ISTC 1.1. R	eferences	: P&ID			Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
RC-V122	1	В	3.0	Motor	0	DE			
Pressurizer PORV isolation depending on the operationa	(G-7) valve. This valve is no I status of the associa	rmally open a	Gate and may be closed v bis valve may be su	vith or without powe	r removed				Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq:

<u> </u>					FIGUR	RE F4					
SYSTEM: PID No.:	RC D20846			IST V	ALVE 1	TES <sup>-</sup>	ГΤ	ABI	_E		
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positior SAF	ns FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT S	т
RC-V124		1 (F-7)	В	3.0 Gate	Motor	0	DE			Open Test Freq: Quarterly	x
depending on t	DRV isolation valve. The operational status erences : P&ID D208	s of the associa	ated PORV. T	his valve may be su	vith or without powe ubsequently opened	er removed I to allow Po	ORV			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed	

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Sec					FIGURE	É F4				
YSTEM: PID No.:	RH D20662			IST V	ALVE T	ES	ГΤ	٩BI	_E	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
RH-FCV61		2 (A-12)	В	3.0 Globe	Motor	0	DE			Open Test Freq: Quarterly Close Test Freq: Quarterly
and closes whe	n-flow control valve on the flow exceeds erences: P&ID 206	; 1400 apm to pr	ovide min-flo	w protection for the F	Imp discharge flow d RHR pump during EC	lrops to 7 CCS and	50 gpm RHR			RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-FCV61	8	2 (D-8)	В	8.0 Gate	Air/Diaphragm	С	С	С		Open Test Freq:
the valve is aut	omatically positione h and maintain plar at exchanger. This	ed to maintain tol	al flow in res valve is des	sponse to the operato igned to fail closed o	standby mode. Durin or repositioning of the n loss of NNS air, ar lites. References: Pa	e outlet va nd direct '	aive HCV full flow	-		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-HCV60	6	2 (E-9)	В	8.0 Butterfly	Air/Dlaphragm	0	0	0		Open Test Freq: Quarterly
cool down, it is loss of NNS ai	positioned by the c	perator to estab through the hea	lish and mair it exchanger.	ntain RCS cooldown. . This transient is wit	e ECCS standby more The valve is designed hin the system/ plant	ed to fail o	g plant open upo	n		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
RH-V4		2 (B-11)	С	8.0 Check	Self	С	0		RH-CSJ-1	X     X     X     X       Open Test Freq: CSD
closure is not r should an RHF	required during EC R pump be idle. During for ECCS per TS	e. This valve ope CS operation du ring Mode 4 RHI	e to closure R operation, ross connec	of the RWST and Co one RHR train is use t valve V21 (V22) is i	ting for SSD and EC ontainment sump suc ed for cool down and maintained closed. T hs 5.4.7 & 6.3, OS10	tion cheo the othei his will pi	ck valves r train reclude			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
RH-V13		2 (F-7)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
RHR discharg	e header 600# relie	• •	e is in scope	•	rences: P&ID D2066	2.				Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

#### FIGURE F4 SYSTEM: RH IST VALVE TEST TABLE PID No.: D20662 IST Program Plan Size (in.) Commitment Valve Number Class Positions Relief Req Actuator Valve and and LJ LK PE PI RT ST FS NRM SAF FAL C.S. Just. DL FE Type (CAT) Remarks Coord Туре X X X 0 DE Motor 8.0 2 В **RH-V14** RH-CSJ-2 Open Test Freq: CSD Gate (E-6) Close Test Freq: CSD RHR/LPSI discharge CIV (X-11). This CIV is normally open and remains open during the injection phase of ECCS operation, and for normal RHR operation. This valve may be closed during the transition from ECCS injection to cold leg recirculation, and if open, will be closed during hot leg recirculation. Although not proceduralized, it may require reopening **RV Test Freq:** CV Test Dir: to mitigate certain long term ECCS limited passive failures. This valve is exempt from Appendix J Type C LLRT. ST Test Dir: Open/Closed References: P&ID D20662, FSAR Sections 5.4.7, 6.3 Table 6.2-83, procedures ES-1.3, ES-1.4. С DE 6.0 Self A/C 2 **RH-V15** Open Test Freq: CSD RH-CSJ-3 Check (D-5) Close Test Freq: PIVs per TS RHR/LPSI discharge inside containment CIV/PIV (X-11). This valve opens to direct RHR/LPSI flow to the RCS loop 1 cold leg. This valve is also an RCS pressure isolation valve and closes to limit RCS leakage to the lower pressure RHR system piping. This CIV is exempt from Apendix J Type C LLRT. References: P&ID D20662, FSAR Sections 5.4.7, 6.3, Table 6.2-RV Test Freq: CV Test Dir: ST Test Dir: 83. TS 3/4,4,6.2, TRM Section 2.18. X С С 0.75 Air/Diaphragm С 2 в **RH-V16** Open Test Freq: (D-12) Globe Close Test Freq: Quarterly RHR discharge to primary sample system. This valve receives an SI signal to close to isolate the NNS sample system from RHR/ECCS. This valve is not required for RHR sampling during safe shutdown. References: P&ID 20662, FSAR RV Test Freq: CV Test Dir: Sections 5.4.7, 7.4. ST Test Dir: Closed X X X X С С С Air/Diaphragm 2 В 0.75 **RH-V28 Open Test Freq:** (G-5) Globe Close Test Freq: Quarterly RHR cold leg PIV test line isolation. This valve aligns the RHR header to the seat leakage detection header and receives an SI closure signal. This valve is also an IRC CIV for penetration X-11,-- exempt from Appendix J Type C LLRT. Reference: P&ID D20662, FSAR Table 6.2-83. RV Test Freq: CV Test Dir: ST Test Dir: Closed Х С DE Self 2 A/C 6.0 **RH-V31** Open Test Freq: CSD RH-CSJ-3 Check (E-5) Close Test Freq: PIVs per TS RHR/LPSI discharge inside containment CIV/PIV (X-11). This valve opens to direct RHR/LPSI flow to the RCS loop 2 cold **RV Test Freq:** leg. This valve is also an RCS pressure isolation valve and closes to limit RCS leakage to the lower pressure RHR system piping. This CIV is exempt from Apendix J Type C LLRT. References: P&ID D20662, FSAR Sections 5.4.7, 6.3, Table 6.2-CV Test Dir: ST Test Dir: 83, TS 3/4.4.6.2, TRM Section 2.18. X $|\mathbf{X}|$ С DE 8.0 Motor 2 В **RH-V35** RH-CSJ-4 Open Test Freq: CSD Gate (G-8) Close Test Freq: CSD RHR Train A discharge to CCP suction. This valve is normally closed and is opened to align the RHR pump discharge to the charging pump suction during the containment sump recirculation phase of ECCS operation. This valve may be closed in the long term to isolate ECCS limited passive failures. References: P&ID D20662, FSAR Section 6.3 **RV Test Freq:**

ST Test Dir: Open/Closed 1-F4.94

CV Test Dir:

×					FIGURE	ĒF4				
SYSTEM: PID No.:	RH D20663			IST V	ALVE T	ES	ГΤ	٩BI	E	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
RH-FCV611		2 (A-12)	В	3.0 Globe	Motor	0	DE			Deen Test Freq: Quarterly
and closes whe	-flow control valve. The flow exceeds 14 rences: P&ID 20663	his valve auton 400 gpm to pro	vide min-flov	is when the RHR pi v protection for the l	ump discharge flow d RHR pump during EC	rops to 7 CS and	50 gpm RHR			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-FCV61	)	2 (D-8)	В	8.0 Gate	Air/Diaphragm	С	С	С		Open Test Freq:
the valve is auto	matically positioned t and maintain plant c t exchanger. This tra	This valve is no to maintain tota coldown. This	I flow in res valve is desi	losed during ECCS ponse to the operation	standby mode. Durin or repositioning of the on loss of NNS air, ar ilites. References: P&	d direct f	ive HCV uli flow	-		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-HCV60	,	2 (E-9)	В	8.0 Butterfly	Air/Diaphragm	0	0	0		Open Test Freq: Quarterly
cool down, it is loss of NNS air	positioned by the ope	rator to establi rough the heat	sh and main exchanger.	tain RCS cooldown. This transient is wit	e ECCS standby mod . The valve is designe hin the system/ plant	d to fail c	g plant pen upo	n		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
RH-V17		2	В	0.75	Air/Diaphragm	С	с	С		Open Test Freq:
RHR discharge from RHR/ECC Sections 5.4.7,	S. This valve is not r	(E-12) /stem. This va equired for R⊦	ve receives a R sampling	Globe an SI signal to close during safe shutdov	to isolate the NNS s vn. References: P&IC	ample sy ) 20663,	stem FSAR			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-V21		2 (F-8)	В	8.0 Gate	Motor	0	DE		RH-CSJ-5	Open Test Freq: CSD
ECCS operatio	<ul> <li>It may be closed de long term ECCS lim</li> </ul>	isolation valve	2HR operatio	s normally open and n in Mode 4, or to is	l remains open during solate a Mode 4 LOC, 63, FSAR Sections 5	A, and m	ay also b	e 2,		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-V22		2 (H-8)	B	8.0 Gate	Motor	0	DE		RH-CSJ-5	Open Test Freq: CSD
ECCS operation	n. It may be closed o e long term ECCS lin	isolation valve	RHR operatio	n in Mode 4. or to is	d remains open during solate a Mode 4 LOC 63, FSAR Sections 5	A, and m	ay also b	e 2,		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

RH SYSTEM:

### FIGURE F4 IST VALVE TEST TABLE

ID No.: <b>D2066</b>	3		151 V	ALVE I	EST TAB		
Valve Number Remarks	Class and Coord	Valve (CAT)	۔ Size (in.) and Type	Actuator Type	Positions NRM SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
RH-V25	2 (E-7)	С	0.75 Relief/Safety	Self	со		Open Test Freq:
RHR discharge header 600		e is in scope	per ISTC 1.1. Refe	rences: P&ID D2066	63.		Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
RH-V26	2 (E-6)	В	8.0 Gate	Motor	O DE	RH-CSJ-2	Open Test Freq: CSD Close Test Freq: CSD
RHR/LPSI discharge CIV () operation, and for normal R recirculation, and if open, w to mitigate certain long term References: P&ID D20663,	HR operation. This val ill be closed during hot ECCS limited passive	ve may be clo leg recirculat e failures. Thi	bsed during the trans tion. Although not pi is valve is exempt fro	sition from ECCS inj roceduralized, it may om Appendix J Type	jection to cold leg / require reopening		RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-V27	2 (E-6)	В	0.75 Globe	Air/Diaphragm	ссс		Open Test Freq:
RHR cold leg PIV test line i an SI closure signal. This va Reference: P&ID D20663, I	alve is also an IRC CI\	gns the RHR / for penetrati	header to the seat I ion X-12, exempt fi	eakage detection he rom Appendix J Typ	eader and receives e C LLRT.		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-V29	2 (D-5)	A/C	6.0 Check	Self	C DE	RH-CSJ-3	Open Test Freq: CSD
RHR/LPSI discharge inside leg. This valve is also an RC piping. This CIV is exempt f 83, TS 3/4.4.6.2, TRM Secl	containment CIV/PIV CS pressure isolation v from Apendix J Type C	alve and clos	es to limit RCS leak	age to the lower pre	ssure RHR system		Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RH-V30	2 (C-6)	A/C	6.0 Check	Self	C DE	RH-CSJ-3	Open Test Freq: CSD
RHR/LPSI discharge inside leg. This valve is also an R piping. This CIV is exempt 83, TS 3/4.4.6.2, TRM Sec	CS pressure isolation v from Apendix J Type C	aive and clos	es to limit RCS leak	age to the lower pre	ssure RHR system		Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RH-V32	2 (F-7)	В	8.0 Gate	Motor	C DE	RH-CSJ-6	Open Test Freq: CSD
RHR hot leg recirculation is closure is not required since containment isolation valve ES-1.4, FSAR Sections 5.4	olation valve. This valve e long term ECCS lim for penetration X-13 ar	ited passive f	closed and opens to ailures can be isolat	ed by closing V21&	V22. This is also a		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
<u> </u>				·······	· · · · · · · · · · · · · · · · · · ·		1 E4 06

VOTENA	DU				FIGUR				
YSTEM: PID No.:	RH D20663			IST V	ALVE T	'ES'	Γ ΤΑΕ	<b>3LE</b>	
Valve Number Remarks	D20005	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FA	Relief Req _ C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
RH-V36		2 (F-12)	В	8.0 Gate	Motor	с	DE	RH-CSJ-4	X     X     X     X       Open Test Freq: CSD     X     X
the Safety inject	tion nump suction o	furing the contai	inment sump	recirculation phase	o align the BRHR   of ECCS operation D20663, FSAR Sec	. This valve	harge to e may be		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-V40		2 (B-11)	C	8.0 Check	Self	с	0	RH-CSJ-1	X     X     X       Open Test Freq:     CSD       Close Test Freq:
closure is not response of the should an RHR	equired during ECC t pump be idle. Duri d for ECCS per TS	S operation duing Mode 4 RHF 3.5.3.1, and a c	e to closure o l operation, o ross connect	if the RWST and C one RHR train is us valve V21 (V22) is	ting for SSD and EC ontainment sump su ed for cool down and maintained closed. Is 5.4.7 & 6.3, OS1	iction chec d the other This will pr	k valves train eclude		RV Test Freq: CV Test Dir: ST Test Dir:
RH-V49		2 (H-5)	В	0.75 Globe	Air/Diaphragm	С	сс		Open Test Freq:
and receives an	PIV test line isolati n SI closure signal. ce: P&ID D20663,	on. This valve a This valve is als	o an IRC CI∖	eg injection header / for penetration X-1	to the seat leakage 3, exempt from Ap	detection I opendix J 1	header Гуре С		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-V50		2 (G-6)	A/C	8.0 Check	Self	С	DE		Open Test Freq: Refueling
previously cons since this valve normally closed	idered an RCS/LPS	his is an IRC C SI pressure isola normally closed the ECCS hot le	ition valve, su MOV, per U g recirculatio	exempt from Appen ibject to seat leakag FSAR Section 5.4.7 in phase of operation	dix J Type C LLRT. le testing per TS 3/4 /, this valve is not a n. References: P&II	1.4.6.2. Ho PIV. This	wever, valve is	RH-RJ-1	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RH-V51		2	A/C	8.0	Self	С	DE		
previously cons since this valve normally closed	sidered an RCS/LPS is backed up by a	SI pressure isola normally closed the ECCS hot le	ation valve, su MOV, per U eg recirculatio	bject to seat leakag FSAR Section 5.4.3 In phase of operation	dix J Type C LLRT. je testing per TS 3/4 7, this valve is not a n. References: P&II	4.4.6.2. Ho PIV. This	wever, valve is	RH-RJ-1	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:

normally closed and opens during the ECCS hot leg recirculation ph Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

YSTEM:	RH								F	Sec. 1
PID No.: Valve Number Remarks	D20663	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions		Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
leakage testing	per TS 3/4.4.6.2. H	owever, since the valve is normall	his valve is ba v closed and (	icked up by a norma	Self e isolation valve, sub Illy closed MOV, per CCS hot leg recircula M Section 2.18.	UFSAR	Section		RH-RJ-1	X       X       X         Open Test Freq:       Refueling         Close Test Freq:       PIVs per TS         RV Test Freq:       CV Test Dir:         ST Test Dir:       ST Test Dir:
testing per TS	3/4 4 6 2 However	since this valve s normally close	is backed up ed and opens	by a normally close during the ECCS he	Self e isolation valve, sub d MOV, per UFSAF of leg recirculation pl 2.18.	R Section	5.4.7,		RH-RJ-1	X       X       X         Open Test Freq:       Refueling         Close Test Freq:       PIVs per TS         RV Test Freq:       CV Test Dir:         ST Test Dir:       ST Test Dir:
RH-V54		2 (F-6)	В	0.75 Globe	Air/Diaphragm	С	C	С		X     X     X     X       Open Test Freq:     X     X       Close Test Freq:     Quarterly
RHR/SI hot leg and is required P&ID D20663	PIV test line isolation to be closed during	on. This valve a normal plant op	ligns the hot lo peration. Pass	eg injection header i sive closed function	to the seat leakage o only (per EWR 97-0	detection 95). Ref	neader erence:			RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-V55		2 (H-5)	В	0.75 Globe	Air/Diaphragm	С	С	с		Open Test Freq:
RHR/SI hot leg headerand is ro Reference: P&	equired to be closed	on. This valve a during normal	ligns the hot i plant operation	eg injection header f n. Passive closed fu	to the seat leakage o Inction only (per EW	detection 'R 97-095	5).			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-V57		2 (G-7)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
ECCS hot leg i	njection piping relie	f valve- in scop	e per ISTC 1.	1. References; P&II	D D20663.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
RH-V70		2 (H-7)	В	8.0 Gate	Motor	С	DE		RH-CSJ-6	Open Test Freq: CSD
closure is not r containment is	equired since long	valve. This valv term ECCS limi etration X-13 ar	ted passive fa	ailures can be isolat	initiate hot leg recirc ed by closing V21&V C LLRT. References	/22. This	is also a			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open

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$\sim$					FIGURI	É F4				Server 1
YSTEM: PID No.:	RMW D20360			IST V	ALVE T		Γ Τ A	B	LE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
RMW-V29		2 (H-5)	A/C	3.0 Check	Self	DE	DE		RMW-CSJ-2	Open Test Freq: CSD Close Test Freq: CSD
pressure cause	o containment-IRC-( ed by thermal expan &ID D20360, FSAR	sion of trapped	fluid under ad	cident conditions a	ype C LLRT. This va nd closes for contain 60023, revision 0.	ilve opens ment isola	to relieve ation.			RV Test Freq: CV Test Dir: ST Test Dir:
RMW-V30		2 (H-6)	Α	3.0 Globe	Air/Diaphragm	DE	С	с		Open Test Freq: Quarterly
RMW supply to open and rece	o containment-ORC ives a "T" closure s	-CIV for penetra ignal. Reference	ation X36- sul es: P&ID D20	oject to Appendix J 360, FSAR Table 6	Type C LLRT. This v 3.2-83.	valve is no	ormally			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RMW-V119	)	2 (D-6)	С	3.0 Check	Self	C	0		RMW-CSJ-1	Open Test Freq: CSD
boration when	CS-V426 is opened	Reverse closu	re is not requi	ired durina ECCS s	rmally closed and wil sump recirculation sir References: P&ID D	nce the lin	e will be			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
RMW-V31		3 (D-5)	В	2.0 Saunders Weir	Manual	0	С			Open Test Freq:
Reactor makeu water during er	up water supply to th mergency boration. I	e CVCS blende References: P8	er. This valve ID D20729, F	is normally open an SAR Section 7.4, C	d is closed to isolate DS1200.01.	potential (	dilution			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
RMW-V34		3 (D-5)	В	2.0 Saunders Weir	Manual	0	С		<u>, , , , , , , , , , , , , , , , , , , </u>	X     Image: Comparison of the set of th
Reactor makeu water during er	up water supply to the mergency boration. I	e CVCS blende	er. This valve ID D20729, F	is normally open an SAR Section 7.4, 0	d is closed to isolate DS1200.01.	potential	dilution			Close Test Freq: Quarterly RV Test Freq: CV Test Dir:

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CV Test Dir: ST Test Dir:

SYSTEM: PID No.:	SA D20652			IST V	FIGUR		Г ТАВ	LE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SA-V229 Locked closed D20652, FSAF		2 (E-7) CIV for penetrati	A on X-67-subje	2.0 Gate ect to Appendix J Ty	Manual /pe C LLRT. Refere	C ences: P&IC	C D		Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SA-V1042		2 (E-7)	A	2.0 Globe	Manual	С	C		Open Test Freq:
Locked closed FSAR Table 6.			n X-67-subjec	st to Appendix J Typ	be C LLRT. Referer	nces: P&ID	D20652,		Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:

 SYSTEM:
 SB

 PID No.:
 D20626

## FIGURE F4

/alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SB-V1	2 (H-12)	B	3.0 Gate	Air/Piston	0	С	с		Open Test Freq:
SG #1 blowdown isolation and high flash tank press	n valve. This valve is norm sure. References: P&ID D	nally open and 20626, FSAR	closes on a HELB Section 10.4.8.6.	i isolation signal, hig	h flash tar	k level			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
6B-V3	2 (H-12)	В	3.0 Gate	Air/Piston	0	С	С		Open Test Freq:
SG #2 blowdown isolation and high flash tank press	n valve. This valve is norn sure. References: P&ID D	nally open and )20626, FSAR	closes on a HELE Section 10.4.8.6.	l isolation signal, hig	h flash tar	ik level			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SB-V5	2 (G-12)	В	3.0 Gate	Air/Piston	0	С	С		Open Test Freq:
SG #3 blowdown isolation and high flash tank press	n valve. This valve is norn sure. References: P&ID D	nally open and )20626, FSAR	l closes on a HELE Section 10.4.8.6.	sisolation signal, hig	h flash tar	ık level			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
5B-V7	2 (F-12)	В	3.0 Gate	Air/Piston	0	С	С		X     X     X     X     X       Open Test Freq:
SG #4 blowdown isolation and high flash tank press	n valve. This valve is norn sure. References: P&ID D	nally open and )20626, FSAR	closes on a HELE Section 10.4.8.6.	3 isolation signal, hig	h flash tar	nk level			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
	2	8	3.0	Air/Piston	0	С	С	······	
SB-V9	(H-11)		Gate						Open Test Freq:
normally open and closes		nal, EFW pum	exempt from App	endix J Type C LLR nd receives a "T" clo	Γ. This val sure signa	ve is al.			Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SG #1 blowdown isolation	(H-11) on valve -ORC-CIV for per s on a HELB isolation sign	nal, EFW pum	exempt from App	endix J Type C LLR nd receives a "T" clo Air/Piston	Γ. This val sure signa Ο	ve is al. C	С		Close Test Freq: Quarterly RV Test Freq: CV Test Dir:

SYSTEM: PID No.:	SB D20626			IST V	FIGUR ALVE T		ΓŢ	AB	LE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	I NRM	Position SAF	s FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SB-V11		2 (G-11)	В	3.0 Gate	Air/Piston	0	С	С		X     X     X     X       Open Test Freq:
normally open a	n isolation valve -C Ind closes on a HE ID D20626, FSAR	LB isolation sign	nal, EFW pur	np running signal a	endix J Type C LLR1 nd receives a "T" clo	Γ. This valv sure signa	/e is I.			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SB-V12		2 (F-11)	В	3.0 Gate	Air/Piston	0	С	С	<u></u>	Open Test Freq:
normally open a	vn isolation valve -0 Ind closes on a HE ID D20626, FSAF	LB isolation sign	nal, EFW pum	np running signal a	endix J Type C LLR1 nd receives a "T" clo	Г. This valv sure signa	/e is II.			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

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SYSTEM: SF

#### FIGURE F4 IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SF-V3	3 (D-4)	С	6.0 Check	Self	DE	DE		Open Test Freq: Quarterly
Spent fuel pool cooling pum when the pump is secured t	p P-10B discharge ch o prevent reverse bypa	eck valve. Th ass flow from	is valve opens when the redundant paralle	the SFPC pump is el pumps. Referen	s running and ces: P&ID E	d closes )20482.		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SF-V7	3 (D-7)	С	6.0 Check	Seif	DE	DE		Open Test Freq: Quarterly
Spent fuel pool cooling pum when the pump is secured t	p P-10A discharge ch	eck valve. Th ass flow from	is valve opens when the redundant parall	the SFPC pump is el pumps. Referen	s running an ces: P&ID E	d closes 020482.		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SF-V45	3 (G-11)	С	0.75 Relief/Safety	Self	С	0		Open Test Freq:
SF-E-15B thermal relief valv	• •	1.1. Referenc	-					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SF-V74	3 (G-9)	С	0.75 Relief/Safety	Self	С	0		Open Test Freq:
SF-E-15A thermal relief valv	• •	1.1. Referenc	ce: P&ID D20482.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SF-V197	3 (B-5)	С	8.0 Check	Self	DE	DE		X     Image: Comparison of the second s
Spent fuel pool cooling pum when the pump is secured t	p P-10C discharge ch o prevent reverse bypa	eck valve. Th ass flow from	is valve opens when the redundant parall	the SFPC pump is el pumps. Referen	s running an Ices: P&ID [	d closes 020482.		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: PID No.:	SF D20484			IST V	FIGUR			LE	and a second
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SF-V86 Refueling cana passive, locked	al skimmer pump dis d closed manual val	2 (F-7) scharge ORC-C ve. References:	A IV for penetra P&ID D2048	2.0 Gate ation X-39-subject to 4, FSAR Table 6.2-6	Manual o Appendix J Type 83.	C C LLRT. T	C This is a		Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:
SF-V87 Refueling cana passive, locked	al skimmer pump dis I closed manual val	2 (F-6) scharge IRC-Cl' ve. References:	A V for penetra P&ID D2048	2.0 Gate tion X-39-subject to 4, FSAR Table 6.2-6	Manual Appendix J Type ( 83.	C C LLRT. Th	C nis is a		Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:
SF-V101 Containment p pressure cause	enetration X-39 ther ed by thermal expar	2 (G-6) rmal relief valve- nsion of trapped	A/C - subject to Ap fluid under ac	0.75 Relief/Safety opendix J Type C LL ocident conditions. R	Self RT. This valve ope Reference: P&ID D	C ens to reliev 20484.	DE		Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SF-V183		3 (F-5)	С	0.75 Relief/Safety	Self	С	0		Open Test Freq:

Alternate SFP heat exchanger relief valve- in scope per ISTC 1.1. References: P&ID D20796.

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Close Test Freq:

.

CV Test Dir: ST Test Dir:

RV Test Freq: 10 Years

SYSTEM: SI

#### FIGURE F4 IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SI-V71 SI pump discharge check valv overpressurization if the pump	2 (B-9) e. This valve opens is idle when the red	C when the Si p lundant pump	4.0 Check oump is operating an is operating. Refere	Self nd must close to pro ences: P&ID D204	C event suction 46.	DE n piping	SI-RJ-1	X       Open Test Freq: Refueling         Close Test Freq: Quarterly         RV Test Freq:         CV Test Dir:         ST Test Dir:
SI-V76	2 (C-7) lief valve. In scope p	C er ISTC 1.1.	0.75 Relief/Safety References: P&ID [	Self 020446.	С	0		Open Test Freq: Close Test Freq: RV Test Freg: 10 Years
								CV Test Dir: ST Test Dir:
SI-V77 SI hot leg injection containmer ECCS hot leg recirculation. TI References: P&ID D20446, Fi	his valve is also the (	ORC CIV for	penetration X-26 -e)	Motor wer removed, and cempt from Append	C is opened to ix J Type C	DE Dinitiate LLRT.	SI-CSJ-1	X       X       X       X         Open Test Freq:       CSD         Close Test Freq:       RV Test Freq:         CV Test Dir:       CV Test Dir:         ST Test Dir:       Open/Closed
SI-V81 RCS loop 3 HL check valve-C previously considered an RCS this valve is backed up by a no closed and opens during the E 5.4.7, 6.3, Table 6.2-83, TS 3.	S/SI pressure isolation formally closed MOV, ECCS hot leg recircu	on valve, subje , per UFSAR lation phase	ect to seat leakage to Section 5.4.7, this	esting per TS 3/4.4 /alve is not a PIV. 1	.6.2. Howev This valve is	er, since normally	SI-RJ-2	X       X       X         Open Test Freq: Refueling         Close Test Freq: PIVs per TS         RV Test Freq:         CV Test Dir:         ST Test Dir:
SI-V82 RCS loop 3 HL check valve. T testing per TS 3/4.4.6.2. Howe this valve is not a PIV. This va References: P&ID D20446, F3	ever, since this valve lve is normally close	e is backed up d and opens	by a normally close during the ECCS he	ed MOV, per UFSA t leg recirculation p	R Section 5	5.4.7,	SI-RJ-2	X       X       X       X         Open Test Freq:       Refueling         Close Test Freq:       PIVs per TS         RV Test Freq:       CV Test Dir:         ST Test Dir:       ST Test Dir:

and the second s					FIGUR	F F4			and the second
STEM:	SI			IST V	ALVE T		Γ ΤΑΒ	LE	
ID NO.: Vaive Number Remarks	D20446	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SI-V86		1	A/C	2.0	Self	C	DE		
previously cons this valve is bac closed and ope	sidered an RCS/SI j cked up by a norma	pressure isolatio Illy closed MOV, S hot leg recircu	n valve, subje per UFSAR lation phase o	Check xempt from Append ct to seat leakage te Section 5.4.7, this v of operation. Referer	sting per TS 3/4.4. alve is not a PIV. T	.6.2. Howe his valve is	ver, since s normally	SI-RJ-2	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V87 RCS loop 2 HL testing per TS this valve is no	. check valve. This v 3/4.4.6.2. However, t a PIV. This valve is	1 (B-4) was previously c , since this valve s normally close	A/C onsidered an is backed up d and opens o	6.0 Check RCS/SI pressure is by a normally close during the ECCS ho 4.6.2, TRM Section	d MOV, per UFSA t leg recirculation p	R Section	5.4.7,	SI-RJ-2	X       X       X       X         Open Test Freq:       Refueling         Close Test Freq:       PIVs per TS         RV Test Freq:       CV Test Dir:         ST Test Dir:       ST Test Dir:
SI-V88		2 (C-9)	С	1.5 Check	Self	с	DE	· · · · · · · · · · · · · · · · · · ·	Open Test Freq: Quarterly
SI pump min-fl piping overpres	ow recirc check values and the pure of the	ve. This valve o mp is idle when	pens when the the redundant	e SI pump is operati ; pump is operating.	ng and must close References: P&ID	to prevent D20446.	suction		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SI-V89		2 (C-9)	В	1.5 Globe	Motor	0	DE		X         X         X         X         X           Open Test Freq:         X         X         X         X
SI pump recirc operation, and	ulation isolation valv is closed during the	ve. This valve is	normally oper ase of ECCS	n, remains open duri operation. Referenc	ng the injection ph ces: P&ID D20446,	ase of EC , FSAR Se	CS ction 6.3		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V90		2 (F-9)	В	1.5 Globe	Motor	0	DE		X     X     X     X       Open Test Freq:
SI pump recirc operation, and	ulation isolation valv is closed during the	ve. This valve is	normally oper ase of ECCS	n, remains open duri operation. Referenc	ng the Injection ph ces: P&ID D20446,	ase of EC , FSAR Se	CS ction 6.3.		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V91		2 (F-9)	С	1.5 Check	Self	С	DE		Open Test Freq: Quarterly
SI pump min-fl piping overpres	ow recirc check val ssurization if the pu	ve. This valve o	pens when th the redundant	e SI pump is operati t pump is operating.	ng and must close References: P&ID	to prevent D20446.	suction		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:



SYSTEM:	SI

#### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class		Size (in.)	<b>A</b> - <b>b</b> -	Po	sitions	Relief Req	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type		SAF FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
SI-V93	2 (E-9)	В	2.0 Globe	Motor	0	DE		Open Test Freq:
SI pump common recirculation ECCS operation, and is close Section 6.3.	n isolation valve. This	s valve is nor ation phase o	mally open, remains of ECCS operation. R	open during the in eferences: P&ID [	ijection phase 020446, FSAF	of ₹		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V96	2 (G-8)	С	4.0 Check	Self	с	DE		Open Test Freq: Refueling
SI pump discharge check va overpressurization if the pum	ve. This valve opens	when the SI   lundant pum;	pump is operating an b is operating. Refere	id must close to pr ences: P&ID D204	event suction 46.	piping	SI-RJ-1	Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SI-V101	2 (G-7)	С	0.75 Relief/Safety	Self	С	0		Open Test Freq:
SI hot leg injection header r	ellef valve. In scope p	er ISTC 1.1.	References: P&ID E	020446.				Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SI-V102	2 (G-7)	В	4.0 Gate	Motor	С	DE	SI-CSJ-1	Open Test Freq: CSD
SI hot leg injection containm ECCS hot leg recirculation. References: P&ID D20446, I	ent isolation valve. Th	ORC CIV for	penetration X-25 -ex	wer removed, and empt from Append	is opened to i dix J Type C L	nitiate LRT.		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V106	1 (G-5)	A/C	2.0 Check	Self	С	DE		Open Test Freq: Refueling
RCS loop 4 HL check valve- previously considered an RC this valve is backed up by a l closed and opens during the 5.4.7, 6.3, Table 6.2-83, TS	CIV. This is an IRC C S/SI pressure isolatio	on valve, subj . per UFSAF	ect to seat leakage to R Section 5.4.7. this t	esting per TS 3/4.4 valve is not a PIV.	4.6.2. Howeve This valve is n	r, since iormally	SI-RJ-2	Close Test Freq: PtVs per TS RV Test Freq: CV Test Dir: ST Test Dir:

### SYSTEM: SI PID No.: D20446

### FIGURE F4 IST VALVE TEST TABLE

•

/alve Number Remarks	Class and Coord	Vaive (CAT)	Size (in.) anđ Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SI-V110	1 (H-5)	A/C	2.0 Check	Self	С	DE			Open Test Freq: Refueling
RCS loop 1 HL check valve previously considered an R this valve is backed up by a closed and opens during th 5.4.7, 6.3, Table 6.2-83, TS	CS/SI pressure isolatio a normally closed MOV, ne ECCS hot leg recircu	n valve, subje per UFSAR lation phase o	ct to seat leakage t Section 5.4.7. this	esting per TS 3/4.4 valve is not a PIV.	.6.2. Howe This valve is	ver, since s normall	e y	SI-RJ-2	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V111	2 (C-8)	В	4.0 Gate	Motor	0	DE			Open Test Freq: Quarterly
SI discharge cross connec phase of ECCS operation D20446, FSAR Section 6.3	and is closed during the	rmally open, r e hot leg recire	emains open during culation phase of E	g the injection and c CCS operation. Re	old leg reci ferences: P	rculation &ID			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V112	2 (F-8)	В	4.0 Gate	Motor	0	DE			Open Test Freq: Quarterly
SI discharge cross connec ohase of ECCS operation D20446, FSAR Section 6.3	and is closed during the	rmally open, r e hot leg recir	emains open durin culation phase of E	g the injection and o CCS operation. Re	cold leg reci ferences: P	rculation &ID			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V113	2 (D-7)	С	0.75 Relief/Safety	Self	С	0			Open Test Freq:
SI cold leg injection heade	er relief valve. In scope	per ISTC 1.1.	References: P&ID	D20446.					Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SI-V114	2 (D-7)	B	4.0 Gate	Motor	0	DE		SI-CSJ-3	Open Test Freq:
SI cold leg header CIV. Th recirculation phases of EC is also the ORC CIV for po Section 6.3, Table 6.2-83,	CS operation, and is clo enetration X-27 exemption	osed during th	e hot lea recirculat	ion phase of ECCS	operation.	This valv	e		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V118	1	A/C	2.0	Self	С	DE			
SI loop 1 cold leg injection RCS pressure is below the tested per TS 3/4.4.6.2, an	e pump shutoff head. Th	nis valve is an	RCS/SI pressure	isolation valve whic	h is seat le	ind the akage		SI-RJ-2	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir:

SYSTEM: SI

#### FIGURE F4 IST VALVE TEST TABLE

/alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SI-V122	1	A/C	2.0	Self	С	DE			X     X     X       Open Test Freq: Refueling
SI loop 2 cold leg injection RCS pressure is below the tested per TS 3/4.4.6.2, an References: P&ID D20446	e pump shutoff head. The d it is an IRC isolation	nis valve is an I for penetratio	RCS/SI pressure n X-27- exempt fi	e isolation valve which rom Appendix J Type (	is seat lea	nd the Ikage		SI-RJ-2	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V126	1	A/C	2.0	Self	С	DE			
SI loop 3 cold leg injection RCS pressure is below the lested per TS 3/4.4.6.2, an References: P&ID D20446	e pump shutoff head. The nd it is an IRC isolation	nis valve is an I for penetratio	RCS/SI pressure in X-27- exempt fi	e isolation valve which rom Appendix J Type	is seat lea	nd the Ikage		SI-RJ-2	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V130	1	A/C	2.0	Self	С	DE			
Pt. Joon 4 cold log injection	(E-4)	a is normally c	Check	when the SI nump is o	nerating a	nd the		SI-RJ-2	Open Test Freq: Refueling Close Test Freq: PIVs per TS
RCS pressure is below the tested per TS 3/4.4.6.2, an	check valve. This valve pump shutoff head. The d it is an IRC isolation	nis valve is an I for penetratio	losed and opens RCS/SI pressure on X-27- exempt fi	e isolation valve which rom Appendix J Type	is seat lea	nd the akage		SI-RJ-2	
SI loop 4 cold leg injection RCS pressure is below the tested per TS 3/4.4.6.2, ar References: P&ID D20446 SI-V131	e check valve. This valve e pump shutoff head. The d it is an IRC isolation 5, FSAR Sections 5.4.7 2	nis valve is an I for penetratio	losed and opens of RCS/SI pressure on X-27- exempt fi 2-83, TS 3/4.4.6.2 0.75	e isolation valve which rom Appendix J Type	is seat lea	nd the akage C	С	SI-RJ-2	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RCS pressure is below the tested per TS 3/4.4.6.2, an References: P&ID D20446 SI-V131 SI cold leg injection check Appendix J Type C LLRT. periodically opened to mea	e check valve. This valve e pump shutoff head. Th d it is an IRC isolation 5, FSAR Sections 5.4.7 2 (E-6) valve test line isolation This valve is normally c sure the seat leakage p	his valve is an a for penetratio , 6.3, Table 6.3 B valve and IRC blosed and rec ast the SI colo	losed and opens of RCS/SI pressure on X-27- exempt fi 2-83, TS 3/4.4.6.2 0.75 Globe C CIV for containme eives a containme d leg PIVs. Refere	e isolation valve which rom Appendix J Type ( 2, TRM Section 2.18. Air/Diaphragm nent penetration X-27- ent isolation "T" signal.	is seat lea C LLRT. C Exempt fr . This valve	om c e may be		SI-RJ-2	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: X X Den Test Freq: Close Test Freq: Close Test Freq: CV Test Dir: CV Test Dir: ST Test Dir: Closed
RCS pressure is below the tested per TS 3/4.4.6.2, an References: P&ID D20446 SI-V131 SI cold leg injection check Appendix J Type C LLRT. periodically opened to mea 5.4.7, 6.3, Table 6.2-83, Edit	e check valve. This valve e pump shutoff head. Th id it is an IRC isolation 5, FSAR Sections 5.4.7 2 (E-6) valve test line isolation This valve is normally sure the seat leakage p ngineering Evaluation S	his valve is an a for penetratio , 6.3, Table 6.3 B valve and IRC blosed and rec ast the SI colo	losed and opens of RCS/SI pressure on X-27- exempt fi 2-83, TS 3/4.4.6.2 0.75 Globe C CIV for containing elves a containing d leg PIVs. Refere 0, Revision 0. 0.75	e isolation valve which rom Appendix J Type ( 2, TRM Section 2.18. Air/Diaphragm nent penetration X-27- ent isolation "T" signal.	is seat lea C LLRT. C Exempt fr . This valve	om c e may be		SI-RJ-2	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: Quen Test Freq: Close Test Freq: Close Test Freq: CV Test Dir: ST Test Dir: Closed XXX
RCS pressure is below the tested per TS 3/4.4.6.2, an References: P&ID D20446	e check valve. This valve e pump shutoff head. Th id it is an IRC isolation 5, FSAR Sections 5.4.7 2 (E-6) valve test line isolation This valve is normally of sure the seat leakage p ngineering Evaluation S 2 (A-5) ation. This valve aligns	his valve is an a for penetratio , 6.3, Table 6.: B valve and IRC losed and rec ast the SI colo S-EV-980010 B the hot leg inje	losed and opens of RCS/SI pressure on X-27- exempt fi 2-83, TS 3/4.4.6.2 0.75 Globe C CIV for containing elves a containing d leg PIVs. Refere 0, Revision 0. 0.75 Globe ection header to th	e isolation valve which rom Appendix J Type I 2, TRM Section 2.18. Air/Diaphragm nent penetration X-27- ent isolation "T" signal ences : P&ID D20446, Air/Diaphragm ne seat leakage detect	is seat lea C LLRT. C Exempt fr This valve FSAR Se C tion heade	c rom e may be cotion C r and is	•	SI-RJ-2	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: X X Den Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: CV Test Dir: ST Test Dir: Closed
RCS pressure is below the lested per TS 3/4.4.6.2, an References: P&ID D20446 SI-V131 SI cold leg injection check Appendix J Type C LLRT. beriodically opened to mea 5.4.7, 6.3, Table 6.2-83, Ei SI-V132 SI hot leg PIV test line isola required to be closed durin D20446	e check valve. This valve e pump shutoff head. Th d it is an IRC isolation 5, FSAR Sections 5.4.7 2 (E-6) valve test line isolation This valve is normally of sure the seat leakage p ngineering Evaluation S 2 (A-5) ation. This valve aligns ig normal plant operatio	his valve is an a for penetratio , 6.3, Table 6.: B valve and IRC losed and rec ast the SI colo S-EV-980010 B the hot leg inje	losed and opens in RCS/SI pressure on X-27- exempt fi 2-83, TS 3/4.4.6.2 0.75 Globe C CIV for containme eives a containme d leg PIVs. Refere 0, Revision 0. 0.75 Globe ection header to th sed function only 0.75	e isolation valve which rom Appendix J Type I 2, TRM Section 2.18. Air/Diaphragm nent penetration X-27- ent isolation "T" signal ences : P&ID D20446, Air/Diaphragm ne seat leakage detect	is seat lea C LLRT. C Exempt fr This valve FSAR Se C tion heade	c rom e may be cotion C r and is	•	SI-RJ-2	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: Qpen Test Freq: Close Test Freq: Close Test Freq: CV Test Dir: ST Test Dir: Closed X X Qpen Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: CV Test Dir: ST Test Dir: Closed X X X X X X X X X X X X X X X X X X X
RCS pressure is below the tested per TS 3/4.4.6.2, an References: P&ID D20446 SI-V131 SI cold leg injection check Appendix J Type C LLRT. periodically opened to mea 5.4.7, 6.3, Table 6.2-83, Ei SI-V132 SI hot leg PIV test line isolar required to be closed durin	e check valve. This valve e pump shutoff head. Th id it is an IRC isolation 5, FSAR Sections 5.4.7 2 (E-6) valve test line isolation f This valve is normally of sure the seat leakage p ngineering Evaluation S 2 (A-5) ation. This valve aligns ig normal plant operatio 2 (C-5)	his valve is an a for penetratio , 6.3, Table 6.: B valve and IRC closed and rec ast the SI colo is-EV-980010 B the hot leg inje n. Passive clo B	losed and opens in RCS/SI pressure on X-27- exempt fi 2-83, TS 3/4.4.6.2 0.75 Globe C CIV for containing eives a containing d leg PIVs. Refere 0, Revision 0. 0.75 Globe ection header to th sed function only 0.75 Globe	e isolation valve which rom Appendix J Type I 2, TRM Section 2.18. Air/Diaphragm nent penetration X-27- ent isolation "T" signal ences : P&ID D20446, Air/Diaphragm ne seat leakage detect (per EWR 97-095). R Air/Diaphragm	is seat lea C LLRT. C Exempt fr This valve FSAR Se C tion heade eference: C	rom e may be cotion C r and is P&ID C	C	SI-RJ-2	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: X X Den Test Freq: Close Test Freq: Close Test Freq: CV Test Dir: ST Test Dir: Closed X X Den Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: Close Test Freq: CV Test Dir: ST Test Dir: Closed

#### SYSTEM: **SI** PID No.: **D20446**

#### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class	) (also	Size (in.)	A		Position	s		IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
SI-V134	2	В	0.75	Air/Diaphragm	С	С	С		
	(C-6)		Globe						Open Test Freq:
Loops 2 & 3 HL check val J Type C LLRT. This valv periodically opened to mer 5.4.7, 6.3, Table 6.2-83.	e is normally closed and	receives a co	ontainment isolation	"T" signal. This valve	may be				Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V157	2	A	0.75	Air/Diaphragm	С	с	С		
	(H-7)		Globe						Open Test Freq:
SI accumulator fill isolation	n valve. This valve is nor	mally closed,	fails closed and re-	ceives a containment i	isolation '	'T" signa	al		Close Test Freq: Quarterly
SI accumulator fill isolation to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table	periodically opened to ac s subject to Type C leak	djust SI accun	nulator level. This is	s also a containment i	solation v	alve for	ai		RV Test Freq: CV Test Dir: ST Test Dir: Closed
to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table	periodically opened to ac s subject to Type C leak	djust SI accun	nulator level. This is	s also a containment i	solation v	alve for	al C		RV Test Freq: CV Test Dir:
to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table	periodically opened to ac s subject to Type C leak 6.2-83.	djust SI accun rate testing p	nulator level. This is er 10CFR50 Apper	s also a containment i ndix J. References: Pa	solation v &ID D204	alve for 146,			RV Test Freq: CV Test Dir: ST Test Dir: Closed
to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table SI-V160 Loops 1 & 4 HL check val J Type C LLRT. This valve periodically opened to mea	periodically opened to ac s subject to Type C leak 6.2-83. 2 (H-5) ve test line isolation valve e is normally closed and	djust SI accun rate testing p B e and IRC Cl' receives a co	nulator level. This is er 10CFR50 Apper 0.75 Globe V for containment i ntainment isolation	s also a containment i ndix J. References: Pr Air/Diaphragm penetraion X-25- Exer "T" signal. This valve	solation v &ID D204 C npt from a	alve for 146, C Appendi	C		RV Test Freq: CV Test Dir: ST Test Dir: Closed
to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table SI-V160 Loops 1 & 4 HL check val J Type C LLRT. This valve periodically opened to mea 5.4.7, 6.3, Table 6.2-83.	periodically opened to ac s subject to Type C leak 6.2-83. 2 (H-5) ve test line isolation valve e is normally closed and	djust SI accun rate testing p B e and IRC Cl' receives a co	nulator level. This is er 10CFR50 Apper 0.75 Globe V for containment i ntainment isolation	s also a containment i ndix J. References: Pr Air/Diaphragm penetraion X-25- Exer "T" signal. This valve	solation v &ID D204 C npt from a	alve for 146, C Appendi	C		RV Test Freq: CV Test Dir: ST Test Dir: Closed X X X X X X X X X Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir:
to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table SI-V160 Loops 1 & 4 HL check val J Type C LLRT. This valve periodically opened to mea 5.4.7, 6.3, Table 6.2-83.	periodically opened to ac s subject to Type C leak 6.2-83. 2 (H-5) ve test line isolation valve e is normally closed and asure the seat leakage pa	djust SI accun rate testing p B e and IRC CI receives a co ast the loops	nulator level. This is er 10CFR50 Apper 0.75 Globe V for containment i ntainment isolation 1 & 4 HL PIVs. Ref	s also a containment i ndix J. References: Pr Air/Diaphragm penetraion X-25- Exer "T" signal. This valve ferences : P&ID D204	C C npt from <i>i</i> may be 146, FSA	alve for 146, C Appendi R Sectio	C		RV Test Freq: CV Test Dir: ST Test Dir: Closed X X X X X X X X X Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir:
to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table SI-V160 Loops 1 & 4 HL check vali J Type C LLRT. This valve periodically opened to mee 5.4.7, 6.3, Table 6.2-83. SI-V248	periodically opened to ac s subject to Type C leak 6.2-83. 2 (H-5) ve test line isolation valve e is normally closed and asure the seat leakage pa 2 (D-9)	djust SI accun rate testing p B e and IRC Cl' receives a co ast the loops C	0.75 Globe V for containment i ntainment isolation 1 & 4 HL PIVs. Ref 0.75 Relief/Safety	s also a containment i ndix J. References: Pa Air/Diaphragm penetraion X-25- Exer "T" signal. This valve ferences : P&ID D204 Self	C C npt from <i>i</i> may be 146, FSA	alve for 146, C Appendi R Sectio	C		RV Test Freq:         CV Test Dir:         ST Test Dir: Closed         X       X         Open Test Freq:         Close Test Freq: Quarterly         RV Test Freq:         CV Test Dir:         ST Test Dir: Closed
to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table SI-V160 Loops 1 & 4 HL check val J Type C LLRT. This valve periodically opened to mea 5.4.7, 6.3, Table 6.2-83.	periodically opened to ac s subject to Type C leak 6.2-83. 2 (H-5) ve test line isolation valve e is normally closed and asure the seat leakage pa 2 (D-9)	djust SI accun rate testing p B e and IRC Cl' receives a co ast the loops C	0.75 Globe V for containment i ntainment isolation 1 & 4 HL PIVs. Ref 0.75 Relief/Safety	s also a containment i ndix J. References: Pa Air/Diaphragm penetraion X-25- Exer "T" signal. This valve ferences : P&ID D204 Self	C C npt from <i>i</i> may be 146, FSAI	alve for 146, C Appendi R Sectio	C		RV Test Freq: CV Test Dir: ST Test Dir: Closed X X Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed Open Test Freq: X Open Test Freq:
to close. SI-V157 may be penetration X35A which is FSAR Section 6.3, Table SI-V160 Loops 1 & 4 HL check vali J Type C LLRT. This valve periodically opened to mee 5.4.7, 6.3, Table 6.2-83. SI-V248	periodically opened to ac s subject to Type C leak 6.2-83. 2 (H-5) ve test line isolation valve e is normally closed and asure the seat leakage pa 2 (D-9)	djust SI accun rate testing p B e and IRC Cl' receives a co ast the loops C	0.75 Globe V for containment i ntainment isolation 1 & 4 HL PIVs. Ref 0.75 Relief/Safety	s also a containment i ndix J. References: Pa Air/Diaphragm penetraion X-25- Exer "T" signal. This valve ferences : P&ID D204 Self	C C npt from <i>i</i> may be 146, FSAI	alve for 146, C Appendi R Sectio	C		RV Test Freq: CV Test Dir: ST Test Dir: Closed X X A A A A A A A A A A A A A A A A A A

#### SYSTEM: SI

#### FIGURE F4 IST VALVE TEST TABLE

′alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT S1
SI-V138	2 (H-6)	В	4.0 Gate	Motor	С	DE	SI-CSJ-4	X     X     X     X       Open Test Freq:     CSD
CCP-SI cold leg isolation va C LLRT. This valve is norma This valve is also in the alter D20447, FSAR Sections 5.4	live and ORC containn ally closed, receives a rnate boration injection	n open SI inje I flow path and	ection signal, and re	emains open for col	ld leg recirc	ulation.		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V139	2	В	4.0	Motor	С	DE		
	(H-6)		Gate				SI-CSJ-4	Open Test Freq: CSD
CCP-SI cold leg isolation va C LLRT. This valve is norma This valve is also in the alter D20447, FSAR Sections 5.4	ally closed, receives an rnate boration injection	n open Sl injed flow path and	ction signal, and re	mains open for cold	d leg recircu	ulation.		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V140	1	A/C	3.0	Self	С	DE		
CR SI injection common lit	(G-5) ne check valve and IRI	C isolation valu	Check	t from Annendix .I T		T This	SI-RJ-3	Open Test Freq: Refueling Close Test Freq: PIVs per TS
valve is normally closed and designated a pressure isolat MOV, per_UFSAR Section S	ne check valve and IR l opens upon initiation tion valve in TRM Sect 5.4.7, this valve is not	of SI flow to th tion 2.18. How	ve for X-24, exempt le RCS cold legs. T ever, since this val	This valve was also ve is backed up by	previously a normally o	closed	SI-RJ-3	
valve is normally closed and designated a pressure isolat MOV, per UFSAR Section 5 5.2.83, TS 3/4.4.6.2, TRM S	ne check valve and IR l opens upon initiation tion valve in TRM Sect 5.4.7, this valve is not	of SI flow to th tion 2.18. How	ve for X-24, exempt le RCS cold legs. T ever, since this val	This valve was also ve is backed up by	previously a normally o	closed	SI-RJ-3	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir:
valve is normally closed and designated a pressure isolat MOV, per UFSAR Section 5 5.2.83, TS 3/4.4.6.2, TRM S	ne check valve and IR l opens upon initiation tion valve in TRM Sect 5.4.7, this valve is not Section 2.18.	of SI flow to th lion 2.18. How a PIV. Refere	ve for X-24, exemple e RCS cold legs. T ever, since this val- ences: P&ID D2044	This valve was also ve is backed up by 47, FSAR Sections	previously a normally o 5.4.7, 7.4, (	closed 6.3, Table	SI-RJ-3	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
valve is normally closed and designated a pressure isolat MOV, per UFSAR Section 5 5.2.83, TS 3/4.4.6.2, TRM S SI-V144 CCP SI injection loop 1 cold cold legs. This valve was als valve is backed up by a norm	ne check valve and IR l opens upon initiation tion valve in TRM Sec 5.4.7, this valve is not Section 2.18. 1 (D-4) I leg check valve. This so previously designate nally closed MOV, per	of SI flow to th lion 2.18. How a PIV. Refere A/C valve is norma ed a pressure i UFSAR Sect	ve for X-24, exemple e RCS cold legs. 1 ever, since this val- nces: P&ID D2044 1.5 Check ally closed and ope isolation valve in Ti- tion 5.4.7, this valve	Fils valve was also ve is backed up by 47, FSAR Sections Self ns upon initiation of RM Section 2.18. H	previously a normally of 5.4.7, 7.4, ( C f SI flow to t lowever, sin	closed 6.3, Table DE DE the RCS toe this	SI-RJ-3 SI-RJ-3	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
alve is normally closed and lesignated a pressure isolat AOV, per UFSAR Section 5 2.2.83, TS 3/4.4.6.2, TRM S SI-V144 CCP SI injection loop 1 cold cold legs. This valve was als alve is backed up by a norm 020447, FSAR Sections 5.4	ne check valve and IR l opens upon initiation tion valve in TRM Sec 5.4.7, this valve is not Section 2.18. 1 (D-4) I leg check valve. This so previously designate nally closed MOV, per	of SI flow to th lion 2.18. How a PIV. Refere A/C valve is norma ed a pressure i UFSAR Sect	ve for X-24, exemple e RCS cold legs. 1 ever, since this val- nces: P&ID D2044 1.5 Check ally closed and ope isolation valve in Ti- tion 5.4.7, this valve	Fils valve was also ve is backed up by 47, FSAR Sections Self ns upon initiation of RM Section 2.18. H	previously a normally of 5.4.7, 7.4, ( C f SI flow to t lowever, sin	closed 6.3, Table DE DE the RCS toe this		Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: X
valve is normally closed and designated a pressure isolat MOV, per UFSAR Section 5 5.2.83, TS 3/4.4.6.2, TRM S SI-V144 CCP SI injection loop 1 cold cold legs. This valve was als valve is backed up by a norm D20447, FSAR Sections 5.4	ne check valve and IR l opens upon initiation tion valve in TRM Sec 5.4.7, this valve is not Section 2.18. 1 (D-4) I leg check valve. This so previously designate nally closed MOV, per 4.7, 7.4, 6.3, TS 3/4.4	of SI flow to th lion 2.18. How a PIV. Refere A/C valve is norma ed a pressure i UFSAR Sect I.6.2, TRM Sec	ve for X-24, exemple e RCS cold legs. 1 ever, since this val- nces: P&ID D2044 1.5 Check ally closed and ope isolation valve in Ti tion 5.4.7, this valve ction 2.18.	This valve was also ve is backed up by 47, FSAR Sections Self ns upon initiation of RM Section 2.18. H e is not a PIV. Refe	previously a normally of 5.4.7, 7.4, 1 C f SI flow to t lowever, sin erences: P8	closed 6.3, Table DE the RCS ace this kID	SI-RJ-3	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: Refueling
valve is normally closed and designated a pressure isolat MOV, per UFSAR Section 5 5.2.83, TS 3/4.4.6.2, TRM 5 <b>SI-V144</b> CCP SI injection loop 1 cold cold legs. This valve was als valve is backed up by a norm D20447, FSAR Sections 5.4 <b>SI-V148</b> CCP SI injection loop 2 cold cold legs. This valve was als valve is backed up by a norm	ne check valve and IR l opens upon initiation tion valve in TRM Sec 5.4.7, this valve is not Section 2.18. 1 (D-4) I leg check valve. This so previously designate nally closed MOV, per 4.7, 7.4, 6.3, TS 3/4.4 1 (E-4) I leg check valve. This so previously designate nally closed MOV, per	of SI flow to th lion 2.18. How a PIV. Refere A/C valve is norma ed a pressure I.6.2, TRM Sec A/C valve is norma ed a pressure	ve for X-24, exemple e RCS cold legs. T ever, since this val- nces: P&ID D2044 1.5 Check ally closed and ope isolation valve in Ti tion 5.4.7, this valve ction 2.18. 1.5 Check ally closed and ope isolation valve in Ti tion 5.4.7, this valve	This valve was also ve is backed up by 47, FSAR Sections Self ns upon initiation of RM Section 2.18. H e is not a PIV. Refe Self ns upon initiation of RM Section 2.18. H	previously a normally of 5.4.7, 7.4, 1 C f SI flow to t lowever, sin erences: P8 C f SI flow to t lowever, sin	DE DE DE the RCS the RCS the RCS DE the RCS the RCS		Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
valve is normally closed and designated a pressure isolat MOV, per UFSAR Section 9 5.2.83, TS 3/4.4.6.2, TRM S <b>SI-V144</b> CCP SI injection loop 1 cold cold legs. This valve was als valve is backed up by a norm D20447, FSAR Sections 5.4 <b>SI-V148</b> CCP SI injection loop 2 cold cold legs. This valve was als valve is backed up by a norm D20447, FSAR Sections 5.4	ne check valve and IR l opens upon initiation tion valve in TRM Sec 5.4.7, this valve is not Section 2.18. 1 (D-4) I leg check valve. This so previously designate nally closed MOV, per 4.7, 7.4, 6.3, TS 3/4.4 1 (E-4) I leg check valve. This so previously designate nally closed MOV, per	of SI flow to th lion 2.18. How a PIV. Refere A/C valve is norma ed a pressure I.6.2, TRM Sec A/C valve is norma ed a pressure	ve for X-24, exemple e RCS cold legs. T ever, since this val- nces: P&ID D2044 1.5 Check ally closed and ope isolation valve in Ti tion 5.4.7, this valve ction 2.18. 1.5 Check ally closed and ope isolation valve in Ti tion 5.4.7, this valve	This valve was also ve is backed up by 47, FSAR Sections Self ns upon initiation of RM Section 2.18. H e is not a PIV. Refe Self ns upon initiation of RM Section 2.18. H	previously a normally of 5.4.7, 7.4, 1 C f SI flow to t lowever, sin erences: P8 C f SI flow to t lowever, sin	DE DE DE the RCS the RCS the RCS DE the RCS the RCS	SI-RJ-3	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir: Den Test Freq: Refueling Close Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: CV Test Dir: Close Test Freq: Refueling Close Test Freq: CV Test Dir:
CCP SI injection common linvalve is normally closed and designated a pressure isolat MOV, per UFSAR Section 56.2.83, TS 3/4.4.6.2, TRM SI-V144 CCP SI injection loop 1 cold cold legs. This valve was alsvalve is backed up by a norm D20447, FSAR Sections 5.4 SI-V148 CCP SI injection loop 2 cold cold legs. This valve was alsvalve is backed up by a norm D20447, FSAR Sections 5.4 SI-V148 CCP SI injection loop 2 cold cold legs. This valve was alsvalve is backed up by a norm D20447, FSAR Sections 5.4 SI-V148 CCP SI injection loop 2 cold cold legs. This valve was alsvalve is backed up by a norm D20447, FSAR Sections 5.4 SI-V152	ne check valve and IR l opens upon initiation tion valve in TRM Sec 5.4.7, this valve is not Section 2.18. 1 (D-4) I leg check valve. This so previously designate nally closed MOV, per 4.7, 7.4, 6.3, TS 3/4.4 1 (E-4) I leg check valve. This so previously designate nally closed MOV, per 4.7, 7.4, 6.3, TS 3/4.4	of SI flow to th lion 2.18. How a PIV. Refere A/C valve is norma ed a pressure A/C A/C valve is norma ed a pressure UFSAR Sect UFSAR Sect 0.6.2, TRM Sect	ve for X-24, exemple e RCS cold legs. T ever, since this val- nces: P&ID D2044 1.5 Check ally closed and ope isolation valve in T tion 5.4.7, this valve ction 2.18. 1.5 Check ally closed and ope isolation valve in T tion 5.4.7, this valve ction 5.4.7, this valve ction 2.18.	This valve was also ve is backed up by 47, FSAR Sections Self ns upon initiation of RM Section 2.18. H e is not a PIV. Refe Self ns upon initiation of RM Section 2.18. H e is not a PIV. Refe	previously a normally of 5.4.7, 7.4, 1 C f SI flow to t lowever, sin erences: P8 C f SI flow to t lowever, sin erences: P8	DE DE DE DE DE DE DE the RCS ace this kID	SI-RJ-3	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:

#### FIGURE F4 IST VALVE TEST TABLE

SYSTEM:

SI

ID No.: <b>D2044</b>	7								IST Program Plan
/alve Number	Class and	Valve	Size (in.) and	Actuator		Positions	5	Relief Req	Commitment
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
SI-V156	1	A/C	1.5	Self	С	DE			
	(D-4)		Check						Open Test Freq: Refueling
CCP SI injection loop 4 cold	leg check valve. This	valve is norm	ally closed and ope	ens upon initiation of	SI flow to	the RCS		SI-RJ-3	Close Test Freq: PIVs per TS
cold leas. This valve was als	o previousiv designat	ed a pressure	isolation valve in T	RM Section 2.18. H	owever, si	nce this			RV Test Freq: CV Test Dir:
valve is backed up by a norn	hally closed MOV, per	UFSAR Sec	ction 5.4.7, this valv	e is not a PIV. Refe	erences: Pa	SID.			ST Test Dir:
D20447, FSAR Sections 5.4	1.7, 7.4, 0.3, 13 3/4.4	1.0.2, TRIVI 30	301011 2.10.						
SI-V158	2	В	0.75	Air/Diaphragm	С	С	С		
	(G-4)		Globe						Open Test Freq:
SI cold leg injection check v		valve and IR(	C CIV for containme	ent penetration X-24	- Exempt f	rom			Close Test Freq: Quarterly
Appendix J Type C LLRT, T	his valve is normally o	closed and rec	ceives a containmer	nt isolation "T" signa	il. This valv	re may be	•		RV Test Freq:
periodically opened to meas	ure the seat leakage p	ast the SI col	d leg PIVs. Referer	nces : P&ID D20447	', FSAR Se	ection			CV Test Dir:
5.4.7, 6.3, Table 6.2-83.									ST Test Dir: Closed
SI-V159	2	В	0.75	Air/Diaphragm	с	С	С		
UI-4 103	(F-4)		Globe						Open Test Freq:
SI cold leg injection check v		valve. This va	lve is normally clos	ed and may be peri	odically op	ened to			Close Test Freq: Quarterly
measure the seat leakage pa	ast the Si cold leg PIV	s. Passive cl	osed function only (	per EWR 97-095).	Reference	s : P&ID			RV Test Freq:
									CV Test Dir:
D20447, FSAR Section 5.4.	7, 6.3, Table 6.2-83.								ST Test Dir: Closed

					FIGURI	É F4					
SYSTEM: PID No.:	SI D20450			IST V	ALVE T		T	٩BI	LE		
Valve Number Remarks		Class and Coord	Vaive (CAT)	Size (in.) and Type	Actuator Type	I NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI	RT ST
SI-FV2475		2 (F-11)	В	1.0 Globe	Solenoid	С	С	с		Open Test Freq: 2 Years Close Test Freq: 2 Years	
accumulator fo Sections 5.4.7, YEAR INTERV would be for op still have a nas	nitrogen vent isolation r safe shutdown shou 7.4, 6.3. THIS VALV AL REVIEW. Subset eration beyond the p sive safety function to SAR active valve table	Id the accumu /E WAS ADDE quent Compon lant's licensing b be closed and	ator outlet MC D TO THE IS ent Engineerin basis of shuto I would be test	DV fail to close. Re T PROGRAM AS ng review determin down to hot standb ted per ISTC 4.1.	ferences: P&ID D20 A RESULT OF THI ed this valve to be no y conditions. Howeve Design Engineering	e450, FSA E SECON ot active, a er, this val	D TEN s its use ve would			RV Test Freq: CV Test Dir: ST Test Dir:	
SI-FV2476		2 (F-11)	В	1.0 Globe	Solenoid	С	С	С		Open Test Freq: 2 Years	
accumulator fo Sections 5.4.7, YEAR INTERV would be for op still have a pas	nitrogen vent isolatic r safe shutdown shou 7.4, 6.3. THIS VALV AL REVIEW. Subse eration beyond the p sive safety function to SAR active valve table	uld the accumu /E WAS ADDE equent Compon lant's licensing o be closed and	lator outlet MC D TO THE IS ent Engineerin basis of shuto I would be tes	DV fail to close. Re ST PROGRAM AS ng review determin down to hot standb ted per ISTC 4.1.	ferences: P&ID D20 A RESULT OF TH ed this valve to be n y conditions. Howev Design Engineering	I450, FSA E SECON ot active, a er, this val	D ⊤EN s its use ve would	9		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir:	
SI-FV2477		2 (F-6)	В	1.0 Globe	Solenoid	С	С	С		Open Test Freq: 2 Years	
accumulator fo Sections 5.4.7, YEAR INTER would be for op still have a pas	nitrogen vent isolation r safe shutdown shor 7.4, 6.3. THIS VALV (AL REVIEW. Subsection reration beyond the p sive safety function to SAR active valve table	on valve. This v uld the accumu /E WAS ADDE equent Compon lant's licensing o be closed and	lator outlet MC D TO THE IS ent Engineerii basis of shuto I would be tes	ly closed and is op DV fail to close. Re ST PROGRAM AS ng review determin down to hot standb ted per ISTC 4.1.	ferences: P&ID D20 A RESULT OF TH ed this valve to be n y conditions. Howev Design Engineering	)450, FSA E SECON ot active, a er, this val	D TEN Is its use ve would	2		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir:	
SI-FV2482		2 (F-9)	В	1.0 Globe	Solenoid	С	С	С		Open Test Freq: 2 Years	
accumulator fo Sections 5.4.7, YEAR INTER\ would be for op still have a pas	nitrogen vent isolation r safe shutdown short 7.4, 6.3. THIS VALV (AL REVIEW. Subsection relation beyond the p sive safety function to SAR active valve table	on valve. This v uld the accumu /E WAS ADDE equent Compon lant's licensing o be closed and	lator outlet MC D TO THE IS ent Engineeri basis of shuto I would be tes	ly closed and is op DV fail to close. Re ST PROGRAM AS ng review determin down to hot standb ted per ISTC 4.1.	ferences: P&ID D20 A RESULT OF TH ed this valve to be n y conditions. Howev Design Engineering	0450, FSA E SECON ot active, a rer, this val	D TEN Is its use ve would	•		Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir:	

×					FIGUR					
SYSTEM: PID No.:	SI D20450			IST V	ALVE T		ΓТА	٩B	LE	· · ·
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SI-FV2483		2 (F-8)	В	1.0 Globe	Solenoid	С	с	С		Open Test Freq: 2 Years Close Test Freq: 2 Years
accumulator for Sections 5.4.7, YEAR INTERV would be for op	safe shutdown shu 7.4, 6.3.THIS VAL AL REVIEW. Subs eration beyond the j	uld the accumu VE WAS ADDE equent Compor plant's licensing to be closed and	lator outlet M D TO THE IS hent Engineer basis of shu d would be te	OV fail to close. Re ST PROGRAM AS ing review determin tdown to hot standb sted per ISTC 4.1.	ened to depressuriz ferences: P&ID D24 A RESULT OF TH ed this valve to be r y conditions. Howey Design Engineering hutdown condition.	0450, FSA E SECON not active, a ver, this val	D TEN is its use ive would			RV Test Freq: CV Test Dir: ST Test Dir:
SI-FV2486		2 (F-6)	В	1.0 Globe	Solenoid	С	С	С		Open Test Freq: 2 Years
Sections 5.4.7, YEAR INTERV would be for op	7.4, 6.3. THIS VAL AL REVIEW. Subs eration beyond the patient size safety function	VE WAS ADDI equent ompone plant's licensing to be closed and	ED TO THE I nt Engineerin basis of shu d would be te	ST PROGRAM AS g review determine tdown to hot standb sted per ISTC 4.1.	Aferences: P&ID D2 A RESULT OF TH d this valve to be no y conditions. Howey Design Engineering hutdown condition.	IE SECON It active, as ver, this va	ID TEN its use ive would			RV Test Freq: CV Test Dir: ST Test Dir:
SI-FV2495		2 (F-4)	В	1.0 Globe	Solenoid	С	С	С		Open Test Freq: 2 Years
accumulator for Sections 5.4.7, YEAR INTERV would be for op still have a pass	safe shutdown sho 7.4, 6.3. THIS VAL AL REVIEW. Subs eration beyond the p sive safety function	ion valve. This v build the accumu VE WAS ADDI equent Compor blant's licensing to be closed and	lator outlet M ED TO THE I hent Engineer basis of shu d would be te	Illy closed and is op IOV fail to close. Re ST PROGRAM AS ing review determin tdown to hot standb sted per ISTC 4.1.	ened to depressuriz ferences: P&ID D2 A RESULT OF TH led this valve to be r by conditions. Howe Design Engineering thutdown condition.	0450, FSA IE SECON not active, a ver, this va g has inclu	ID TEN as its use ive would			Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir:
SI-FV2496		2 (F-3)	В	1.0 Globe	Solenoid	С	С	С		Open Test Freq: Quarterly
accumulator for Sections 5.4.7, YEAR INTERV would be for op still have a pass	safe shutdown sho 7.4, 6.3. THIS VAL AL REVIEW. Subs eration beyond the p sive safety function	ion valve. This v build the accumu VE WAS ADDI equent Compor plant's licensing to be closed and	lator outlet M ED TO THE I nent Engineer basis of shu d would be te	Illy closed and is op IOV fail to close. Re IST PROGRAM AS ring review determin toown to hot standt sted per ISTC 4.1.	ened to depressuriz ferences: P&ID D2 & A RESULT OF TH ed this valve to be r vy conditions. Howe Design Engineering chutdown condition.	0450, FSA IE SECON not active, a ver, this va g has inclu	ID TEN as its use lve would	2		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: SI

D20450

PID No.:

### FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class Size (in.)			Actuator Positions			e		IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI FE FS LJ LK PE PI RT ST
SI-V3	1 (D-12)	В	10.0 Gate	Motor	0	DE		SI-CSJ-5	Open Test Freq: CSD
SI accumulator outlet isolation valve. This valve is normally open and deenergized in Modes 1-3 with RCS pressure >1000psig. It also receives an SI open signal. This valve is closed in Modes 4&5 when accumulator pressure is greater than 100 psig. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3, TS 3.5.2.									Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V4	2 (E-12)	В	0.75 Globe	Air/Diaphragm	С	С	С		Open Test Freq: Quarterly
SI accumulator check valve test line isolation. This valve is normally closed but may be open to measure PIV seat leakage. Passive closed function only (per EWR 97-095). References: P&ID D20450, FSAR Section 6.3.									Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V5	1 (A-7)	A/C	10.0 Check	Self	С	DE			X Depen Test Freq: Refueling
Common SI accumulator, LPSI, during safety injection when the Isolation Valve. References: P&I	RCS pressure dro	ps below th	e SI pump discharge	pressure. This is a	ation and Iso a Pres	opens sure		SI-RJ-4	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V6	1 (D-12)	A/C	10.0 Check	Self	с	DE			X     Image: Comparison of the second s
SI accumulator outlet check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the accumulator pressure. This also a Pressure Isolation Valve. References: P&ID D20450, FSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.								SI-RJ-4	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V10	2 (F-11)	С	1.0 Relief/Safety	Self	с	0			Open Test Freq:
SI accumulator nitrogen relief valve. This valve is in scope per ISTC 1.1. Reference:P&ID D20450									Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SI-V15	2 (E-10)	В	1.0 Globe	Air/Diaphragm	С	С	С		Open Test Freq:
SI accumulator fill / drain isolation. This valve is normally closed but may be periodically open to adjust the SI accumulator level. Passive closed function only (per EWR 97-095). References: P&ID D20450, FSAR Section 6.3.							r		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

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SI

SYSTEM:

# FIGURE F4 IST VALVE TEST TABLE

ID No.: D2045	0			ALVE I					
Valve Number	Class		Size (in.)						IST Program Plan Commitment
	and	Valve	and	Actuator		Positions		Relief Req	
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	
SI-V17	1	В	10.0	Motor	0	DE			
	(D-10)		Gate					SI-CSJ-5	Open Test Freq: CSD Close Test Freq: CSD
SI accumulator outlet isolati >1000psig. It also receives a han 100 psig. References:	an Silopen signal. Thi	s valve is close	ed in Modes 4&5 v	vhen accumulator pre	S pressu ssure is g	re reater			RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V18	2	В	0.75	Air/Diaphragm	С	С	С		
	(E-10)		Globe						Open Test Freq: Quarterly Close Test Freq: Quarterly
SI accumulator check valve	test line isolation. This	s valve is norm	ally closed but ma	y be open to measure	e PIV seat	leakage.	•		RV Test Freq:
Passive closed function only	y (per EVVR 97-095).	References: F	·&ID D20400, F6/	AR Section 0.5.					CV Test Dir:
									ST Test Dir: Closed
SI-V20	1	A/C	10.0	Self	С	DE			
51-V20	(A-7)		Check						Open Test Freq: Refueling
Common SI accumulator, L		d PIV This v	alve is normally clo	sed during plant oper	ation and	opens		SI-RJ-4	Close Test Freq: PIVs per TS
during safety injection when	the RCS pressure dr	ops below the	SI pump discharg	e pressure. This is a	lso a Pres	sure			RV Test Freq:
Isolation Valve. References:	: P&ID D20450, FSAF	R Section 6.3,	TS 3/4.4.6.2, TRN	A Section 2.18.					CV Test Dir: ST Test Dir:
SI-V21	1	A/C	10.0	Self	С	DE			
	(D-9)		Check						Open Test Freq: Refueling
SI accumulator outlet check	valve and PIV. This v	alve is normal	ly closed during pl	ant operation and ope	ns during	safety		SI-RJ-4	Close Test Freq: PIVs per TS RV Test Freq:
injection when the RCS pre-	ssure drops below the	accumulator	pressure. This also	o a Pressure Isolation	Valve.				CV Test Dir:
References: P&ID D20450,	FSAR Section 6.3, 1	5 3/4.4.0.2, 11	RIVI SECIION 2.10.						ST Test Dir:
						-			
SI-V23	2	В	1.0	Air/Diaphragm	С	С	С		
	(E-8)		Globe						Open Test Freq:
SI accumulator fill / drain iso	(E-8)	ormally closed	Globe but may be period	dically open to adjust t					Open Test Freq: Close Test Freq: Quarterly
SI accumulator fill / drain iso	(E-8)	ormally closed	Globe but may be period	dically open to adjust t					Open Test Freq:
SI accumulator fill / drain iso	(E-8)	ormally closed	Globe but may be period	dically open to adjust t					Open Test Freq: Close Test Freq: RV Test Freq:
SI accumulator fill / drain iso level. Passive closed function	(E-8) olation. This valve is n on only (per EWR 97-(	ormally closed 095). Referend	Globe but may be period ces: P&ID D20450	dically open to adjust t					Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir:
SI accumulator fill / drain iso level. Passive closed function	(E-8) olation. This valve is n on only (per EWR 97-0	ormally closed	Globe but may be period	dically open to adjust t ), FSAR Section 6.3.	he SI acc	umulator			Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI accumulator fill / drain iso level. Passive closed functio SI-V30	(E-8) olation. This valve is n on only (per EWR 97-0 2 (F-9)	ormally closed 095). Referenc C	Globe but may be period bes: P&ID D20450 1.0 Relief/Safety	dically open to adjust t 0, FSAR Section 6.3. Self	he SI acc	umulator			Open Test Freq: Close Test Freq: CV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V23 SI accumulator fill / drain iso level. Passive closed function SI-V30 SI accumulator nitrogen reli	(E-8) olation. This valve is n on only (per EWR 97-0 2 (F-9)	ormally closed 095). Referenc C	Globe but may be period bes: P&ID D20450 1.0 Relief/Safety	dically open to adjust t 0, FSAR Section 6.3. Self	he SI acc	umulator			Open Test Freq: Close Test Freq: CV Test Freq: CV Test Dir: ST Test Dir: Closed Open Test Freq: Close Test Freq: RV Test Freq: 10 Years
SI accumulator fill / drain iso level. Passive closed functio SI-V30	(E-8) olation. This valve is n on only (per EWR 97-0 2 (F-9)	ormally closed 095). Referenc C	Globe but may be period bes: P&ID D20450 1.0 Relief/Safety	dically open to adjust t 0, FSAR Section 6.3. Self	he SI acc	umulator			Open Test Freq: Close Test Freq: CV Test Freq: CV Test Dir: ST Test Dir: Closed

SI SYSTEM:

D20450

# FIGURE F4 IST VALVE TEST TABLE

PID No.: <b>D20450</b>							וטא	- L	
Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	F NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SI accumulator outlet isolation valve >1000psig. It also receives an SI op than 100 psig. References: P&ID D	en signal. This	valve is close	ed in Modes 4&5 w	hen accumulator pres	O S pressur ssure is gr	DE e reater		SI-CSJ-5	X       X       X       X         Open Test Freq: CSD       Close Test Freq: CSD       X       X         RV Test Freq:       CV Test Dir:       X       X
SI-V33 SI accumulator check valve test line Passive closed function only (per E	2 (E-8) e isolation. This WR 97-095).	B valve is norm References: F	0.75 Globe ally closed but ma &ID D20450, FSA	Air/Diaphragm y be open to measure R Section 6.3.	C PIV seat	C leakage.	C		ST Test Dir: Open/Closed X X X X X X X X X Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V35 Common SI accumulator, LPSI, SI during safety injection when the RC Isolation Valve. References: P&ID	S pressure dro	ops below the	SI pump discharge	e pressure. This is al	C ation and o so a Press	DE opens sure		SI-RJ-4	X Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V36 SI accumulator outlet check valve a injection when the RCS pressure d References: P&ID D20450, FSAR	rops below the	accumulator (	pressure. This also	Self ant operation and oper o a Pressure isolation	C ns during Valve.	DE safety		SI-RJ-4	X Den Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V38 SI accumulator fill / drain isolation. level. Passive closed function only i	2 (E-6) This valve is no (per EWR 97-0	B ormally closed 95). Reference	1.0 Globe but may be period ses: P&ID D20450	Air/Diaphragm ically open to adjust tl , FSAR Section 6.3.	C he SI accu	C umulator	С		X       X       X       X         Open Test Freq:       X       X         Close Test Freq:       Quarterly         RV Test Freq:       CV Test Dir:         CV Test Dir:       ST Test Dir: Closed
SI-V45 SI accumulator nitrogen relief valve	2 (F-7) 9. This valve is i	C n scope per I	1.0 Relief/Safety STC 1.1. Referenc	Self e:P&ID D20450	С	0			Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: SI

PID No.:

D20450

# FIGURE F4

/alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	S FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SI-V47	1 (D-5)	В	10.0 Gate	Motor	0	DE		SI-CSJ-5	X     X     X     X       Open Test Freq: CSD
SI accumulator outlet isol >1000psig. It also receive than 100 psig. Reference	s an SI open signal. This	s valve is clos	ed in Modes 4&5 v	when accumulator pres	S pressu ssure is g	re reater			Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V48	2 (E-5)	В	0.75 Globe	Air/Diaphragm	С	с	с		X     X     X     X     X       Open Test Freq:     Quarterly     X     X
SI accumulator check val Passive closed function o	ve test line isolation. This nly (per EWR 97-095). F	valve is norm References: P	nally closed but ma &ID D20450, FSA	ay be open to measure AR Section 6.3.	PIV seat	leakage			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V50	1	A/C	1.0 Check	Self	С	DE			X     Image: Construction of the second
Common SI accumulator, during safety injection wh Isolation Valve. Reference	en the RCS pressure dro	ops below the	alve is normally clo SI pump discharg	e pressure. This is al	ation and so a Pres	opens sure		SI-RJ-4	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V51	1 (D-4)	A/C	10.0 Check	Self	С	DE			X Den Test Freq: Refueling
SI accumulator outlet che injection when the RCS p References: P&ID D2045	ressure drops below the	accumulator	pressure. This als	lant operation and ope o a Pressure Isolation	ns during Valve.	safety		SI-RJ-4	Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V53	2 (E-3)	В	1.0 Globe	Air/Diaphragm	С	С	С		Open Test Freq:
SI accumulator fill / drain level. Passive closed fund	isolation. This valve is no stion only (per EWR 97-0	ormaliy closed 95). Referenc	but may be period bes: P&ID D20450	dically open to adjust t ), FSAR Section 6.3.	he SI acci	umuiator			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V60	2 (F-4)	С	1.0 Relief/Safety	Self	С	0			Open Test Freq:
SI accumulator nitrogen r	• •	n scope per l	•	ce:P&ID D2040					Close Test Freq: RV Test Freq: 10 Years

SYSTEM: PID No.:	No.: D20450 ISI VALVE IESI IABLE											
Valve Number		Class and	Valve	Size (in.) and	Actuator		Position	s	Relief Req	IST Program Plan Commitment		
Remarks		Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT	ST	
SI-V62		2 (H-8)	A	0.75 Globe	Air/Diaphragm	С	С	С		Open Test Freq:	X	
periodically op	en for check valve tes	sting or to adju	st accumulate	or level, and receive	CIV is normally close as a containment isola 50, FSAR Table 6.2-8	ation signa	e al to			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed		
SI-V70		2 (H-12)	A	0.75 Globe	Air/Diaphragm	С	С	С		X     X     X       Open Test Freq:	X	
periodically op	en for check valve tes	sting or to adju	st accumulate	or level, and receive	CIV is normally closed as a containment isola 50, FSAR Table 6.2-8	ation signa	al to			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed		
SI-V247		2 (H-12)	A/C	0.75 Relief/Safety	Self	С	DE			Open Test Freq:		
protection for	enetration X-35 relief X-35 due to thermal e Engineering Evaluatio	valve subjec expansion of tra	apped fluid un	J, Type C LLRT. T nder accident condi	ำis valve provides ove tions. References: P8	erpressur &ID D204	e 50, FSA	ĸŔ		Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:		

SYSTEM:	SS
PID No.:	D20520

# FIGURE F4 IST VALVE TEST TABLE

Valve Number	Class		Size (in.)	Actuator	1	Position	s	Relief Reg	IST Program Plan Commitment
Remarks	and Coord	Valve (CAT)	and Type	Туре	NRM	SAF	FAL	C.S. Just.	DI FE FS LJ LK PE PI RT ST
SS-FV2857	2 (G-5)	A	0.5 Globe	Solenoid	С	С	С	VG-2	Open Test Freq:
PASS sample return isolat opened to return PASS sa D20518, FSAR Table 6.2-	mple/flush fluid to the o	penetration X containment a	-19, subject to App nd receives a "T" cl	endix J Type C LLR osure signal. Refere	T. This val inces: P&II	lve is D			Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
SS-V273	2 (G-4)	A/C	0.5 Check	Self	С	DE		SS-CSJ-1	Open Test Freq: CSD
PASS sample return line of opened to return PASS sa relied upon to open to relie References: P&ID D20518	mple/flush fluid to the (	containment a	nd closes for contai	nment isolation. Th	is valve is a	also			Close Test Freq: CSD RV Test Freq: CV Test Dir:

					FIGUR	EF4			
YSTEM: PID No.:	SW D20794			IST V	ALVE 1	ES	TAB	LE	
Valve Number Remarks		Ciass and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT
SW-V1		3 (H-7)	с	24.0 Check	Self	DE	DE	SW-CSJ-1	Open Test Freq: CSD
Service water p close to prever SW-01 revision	nt bypass flow from	irge check valve I the standby pu	e. This valve m mp as the dis	nust open when the charge MOV is clos	service water pump sing. References: Pa	is operatin &ID D2079	g and 4, DBD-		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
SW-V2		3 (H-7)	В	24.0 Butterfly	Motor	DE	DE		Open Test Freq: Quarterly
Service water   pump is starte	pump P-41A discha d. References: P&I	urge isolation val	lve. This valve )-SW-01, Rev	e closes when the p	ump is secured, and	i opens wh	en the		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V3		3 (G-7)	С	24.0 Check	Self	DE	DE	SW-CSJ-1	Open Test Freq: CSD
Service water close to prever SW-01 revisio	nt bypass flow from	arge check valve In the standby pu	e. This valve i Imp as the dis	must open when the scharge MOV is clo	e service water pum sing. References: P	p is operati &ID D2079	ng, and 4, DBD-		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
SW-V22		3	В	24.0 Butterfly	Motor	DE	DE		Open Test Freq: Quarterly
Service water pump is starte	pump P-41C discha d. References: P&I	(G-7) arge isolation va D D20794, DB[	lve. This valve D-SW-01, Rev	e closes when the p	oump is secured, and	d opens wh	en the		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V24		3 (B-7)	С	24.0 Check	Self	с	0		Open Test Freq: Quarterly
cooling towar	pump is operating. p is not operating, t	P-110B discha	not have a rev	verse closure funct	rmally closed, and o lon since the dischar o the cooling tower b	rae MOV is	ciosed		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V25		3	B	24.0 Butterfly	Motor	С	DE		Open Test Freq: Quarterly
SW cooling to the pump is st	wer pump (P-110B topped. References	(C-7) ) discharge isola : P&ID D20794	ation valve. Th , DBD-SW-01	Butterfly nis valve opens whe I, revision 1.	en the pump is starte	ed and close	es when		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

# FIGURE F4 IST VALVE TEST TABLE

SW

SYSTEM:

ID No.: C	20794	Class	Valve	Size (in.) and			ositions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
Remarks SW-V26		Coord 3 (B-7)	(CAT) B	Type 24.0 Butterfly	Type Motor	C	0	0.0. Just.	Open Test Freq:
Service water Cool normally locked clo References: P&ID	sed with power re	emoved. Passi	ve valve funct	ernate spent fuel po ion only. To be teste	ool heat exchanger. ed in accordance v	This valve is vith ISTC 4.1	5		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V27		3 (C-7)	В	24.0 Butterfly	Motor	0	DE		Open Test Freq: Quarterly
SW cooling tower   and closes when th SW-01, revision 1.	ne pump starts. T	discharge head his function is	ler bypass val to vent the pu	ive. This valve open Imp column and pip	is to 70% when the be. References: P8	e pump is se ID D20794,	cured DBD-		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V28		3 (G-7)	С	24.0 Check	Self	DE	DE	SW-CSJ-1	Open Test Freq: CSD
Service water pum close to prevent by SW-01 revision 1.	p P-41B discharg pass flow from th	ge check valve he standby pu	. This valve m mp as the disc	nust open when the charge MOV is clos	service water pum sing. References: F	p is operatin &ID D20794	g, and 4, DBD-		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
SW-V29		3 (G-7)	В	24.0 Butterfly	Motor	DE	DE		Open Test Freq: Quarterly
Service water pum pump is started. R	p P-41B discharg eferences: P&ID	e isolation val	ve. This valve -SW-01, Rev	closes when the pu	ump is secured, an	d opens whe	en the		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V30		3 (F-7)	С	24.0 Check	Self	DE	DE	SW-CSJ-1	Open Test Freq: CSD
Service water pum close to prevent by SW-01 revision 1.	/pass flow from t	ge check valve he standby pu	. This valve m mp as the dis	ust open when the charge MOV is clos	service water pum sing. References: F	p is operatin 2&ID D20794	g, and 4, DBD-		Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
SW-V31		3 (F-7)	В	24.0 Butterfly	Motor	DE	DE		Open Test Freq: Quarterly
Service water pum pump is started. R	p P-41D dischar leferences: P&ID	ge isolation val	lve. This valve 0-SW-01, Rev	closes when the p	ump is secured, ar	nd opens who	en the		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

# FIGURE F4

aive Number temarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		sitions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SW-V44	3 (H-4)	В	42.0 Butterfly	Motor	0	0		Open Test Freq:
Service water pump suctior removed. Passive valve fun D1, revision 1.	n isolation from the intal action only. To be tested	ke transition s I in accordanc	tructure. This valve e with ISTC 4.1. F	is normally locked References: P&ID I	open with pow 020794, DBD-	/er SW-		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V46	3 (F-4)	В	38.0 Butterfly	Motor	0	0		Open Test Freq:
Service water pump suction power removed. Passive va SW-01, revision 1.	n isolation from the disc alve function only. To be	harge transiti tested in acc	on structure. This v cordance with ISTC	aive is normally loo 4.1. References:	cked closed wil P&ID D20794	h , DBD-		Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V53	3 (B-8)	С	24.0 Check	Self	С	0		Open Test Freq: Quarterly
			<u> </u>					Close Test Freq:
cooling tower pump is oper when the pump is not opera	rating. This valve does r	not have a rev	erse closure functio	on since the discha	irge MOV is ci	osea		RV Test Freq: CV Test Dir: ST Test Dir:
cooling tower pump is oper when the pump is not oper P&ID D20794.	rating. This valve does r ating, thus preventing b 3	not have a rev	erse closure function he ocean pumps to 24.0	on since the discha	basin. Referen	osea		CV Test Dir: ST Test Dir:
cooling tower pump is oper when the pump is not oper P&ID D20794. SW-V54	ating. This valve does r ating, thus preventing 1 3 (C-9) 2-110A) discharge isola	not have a rev oypass from the B tion valve. Thi	erse closure function he ocean pumps to 24.0 Butterfly is valve opens where	the cooling tower f	rge MOV is ca basin. Referen C	bes: DE		CV Test Dir: ST Test Dir:
cooling tower pump is oper when the pump is not opera P&ID D20794. SW-V54 SW cooling tower pump (P the pump is stopped. Refer	ating. This valve does r ating, thus preventing 1 3 (C-9) 2-110A) discharge isola	not have a rev oypass from the B tion valve. Thi	erse closure function he ocean pumps to 24.0 Butterfly is valve opens where	the cooling tower f	rge MOV is ca basin. Referen C	bes: DE		CV Test Dir: ST Test Dir: Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed Open Test Freq: X
Service water cooling tower cooling tower pump is oper when the pump is not opera P&ID D20794. SW-V54 SW cooling tower pump (P the pump is stopped. Refer SW-V55 Service water Cooling Tow normally locked closed with References: P&ID D20794	ating. This valve does r ating, thus preventing 1 3 (C-9) P-110A) discharge isola rences: P&ID D20794, 3 (B-9) rer pump discharge isola h power removed. Pass	not have a rev pypass from the B tion valve. Thi DBD-SW-01, B B ation to the all ive valve func	erse closure function he ocean pumps to 24.0 Butterfly is valve opens when revision 1. 24.0 Butterfly ternate spent fuel p	Motor Motor Motor Motor Motor	c c c c c c c c c c c c c	bes: DE when		CV Test Dir: ST Test Dir: Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
cooling tower pump is oper when the pump is not opera 2&ID D20794. SW-V54 SW cooling tower pump (P he pump is stopped. Refer SW-V55 Service water Cooling Tow pormally locked closed with	ating. This valve does r ating, thus preventing 1 3 (C-9) P-110A) discharge isola rences: P&ID D20794, 3 (B-9) rer pump discharge isola h power removed. Pass	not have a rev pypass from the B tion valve. Thi DBD-SW-01, B B ation to the all ive valve func	erse closure function he ocean pumps to 24.0 Butterfly is valve opens when revision 1. 24.0 Butterfly ternate spent fuel p	Motor Motor Motor Motor Motor	C ed and closes C r. This valve is with ISTC 4.1.	bes: DE when		CV Test Dir: ST Test Dir: Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed Open Test Freq: Close Test Freq: Close Test Freq: RV Test Freq: CV Test Dir:

and the second sec					FIGUR	E F4			
SYSTEM: PID No.:	SW D20794			IST V	ALVE 1	ES	T TAB	LE	
Valve Number Remarks		Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SW-V139	ver spray header by	3 (C-10) pass valve. This	B s valve is norm	24.0 Butterfly nally open when the water temperature	Motor e cooling tower is pla . References: P&ID	O iced into o D20794, [	DE peration, DBD-SW-		X       X       X       X         Open Test Freq: Quarterly       X       X         Close Test Freq: Quarterly       X       X         RV Test Freq:       X       X
01, revision 1, 0									CV Test Dir: ST Test Dir: Open/Closed
SW-V140		3 (C-11)	В	24.0 Butterfly	Motor	0	DE		Open Test Freq: Quarterly
SW cooling tov and is cycled c 01, revision 1, t	losed and open by t	pass valve. This he operator to n	s valve is norn naintain basin	nally open when the water temperature	e cooling tower is pla . References: P&ID	aced into o D20794, [	peration, DBD-SW-		Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

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# FIGURE F4

PID No.: D20795			101 1			17	וער	_ L_	
Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	F NRM	Positions SAF	FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI FE FS LJ LK PE PI RT ST
SW-V4	3 (E-11)	В	12.0 Butterfly	Motor	0	С		<u></u>	Open Test Freq:
Service water to SCC isolation v NNS loads. References: P&ID I	valve. This valve is D20795, DBD-SW	normally oper -01, revision 1	n and closes on a I.	safety injection signa	l to isolate	the SW			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SW-V5	3 (E-11)	В	12.0 Butterfly	Motor	0	С			Open Test Freq: Close Test Freq: Quarterly
Service water to SCC isolation v NNS loads. References: P&ID	valve. This valve is D20795, DBD-SW	normally oper -01, revision	n and closes on a 1.	safety injection signa	l to isolate	the SW			RV Test Freq: CV Test Dir: ST Test Dir: Closed
SW-V15	3 (E-8)	В	24.0 Butterfly	Motor	0	0		SW-CSJ-2	Open Test Freq: CSD
SW outlet from the CC heat exc receives an open Tower Actuati	changer (CC-E17A ion (TA) signal. Re	). This valve i ferences: P8	s normally open, ID D20795, DBD	may be throttled for f -SW-01, revision 1, (	llow balanci OS1016.03	ing, and ,04.			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
SW-V16	3 (B-8)	В	16.0 Butterfly	Air/Piston	С	0	0		Open Test Freq: Quarterly
EDG jacket water heat exchang References: P&ID D20795, DB	ger outlet isolation v ID-SW-01, revision	alve. This val 1.	ve is normally clos	sed and opens when t	the EDG is	started.			Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open
SW-V17	3 (D-8)	В	24.0 Butterfly	Motor	0	0		SW-CSJ-2	Open Test Freq: CSD
SW outlet from the CC heat exe receives an open Tower Actuat	changer (CC-E17B ion (TA) signal. Re	). This valve eferences: P8	is normally open, kID D20795, DBD	may be throttled for -SW-01, revision 1,	flow balanc OS1016.03	ing, and 9,04.			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
SW-V18	3 (C-8)	В	16.0 Butterfly	Air/Piston	С	0	0		Open Test Freq: Quarterly
EDG jacket water heat exchang References: P&ID D20795, DB	ger outlet isolation v 3D-SW-01, revision	alve. This va 1.	ive is normally clos	sed and opens when	the EDG is	started.			Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open

~~~

SW

SYSTEM:

# FIGURE F4

| PID No.:                               | D20795                                      |                       |                                 |                                           |                                         |              |                  |     | Las Room                 |                                                                                    |
|----------------------------------------|---------------------------------------------|-----------------------|---------------------------------|-------------------------------------------|-----------------------------------------|--------------|------------------|-----|--------------------------|------------------------------------------------------------------------------------|
| Valve Number<br>Remarks                | 220100                                      | Class<br>and<br>Coord | Valve<br>(CAT)                  | Size (in.)<br>and<br>Type                 | Actuator<br>Type                        | NRM          | Positions<br>SAF | FAL | Relief Req<br>C.S. Just. | IST Program Plan<br>Commitment<br>DI FE FS LJ LK PE PI RT ST                       |
| SW-V19                                 |                                             | 3<br>(D-7)            | В                               | 24.0<br>Butterfly                         | Motor                                   | 0            | С                |     |                          | Open Test Freq:                                                                    |
| Service water dis<br>(TA) Signal to di | scharge to the disch<br>vert SW flow to the | narge transition      | i structure. Ti<br>erences: P&I | his valve is normally<br>D D20795, DBD-SV | open, and closes o<br>V-01, revision 1. | on a Tower   | Actuatio         | n   |                          | Close Test Freq: Quarterly<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Closed |
| SW-V20                                 |                                             | 3<br>(E-7)            | В                               | 24.0<br>Butterfly                         | Motor                                   | 0            | С                |     | <u> </u>                 | Open Test Freq:                                                                    |
| Service water dis<br>(TA) Signal to di | scharge to the disch<br>vert SW flow to the | narge transition      | n structure. T<br>rerences: P&I | his valve is normally<br>D D20795, DBD-SV | open, and closes o<br>V-01, revision 1. | on a Tower   | Actuatio         | n   |                          | Close Test Freq: Quarterly<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Closed |
| SW-V23                                 |                                             | 3<br>(D-7)            | В                               | 24.0<br>Butterfly                         | Motor                                   | С            | 0                |     |                          | Open Test Freq: Quarterly                                                          |
| Service water re<br>References: P&I    | turn to the cooling t<br>D D20795, DBD-S    | ower basin. Th        | is valve is no<br>1.            | rmally closed and op                      | ens on a Tower A                        | ctuation (TA | A) Signal        | L.  |                          | Close Test Freq:<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Open             |
| SW-V32                                 |                                             | 3<br>(E-9)            | С                               | 0.75<br>Relief/Safety                     | Self                                    | С            | 0                |     |                          | Open Test Freq:                                                                    |
| Service water -C                       | :C heat exchanger o                         | outlet relief val     | ve- in scope p                  | per ISTC 1.1. Refere                      | nces: P&ID D207§                        | 95.          |                  |     |                          | Close Test Freq:<br>RV Test Freq: 10 Years<br>CV Test Dir:<br>ST Test Dir:         |
| SW-V34                                 |                                             | 3<br>(E-7)            | В                               | 24.0<br>Butterfly                         | Motor                                   | С            | 0                |     |                          | X     X     X     X       Open Test Freq: Quarterly                                |
| Service water re<br>References: P&     | turn to the cooling t<br>ID D20795, DBD-S   | ower basin. Th        | iis valve is no<br>i 1.         | rmally closed and op                      | ens on a Tower A                        | ctuation (TA | A) Signa         | i.  |                          | Close Test Freq:<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Open             |
| SW-V73                                 |                                             | 3<br>(D-9)            | С                               | 0.75<br>Relief/Safety                     | Self                                    | С            | 0                |     |                          | Open Test Freq:                                                                    |
| Service water -C                       | C heat exchanger o                          | • •                   | /e- in scope p                  | ber ISTC 1.1. Refere                      | nces: P&ID D2079                        | 95.          |                  |     |                          | Close Test Freq:<br>RV Test Freq: 10 Years<br>CV Test Dir:<br>ST Test Dir:         |

| SYSTEM: | SW |
|---------|----|

# FIGURE F4

| alve Number<br>Remarks                         | Class<br>and<br>Coord                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Valve<br>(CAT)                  | Size (in.)<br>and<br>Type                    | Actuator<br>Type             | F<br>NRM       | Positions<br>SAF F# | Relief Req<br>AL C.S. Just. | IST Program Plan<br>Commitment<br>DI FE FS LJ LK PE PI RT ST                |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------|------------------------------|----------------|---------------------|-----------------------------|-----------------------------------------------------------------------------|
| SW-V74                                         | 3<br>(F-11)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | В                               | 24.0<br>Butterfly                            | Motor                        | С              | С                   |                             | Open Test Freq:<br>Close Test Freq: Quarterly                               |
| Service water- SCC re<br>isolate the NNS SW re | eturn header isolation valve.<br>eturn lines. References: P&I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | This valve is<br>D D20795, D    | normally open and c<br>BD-SW-01, revisior    | loses on a safety in<br>11.  | njection sigr  | nal to              |                             | RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Closed                        |
| SW-V76                                         | 3<br>(F-11)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | В                               | 24.0<br>Butterfly                            | Motor                        | С              | С                   |                             | Open Test Freq:<br>Close Test Freq: Quarterly                               |
| Service water- SCC re<br>solate the NNS SW re  | eturn header isolation valve.<br>eturn lines. References: P&I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | This valve is<br>D D20795, D    | normally open and o<br>BD-SW-01, revisior    | closes on a safety i<br>1 1. | njection sigi  | nal to              |                             | RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Closed                        |
| SW-V174                                        | 3<br>(C-11)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | c                               | 1.0<br>Check                                 | Self                         | С              | DE                  |                             | Open Test Freq: Quarterly<br>Close Test Freq: Quarterly                     |
| water hammer transie                           | breaker check valve. This v<br>nts on subsequent pump sta<br>ider steady state conditions.<br>P&ID D20795, DBD-SW-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | art, and close:<br>.DCR 98-34 r | s to prevent water di<br>eplaced the previou | scharge of all inuc          |                |                     |                             | RV Test Freq:<br>CV Test Dir:<br>ST Test Dir:                               |
| SW-V175                                        | 3<br>(C-9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | С                               | 1.0<br>Check                                 | Self                         | с              | DE                  |                             | Open Test Freq: Quarterly                                                   |
| water hammer transie                           | breaker check valve. This v<br>nts on subsequent pump sta<br>nder steady state conditions<br>ences: P&ID D20795, DBD-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | art, and close<br>. DCR 98-34   | s to prevent water a<br>replaced the previou | ischarge of air intru        | DORICHOIL WILL |                     |                             | Close Test Freq: Quarterly<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: |
| SW-V176                                        | 3<br>(B-9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | С                               | 1.0<br>Check                                 | Self                         | с              | DE                  |                             | Open Test Freq: Quarterly                                                   |
| water hammer transie                           | breaker check valve. This with the second se | art, and close                  | replaced the previou                         | Ischarge of an inter         | Juuchon mit    |                     |                             | Close Test Freq: Quarterly<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: |
| SW-V177                                        | 3<br>(E-9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | С                               | 1.0<br>Check                                 | Self                         | С              | DE                  |                             | Open Test Freq: Quarterly                                                   |
|                                                | breaker check valve. This                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                 |                                              |                              |                |                     |                             | Close Test Freq: Quarterly                                                  |

| SYSTEM:<br>PID No.:       | SW<br>D20795      |                                   |                      | IST V                                           | FIGUR<br>ALVE 1        |     | Γ ΤΑΒ                | LE                       |                                                                                                  |
|---------------------------|-------------------|-----------------------------------|----------------------|-------------------------------------------------|------------------------|-----|----------------------|--------------------------|--------------------------------------------------------------------------------------------------|
| Valve Number<br>Remarks   |                   | Class<br>and<br>Coord             | Valve<br>(CAT)       | Size (in.)<br>and<br>Type                       | Actuator<br>Type       | NRM | Positions<br>SAF FAL | Relief Req<br>C.S. Just. | IST Program Plan<br>Commitment<br>DI FE FS LJ LK PE PI RT ST                                     |
| SW-V514A<br>EDG water jac |                   | 3<br>(B-10)<br>service water re   | C<br>lief valve. Th  | 0.75<br>Relief/Safety<br>is valve is in scope p | Self<br>er ISTC 1.1.   | С   | 0                    |                          | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq: 10 Years<br>CV Test Dir:<br>ST Test Dir:    |
| SW-V514B<br>EDG water jac |                   | 3<br>(C-10)<br>service water re   | C<br>elief valve. Th | 0.75<br>Relief/Safety<br>is valve is in scope p | Self<br>er ISTC 1.1.   | c   | 0                    |                          | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq: 10 Years<br>CV Test Dir:<br>ST Test Dir:    |
| SW-V214<br>SW- Alternate  | SFP heat exchange | 3<br>(D-6)<br>er relief valve- ir | C<br>scope per IS    | 1.5<br>Relief/Safety<br>STC 1.1. References     | Self<br>: P&ID D20796. | С   | 0                    |                          | Open Test Freq:<br>Close Test Freq:<br>RV Test Freq:<br>10 Years<br>CV Test Dir:<br>ST Test Dir: |

| SYSTEM:  | VG     |
|----------|--------|
| PID No.: | D20780 |

# FIGURE F4

| Valve Number                                           | Class                                             |                               | Size (in.)                                 |                   | 1          | Positions |     | Relief Rea | IST Program Plan<br>Commitment                      |  |  |  |
|--------------------------------------------------------|---------------------------------------------------|-------------------------------|--------------------------------------------|-------------------|------------|-----------|-----|------------|-----------------------------------------------------|--|--|--|
| Remarks                                                | and<br>Coord                                      | Valve<br>(CAT)                | and<br>Type                                | Actuator<br>Type  | NRM        | SAF       | FAL | C.S. Just. | DI FE FS LJ LK PE PI RT ST                          |  |  |  |
| VG-FV1661                                              | 2<br>(C-8)                                        | A                             | 2.0<br>Diaphragm                           | Solenoid          | 0          | С         | С   | VG-2       | Open Test Freq: 2 Years                             |  |  |  |
| Hydrogenated vent header<br>and receives a "T" closure | IRC-CIV for penetration<br>signal. References: P8 | n X-17- subje<br>ID D20780, I | ct to Appendix J Typ<br>FSAR Table 6.2-83. | e C LLRT. This va | ve is norm | ally ope  | n   |            | RV Test Freq:<br>CV Test Dir:<br>ST Test Dir:       |  |  |  |
| VG-FV1712                                              | 2<br>(C-7)                                        | A                             | 2.0<br>Diaphragm                           | Solenoid          | 0          | С         | С   | VG-2       | Open Test Freq: 2 Years<br>Close Test Freq: 2 Years |  |  |  |
| Hydrogenated vent header                               |                                                   |                               |                                            |                   |            |           |     |            |                                                     |  |  |  |

# SYSTEM: WLD PID No.: D20218

# FIGURE F4 IST VALVE TEST TABLE

| Valve Number                                                                                           | Class<br>and                        | Valve                            | Size (in.)<br>and                           | Actuator                                   |                           | Positions       | 5   | Relief Reg | IST Program Plan<br>Commitment                                                            |
|--------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------|---------------------------------------------|--------------------------------------------|---------------------------|-----------------|-----|------------|-------------------------------------------------------------------------------------------|
| Remarks                                                                                                | Coord                               | (CAT)                            | Туре                                        | Туре                                       | NRM                       | SAF             | FAL | C.S. Just. | DI FE FS LJ LK PE PI RT ST                                                                |
| WLD-V81                                                                                                | 2<br>(F-11)                         | A                                | 3.0<br>Globe                                | Air/Piston                                 | 0                         | c               | С   |            | X     X     X     X     X       Open Test Freq:                                           |
| Reactor Coolant Drain Tank discha<br>normally open and receives a "T" c                                |                                     |                                  |                                             | ppendix J Type C LL                        | .RT. This v               | valve is        |     |            | Close Test Freq: Quarterly<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Closed        |
| WLD-V213                                                                                               | 2<br>(F-12)                         | A/C                              | 1.5<br>Relief/Safety                        | Self                                       | С                         | DE              |     |            | Open Test Freq:                                                                           |
| Containment penetration X-32 relie<br>caused by thermal expansion of tra<br>SS-EV-960023, revision 0.  | f valve, subject<br>pped fluid unde | to Appendix .<br>er accident co  | J Type C LLRT. This ndition. References;    | s valve opens to relia<br>P&ID D20219, Eng | eve pressu<br>jineering E | re<br>Valuation | n   |            | Close Test Freq: Per Appendix J<br>RV Test Freq: 10 Years<br>CV Test Dir:<br>ST Test Dir: |
| WLD-FV8331                                                                                             | 2<br>(E-11)                         | A                                | 2.0<br>Globe                                | Solenoid                                   | 0                         | С               | С   | VG-2       | X     X     X     X       Open Test Freq:                                                 |
| ICI sump discharge IRC-CIV for p<br>receives a "T" closure signal. Refer                               | enetration X-34<br>rences: P&ID D   | - subject to A<br>20219          | ppendix J Type C Ll                         | RT. This valve is n                        | ormally op                | en and          |     |            | Close Test Freq: 2 Years<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Closed          |
| WLD-V209                                                                                               | 2<br>(E-11)                         | A/C                              | 0.75<br>Relief/Safety                       | Self                                       | С                         | DE              |     |            | Open Test Freq:                                                                           |
| Containment penetration X-34 relied<br>caused by thermal expansion of tra<br>SS-EV-960023, revision 0. | f valve, subject<br>pped fluid unde | to Appendix .<br>r accident co   | I Type C LLRT. This<br>ndition. References; | valve opens to relie<br>P&ID D20219, Eng   | ve pressu<br>ineering E   | re<br>valuatior | ו   |            | Close Test Freq: Per Appendix J<br>RV Test Freq: 10 Years<br>CV Test Dir:<br>ST Test Dir: |
| WLD-FV8330                                                                                             | 2<br>(F-6)                          | A                                | 2.0<br>Globe                                | Solenoid                                   | 0                         | С               | С   | VG-2       | X     X     X     X     X       Open Test Freq:     X     X     X                         |
| ICI sump discharge ORC-CIV for preceives a "T" closure signal. Refer                                   | penetration X-3-<br>ences: P&ID D   | 4- subject to /<br>20219         | Appendix J Type C L                         | LRT. This valve is r                       | normally of               | ben and         |     |            | Close Test Freq: 2 Years<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Closed          |
| WLD-V82                                                                                                | 2<br>(G-6)                          | A                                | 3.0<br>Globe                                | Air/Piston                                 | 0                         | с               | С   |            | X     X     X     X     X       Open Test Freq:                                           |
| Reactor Coolant Drain Tank dischar<br>normally open and receives a "T" clo                             | rge- ORC-CIV f<br>osure signal. Ro  | for penetration<br>eferences: P& | n X-32- subject to Ap<br>&ID D20218.        | opendix J Type C LI                        | .RT. This                 | valve is        |     |            | Close Test Freq: Quarterly<br>RV Test Freq:<br>CV Test Dir:<br>ST Test Dir: Closed        |

| Cold Shutdown<br>Justification:     | CAH- CSJ-1                                                                                                                                                                                                                                                                 |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | CAH-V12                                                                                                                                                                                                                                                                    |
| Category:                           | AC                                                                                                                                                                                                                                                                         |
| Code Class:                         | 2                                                                                                                                                                                                                                                                          |
| Function:                           | (Active) Containment Isolation (Reverse Flow)                                                                                                                                                                                                                              |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                             |
| Basis for Cold<br>Shutdown Testing: | To quarterly full stroke exercise this normally open check valve in the reverse direction is not practical. It would require a containment entry during Modes 1-4 into a locked high radiation area. It would also require a system intrusion in order to test this valve. |
| Alternate Testing:                  | This valve will be full stroke exercised in the reverse direction during cold shutdowns.                                                                                                                                                                                   |

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| Cold Shutdown<br>Justification:     | CAP-CSJ-1                                                                                                                                                                                     |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | CAP-V1, CAP-V2, CAP-V3, CAP-V4                                                                                                                                                                |
| Category:                           | В                                                                                                                                                                                             |
| Code Class:                         | 2                                                                                                                                                                                             |
| Function:                           | (Active) Containment Isolation for Containment Purge Supply and Exhaust (Close)                                                                                                               |
| Test Requirements:                  | ISTC 4.2.1 Full-Stroke Exercise, Full-Stroke Time, and Fail Safe (3 Months)                                                                                                                   |
| Basis for Cold<br>Shutdown Testing: | These penetrations are blanked during Modes 1, 2, 3, & 4 per Technical Specifications Section 3.6.1.7. These valves are in service only during extended cold shutdowns and refueling outages. |
| Alternate Testing:                  | These valves will be full-stroke exercised, timed, and fail-safe tested during certain cold shutdowns and refueling outages.                                                                  |

| Cold Shutdown<br>Justification:     | CBS - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | CBS-V8, CBS-V14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Code Class:                         | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Function:                           | (Active) Containment Isolation. Provides a suction source to the residual heat removal pumps <u>and</u> containment building spray pumps following the transfer from the injection mode to the recirculation mode of ECCS operation.                                                                                                                                                                                                                                                                         |
| Test Requirements:                  | ISTC 4.2.1 Exercise (3 months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Basis for Cold<br>Shutdown Testing: | These valves cannot be exercised during normal plant operation without<br>draining the piping from the ECCS sumps to the suction of RHR and CBS<br>pumps. Draining the suction piping is required to prevent the introduction of<br>water into the ECCS sumps. The RHR and CBS pumps are disabled at the<br>Main Control Board while the suction piping is drained, to prevent introducing<br>water into the containment ECCS sumps, and remain disabled until the suction<br>piping is refilled and vented. |
| Alternate Testing:                  | These values shall be full stroke exercised during cold shutdowns and at refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Cold Shutdown<br>Justification:     | CBS - CSJ-2                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | CBS-V49                                                                                                                                                                                                                                                                                                                                                                                                              |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Code Class:                         | 2                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Function:                           | (Active) Provides a suction source to the safety injection pump from the RWST,<br>and from the residual heat removal pump to the centrifugal charging pump<br>following the transfer from the injection mode to the recirculation mode of<br>ECCS operation.                                                                                                                                                         |
| Test Requirements:                  | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                       |
| Basis for Cold<br>Shutdown Testing: | Closure of CBS-V49 may cause Train A of ECCS components ( as defined in TS3.5.2.b), to be inoperable since it isolates SI-P6A from the RWST. Closure of this valve also causes Train B to be inoperable ( as defined in TS 3.5.2.e), since B RHR would be isolated from both A and B charging pumps during sump recirculation. With both ECCS trains inoperable, TS 3.0.3 applies and a 1 hour shutdown is required. |
| Alternate Testing:                  | This valve shall be full stroke exercised during cold shutdowns and at refueling outages.                                                                                                                                                                                                                                                                                                                            |

| Refueling Justification:              | CBS - RJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                               | CBS-V3, CBS-V7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Category:                             | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Code Class:                           | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Function:                             | (Active) Containment Spray Pump Suction Check Valves from the RWST<br>(Forward Flow), RWST Isolation Check Valves during Recirculation<br>Switchover (Reverse Flow)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Test Requirements:                    | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Basis for Refueling<br>Outage Testing | When the containment spray pump is operated in its RWST recirculation test path it achieves about 60% of the maximum required accident condition flow rate. The maximum required accident condition flow rate would only be achieved during an injection to the containment which is impractical.                                                                                                                                                                                                                                                                                                                                                           |
|                                       | Revision 1 of the IST Program Plan used a staggered disassembly and<br>examination program in lieu of the IST exercising requirements. Since Revision<br>1, these valves have been monitored with non-intrusive testing (e.g., acoustic)<br>during certain IST performances. Analysis of the results indicates that a full<br>stroke open exercise is obtained during the pump start and that light tapping of<br>the disc against the backstop occurs periodically throughout the test run. On a<br>pump trip the disc essentially floats closed due to a very low differential pressure<br>across the disc.                                               |
|                                       | Because CBS is a standby ECCS system that is run only for IST surveillances or<br>for RWST recirculation, quarterly non-intrusive testing is not practical. These<br>components are not subjected to harsh service conditions that would cause rapid<br>degradation.                                                                                                                                                                                                                                                                                                                                                                                        |
| <u>Alternate Testing</u> :            | Either both valves will be monitored with a non-intrusive test each cycle in order<br>to determine both full open and close exercise, or one of these valves shall be<br>partially disassembled, examined and manually exercised on a staggered<br>sampling basis each refueling outage. At each disassembly, it shall be verified<br>that the disassembled valve is capable of full stroking and that its internals are<br>structurally sound (no loose or corroded parts). In the event the disassembled<br>valve's full stroke capability is in question, both valves in this group shall be<br>disassembled. <b>This is consistent with NUREG 1482.</b> |

| Refueling Justification:               | CBS - RJ-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CBS-V9, CBS-V15, CBS-V25, CBS-V26, CBS-V147, CBS-V148                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Category:                              | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Function:                              | (Active) Containment Spray and RHR Pumps Suction Check Valves from the<br>Containment Sump (Forward Flow) Prevent Backflow to the Containment<br>Recirculation Sumps (Reverse Flow)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Basis for Refueling<br>Outage Testing: | These valves cannot be full open exercised by system flow without substantial<br>amounts of water in the containment sumps being drawn by the containment<br>spray and residual heat removal pumps. Additionally, these valves cannot be full<br>closed exercised since a system intrusion would be required which would make<br>the system inoperable. Quarterly testing of these valves would be impractical.                                                                                                                                                                                                                                                                                                                                                                       |
| <u>Alternate Testing</u> :             | These valves shall be partially disassembled, examined and manually exercised<br>on a staggered sampling basis (one valve in each group) each refueling outage.<br>One group includes CBS-V9 and CBS-V15. The other group includes CBS-<br>V25, CBS-V26, CBS-V147 and CBS-V148. All valves shall be disassembled<br>and examined at least once every eight years. At each disassembly, it shall be<br>verified that the disassembled valve is capable of full stroking and that its<br>internals are structurally sound (no loose or corroded parts). In the event that<br>the disassembled valve's full stroke capability is in question, the remaining valves<br>in the respective group shall be disassembled, examined and manually exercised<br>as required by ISTC $4.5.4(c)$ . |

| Refueling Justification:               | CBS - RJ-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CBS-V12, CBS-V18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Category:                              | AC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <u>Function</u> :                      | (Active) Spray Ring Supply (Forward Flow), Containment Isolation (Reverse Flow)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Basis for Refueling<br>Outage Testing: | These valves cannot be full open exercised quarterly without the initiation of containment spray flow into the containment building during power operation or during cold shutdowns. Additionally, these valves cannot be full closed exercised since a system intrusion and containment entry into a locked high radiation area would be required.                                                                                                                                                                                                                               |
| Alternate Testing:                     | These valves shall be partially disassembled, examined and manually exercised<br>on a staggered sampling basis each refueling outage. All valves shall be<br>disassembled and examined at least once every 8 years. At each disassembly, it<br>shall be verified that the disassembled valve is capable of full stroking and that<br>its internals are structurally sound (no loose or corroded parts). In the event<br>that the disassembled valve's full stroke capability is in question, the other valve<br>in this group shall be disassembled as required by ISTC 4.5.4(c). |

| Refueling Justification:               | CBS - RJ-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CBS-V55, CBS-V56, CBS-V145, CBS-V146                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Category:                              | c                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Function:                              | (Active) RHR Suction from the RWST (Forward Flow), Prevent Backflow to CBS Suction (Reverse Flow)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Basis for Refueling<br>Outage Testing: | It is impractical to full open exercise these valves on a quarterly basis because<br>these valves are not in the pump test flow path. These valves cannot be full<br>stroked open exercised during cold shutdowns because testing during cold<br>shutdowns would require flow to be established into the RCS where there is no<br>additional volume to add the additional inventory. Additionally, these valves<br>cannot be full closed exercised on a quarterly basis or cold shutdown frequency<br>because the RHR System would need to be inoperable and a system intrusion in<br>a high radiation area would be required to test these valves which is not<br>possible. |
| Alternate Testing:                     | These valves will be open and closed exercised during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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| Refueling Justification:               | CBS - RJ-5                                                                                                                                                                                                                                                                                      |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CBS-V48, CBS-V52                                                                                                                                                                                                                                                                                |
| Category:                              | C                                                                                                                                                                                                                                                                                               |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                               |
| Function:                              | (Active) SI Pump Suction Check Valves from the RWST                                                                                                                                                                                                                                             |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                  |
| Basis for Refueling<br>Outage Testing: | There is not sufficient flow to full open exercise these valves during the quarterly SI pump tests because these tests are run on minimum flow recirculation. These valves cannot be full open exercised during cold shutdowns due to low temperature overpressurization concerns with the RCS. |
| Alternate Testing:                     | These valves shall be full open and closed exercised during refueling outages.                                                                                                                                                                                                                  |

| Refueling Justification:               | CBS - RJ-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CBS-V58, CBS-V60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Category:                              | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Function:                              | (Active) Charging Pump Suction Valves from RWST (Forward Flow), RWST Isolation (Reverse Flow)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Basis for Refueling<br>Outage Testing: | It is impractical to full open exercise these valves quarterly. In order to full<br>open exercise these valves, it is necessary to inject flow through the charging<br>pumps to the High Head Safety Injection flow path. If the charging flow was<br>directed to the RCS in this manner, it could cause a loss of charging flow<br>control during plant operation resulting in pressurizer level changes and possibly<br>a plant trip. Additionally, charging flow through these valves during plant<br>operation would also result in the injection of relatively cold water into the<br>RCS, possibly resulting in the cold shocking of system components. Further, it<br>would inject highly borated water into the RCS, affecting reactivity and plant<br>stability. During cold shutdowns, the injection of charging flow could result in<br>low temperature overpressurization of the RCS. In order to full close exercise<br>these valves, it is necessary to align an RHR pump from the RCS to the charging<br>pumps suction which is not possible during plant operation. |
| Alternate Testing:                     | These valves shall be full open and closed exercised during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Refueling<br>Justification:           | CC- RJ-1                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                               | CC-TV2171-1, CC-TV2171-2, CC-TV2271-1, CC-TV2271-2                                                                                                                                                                                                                                                                                                                                                     |
| Category:                             | В                                                                                                                                                                                                                                                                                                                                                                                                      |
| Code Class:                           | 3                                                                                                                                                                                                                                                                                                                                                                                                      |
| Function:                             | (Active) Primary Component Cooling Water Temperature Control Valves                                                                                                                                                                                                                                                                                                                                    |
| Test Requirements:                    | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                         |
| Basis for Refueling<br>Outage Testing | Full stroke exercising these valves during power operations may result in an<br>undesirable thermal transient on one train of primary component cooling.<br>Full stroke exercising these valves during cold shutdowns (when the reactor<br>coolant pumps are still normally in operation) may result in loss of cooling water<br>to the reactor coolant pumps and their motors during their operation. |
| Alternate Testing:                    | These valves shall be full stroke exercised at refueling outages.                                                                                                                                                                                                                                                                                                                                      |

| Refueling<br>Justification:            | CC- RJ-2                                                                                                                                                                                                                                    |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CC-V341, CC-V426, CC-V427, CC-V447, CC-V448                                                                                                                                                                                                 |
| Category:                              | В                                                                                                                                                                                                                                           |
| Code Class:                            | 3                                                                                                                                                                                                                                           |
| Function:                              | (Active) Primary Component Cooling Water Isolation Valves                                                                                                                                                                                   |
| Test Requirements:                     | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                              |
| Basis for Refueling<br>Outage Testing: | It is impractical to full stroke exercise these valves quarterly. Isolating these valves during power operations will isolate cooling water to several heat exchangers, possibly resulting in overheating of several non-essential systems. |
| Alternate Testing:                     | These valves shall be full stroke exercised at refueling outages, when these non-<br>essential cooling loads can be isolated.                                                                                                               |

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| Refueling<br>Justification:            | CC - RJ-3                                                                                                                                                                                                                                                                                                   |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CC-V57, CC-V121, CC-V122, CC-V168, CC-V175, CC-V176, CC-V256, CC-V257                                                                                                                                                                                                                                       |
| Category:                              | Α                                                                                                                                                                                                                                                                                                           |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                           |
| Function:                              | (Active) Containment Isolation                                                                                                                                                                                                                                                                              |
| Test Requirements:                     | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                              |
| Basis for Refueling<br>Outage Testing: | Exercising these valves quarterly during power operation or during cold<br>shutdowns (when the reactor coolant pumps are still normally in operation)<br>would isolate cooling water to the reactor coolant pump bearing oil coolers and<br>motor air coolers, possibly damaging the reactor coolant pumps. |
| Alternate Testing:                     | These valves shall be full stroke exercised at refueling outages.                                                                                                                                                                                                                                           |

| Refueling<br>Justification:            | CC - RJ-4                                                                                                                                                                                                                                                                                     |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CC-V1092, CC-V1095, CC-V1101, CC-V1109                                                                                                                                                                                                                                                        |
| Category:                              | В                                                                                                                                                                                                                                                                                             |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                             |
| Function:                              | (Passive) PCCW Thermal Barrier Containment Isolation                                                                                                                                                                                                                                          |
| Test Requirements:                     | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                |
| Basis for Refueling<br>Outage Testing: | Full stroke exercising these valves quarterly during power operation or during cold shutdowns (when the reactor coolant pumps are still normally in operation) would isolate cooling water to the thermal barrier heat exchanger, possibly damaging or overheating the reactor coolant pumps. |
| Alternate Testing:                     | These valves shall be full stroke exercised at refueling outages.                                                                                                                                                                                                                             |

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| Cold Shutdown<br>Justification:     | CGC - CSJ-1                                                                                                                                                                                                                                                                                                         |
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| Valves:                             | CGC-V4, CGC-V25                                                                                                                                                                                                                                                                                                     |
| Category:                           | AC                                                                                                                                                                                                                                                                                                                  |
| Code Class:                         | 2                                                                                                                                                                                                                                                                                                                   |
| Function:                           | (Active) Containment Isolation (Reverse Flow) and Hydrogen Analyzer Return Valves (Forward Flow)                                                                                                                                                                                                                    |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                      |
| Basis for Cold<br>Shutdown Testing: | To quarterly full stroke exercise these normally closed check valves in the forward and reverse direction is not practical. It would require a containment entry during Modes 1-4 into a locked high radiation area. It would also involve a system intrusion which would render the hydrogen analyzers inoperable. |
| Alternate Testing:                  | These values shall be full stroke exercised in the forward and reverse direction during cold shutdowns.                                                                                                                                                                                                             |

| Cold Shutdown<br>Justification:     | CO - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | CO-V421, CO-V422                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Category:                           | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Code Class:                         | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Function:                           | (Active) Condensate Storage Tank (CST) Boundary Isolation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Test Requirements:                  | ISTC 4.5.1Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Basis for Cold<br>Shutdown Testing: | <ul> <li>CO-V421 and CO-V422 are CST Isolation valves on the Condensate Transfer Line. They are normally open when the transfer pump is running to either heat the CST inventory or to recirculate the inventory. Reverse testing these valves requires either system intrusion (e.g., CST drainage in order to perform a check valve disassembly) or the use of non-intrusive test equipment.</li> <li>These valves are two inch spring loaded piston style check valves. Flow lifts the piston and compresses the spring. Upon reversal of flow, the spring, the weight of the piston, and the CST head all act on the piston to seat the valve. The internals of the check valve are stainless steel and the quality of the water is suitable for steam generator secondary side water chemistry.</li> <li>Generic reviews of check valve failure rates indicate that normally operating systems (this system is running during cooler weather to maintain CST minimum temperature) do not have a significantly higher failure rate than standby systems, or even infrequently used systems. The condensate system is not a major contributor to check valve failure rate. The small size of these valves is also favorable as the failure rate increases with valve size.</li> </ul> |
| Alternate Testing:                  | These valves will be tested individually using non-intrusive techniques at cold shutdowns and at refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| Cold Shutdown<br>Justification:     | CO - CSJ-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | CO-V434, CO-V435                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Category:                           | С                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Code Class:                         | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Function:                           | (Active) Condensate Storage Tank (CST) Boundary Isolation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Basis for Cold<br>Shutdown Testing: | CO-V434 and CO-V435 are CST Isolation Valves on the Startup Feed Pump<br>Recirculation Line and on the Hotwell Spill Line. These valves are generally<br>closed except during pump surveillance testing or as determined by the Hotwell<br>Level Control System/Chemistry Limits. Reverse testing these valves requires<br>either system intrusion (e.g., CST drainage in order to perform a check valve<br>disassembly) or the use of non-intrusive test equipment.<br>These valves are 4 inch swing check valves. These valves are ASME Class 1<br>valves used in a ASME Class 3 application. All internal parts are stainless steel<br>and the water quality is suitable for steam generator secondary side water<br>chemistry. |
|                                     | All internal fasteners are welded on both sides. The internal fasteners (e.g., cotterpins) are used at the disc/hanger arm interface and at the hanger arm/hinge pin interface.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                     | The CST level that is maintained during plant operations ensures sufficient<br>head to prevent rapid opening (e.g., slam) of the disc. Similarly, after the<br>SUFP is tripped, the discharge pressure decays slowly thereby prevent rapid<br>closure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Alternate Testing:                  | These valves will be tested individually using non-intrusive test techniques at cold shutdowns and at refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Cold Shutdown<br>Justification:             | CS - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                             | CS-V426, CS-V427                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Category:                                   | B and C                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Code Class:                                 | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Function:                                   | (Active) Emergency Boration Flow Path                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test Requirements:                          | ISTC 4.2.1 Full Stroke Time and Exercise (3 Months)<br>ISTC 4.2.6 Fail Safe Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                         |
| Basis for Cold<br><u>Shutdown Testing</u> : | Exercising these normally closed valves to the open position during power<br>operation could cause a sudden increase in the reactor coolant system boron<br>inventory. These valves supply highly concentrated borated water to the<br>suctions of the charging pumps. A rapid addition of this highly concentrated<br>borated water would add large amounts of negative reactivity to the reactor<br>coolant system possibly causing a plant shutdown. |
| Alternate Testing:                          | These valves shall be full stroke exercised, fail safe tested and stroke time tested during cold shutdowns and refueling outages.                                                                                                                                                                                                                                                                                                                       |

| Cold Shutdown<br>Justification:     | CS - CSJ-2                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | CS-V175, CS-V176                                                                                                                                                                                                                                                                                                                          |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                         |
| Code Class:                         | 1                                                                                                                                                                                                                                                                                                                                         |
| Function:                           | Maintain Isolation of the Reactor Coolant (RC) Inventory and Pressure Control for Safe Shutdown                                                                                                                                                                                                                                           |
| Test Requirements:                  | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                            |
| Basis for Cold<br>Shutdown Testing: | These values are normally closed, fail-closed isolation values. Their open function is <u>not</u> a safety function, and they are infrequently used after plant startup.                                                                                                                                                                  |
|                                     | These values are not considered active values although credit is taken since they maintain an isolation for safe shutdown.                                                                                                                                                                                                                |
|                                     | The excess letdown heat exchanger outlet temperature and pressure should not exceed 175F and 150 psig, respectively. Also, due to the length of piping between these valves and the heat exchanger, the need to periodically cycle these valves might require flushing of the line to the RCDT to avoid inadvertent boration or dilution. |
|                                     | Opening a normally closed valve for the purposes of verifying its capability to close presents potential system challenges without a compensating increase in the level of quality and safety.                                                                                                                                            |
| Alternate Testing:                  | These valves will be full-stroke exercised, fail-safe tested, and stroked timed at cold shutdowns and refueling outages.                                                                                                                                                                                                                  |

| Cold Shutdown<br>Justification:     | CS - CSJ-3                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | CS-V178, CS-V179, CS-V181, CS-V182                                                                                                                                                                                                                                                                                                                                                     |
| Category:                           | С                                                                                                                                                                                                                                                                                                                                                                                      |
| Code Class:                         | 1                                                                                                                                                                                                                                                                                                                                                                                      |
| Function:                           | (Active) Forward flow to provide overpressure protection for thermally induced scenarios, and reverse flow protection to isolate Loop 1 and 4 during pipe rupture scenarios                                                                                                                                                                                                            |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                         |
| Basis for Cold<br>Shutdown Testing: | These check valves are Reactor Coolant Pressure Boundary Isolation valves in<br>the parallel branch lines (RCS Loop 1 and RCS Loop 4) off the charging header<br>on the Regenerative Heat Exchanger outlet line.                                                                                                                                                                       |
|                                     | Charging flow to the RCS is alternated over the plant life such that neither path will be exposed to more than 60% of the design transients involving complete stoppage of letdown and/or charging flow. Transfer from one path to the other should only be performed at cold shutdown conditions to avoid subjecting the charging lines to unnecessary additional thermal transients. |
|                                     | These valves are located inside the missile shield. Reverse closure will be performed using radiography or non-intrusive testing equipment.                                                                                                                                                                                                                                            |
| Alternate Testing:                  | These check valves will be full stroke exercised at cold shutdowns (when charging can be secured) and at refueling outages.                                                                                                                                                                                                                                                            |

| Refueling<br>Justification:            | CS - RJ-1                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CS-LCV112D, CS-LCV112E                                                                                                                                                                                                                                                                                                                                        |
| Category:                              | В                                                                                                                                                                                                                                                                                                                                                             |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                             |
| Function:                              | (Active) Charging Pump Suction Isolation Valves from the RWST                                                                                                                                                                                                                                                                                                 |
| Test Requirements:                     | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                |
| Basis for Refueling<br>Outage Testing: | Exercising these values during power operations would require the charging<br>pump suctions to be aligned with the RWST (Refueling Water Storage Tank).<br>This would cause a sudden increase in reactor coolant system boron inventory<br>resulting in the addition of large amounts of negative reactivity to the RCS<br>possibly causing a plant shutdown. |
|                                        | During most cold shutdowns, the reactor coolant pumps are still normally in operation. These exercise tests should not be performed at that time in order to prevent loss of seal cooling flow, or to minimize pressure swings on the seal flow to the reactor coolant pumps.                                                                                 |
| Alternate Testing:                     | These valves shall be full stroke exercised and stroke timed in both directions at refueling outages.                                                                                                                                                                                                                                                         |

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| Refueling<br>Justification:            | CS - RJ-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CS-V142, CS-V143, CS-V149, CS-V150                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Category:                              | A and B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Function:                              | (Active) Containment Isolation/Isolation of RC Letdown Flow/Charging Isolation Valves                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Basis for Refueling<br>Outage Testing: | The normal charging to the RCS Regenerative Heat Exchanger Isolation Valves (CS-V142 and CS-V143) and the RCS Letdown Flow Isolation Valves (CS-V149 and CS-V150) provide pressurizer level control and chemistry control of the RCS. Full stroke exercising these valves during power operation could cause a loss of pressurizer level control and possibly trip the plant.<br>During most cold shutdowns, the reactor coolant pumps are still normally in operation. These exercise tests should not be performed at that time in order to |
|                                        | prevent loss of seal cooling flow, or to minimize pressure swings on the seal<br>flow to the reactor coolant pumps.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Alternate Testing:                     | Full stroke exercising and stroke testing (closed) shall be performed at refueling outages. Fail safe (closed) testing for CS-V150 only will also be performed at refueling outages.                                                                                                                                                                                                                                                                                                                                                          |

| Refueling<br>Justification:            | CS - RJ-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CS-V192                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Category:                              | c                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Function:                              | (Active) Reverse flow protection after sump switch over when RHR Pump<br>Discharge is routed to the CS Pump Suction, and Forward Flow for Safe<br>Shutdown                                                                                                                                                                                                                                                                                                                                                                                               |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Basis for Refueling<br>Outage Testing: | The normal suction flow path for the charging pumps during power operation is<br>from the VCT. To verify obturator movement, both safety function directions<br>must be verified. This would require cycling the charging pumps or alternating<br>suctions sources. Isolation of the VCT during power operation would require<br>injection of borated water from the RWST into the RCS causing a reactivity<br>imbalance. The Charging Pumps are not normally shutdown during cold<br>shutdown conditions as seal injection flow is normally in service. |
| Alternate Testing:                     | CS-V192 shall be forward flow exercised and reverse flow exercised during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Refueling<br>Justification:           | CS - RJ-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                       | CS-LCV112B, CS-LCV112C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Category:                             | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Code Class:                           | 2 .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Function:                             | (Active) Volume Control Tank Suction Isolation Valves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Test Requirements:                    | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Basis for Refueling<br>Outage Testing | Full stroke exercising these valves quarterly during power operation could<br>result in a loss of charging pump suction. This could result in a loss of<br>pressurizer level control possibly resulting in a plant trip, or loss of cooling flow<br>to the Reactor Coolant Pump Seals resulting in equipment damage.<br>During most cold shutdowns, the reactor coolant pumps remain in service.<br>These exercise tests should not be performed at that time in order to prevent<br>loss of seal cooling flow, or to minimize pressure swings on the seal flow to the<br>reactor coolant pumps. |
| Alternate Testing:                    | These valves shall be full stroke exercised and stroke timed in the close direction at refueling outage intervals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Refueling<br>Justification:            | CS - RJ-5                                                                                                                                                                                                                                                                |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CS-V219, CS-V221                                                                                                                                                                                                                                                         |
| Category:                              | В                                                                                                                                                                                                                                                                        |
| Code Class:                            | 2                                                                                                                                                                                                                                                                        |
| Function:                              | (Active) Alternate charging to reactor coolant pump seal water injection throttle valves.                                                                                                                                                                                |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                           |
| Basis for Refueling<br>Outage Testing: | Full stroke exercising these valves during power operation could cause pertibations or loss in RCP seal water flow resulting in pump and reactor trip.                                                                                                                   |
|                                        | During most cold shutdowns, the reactor coolant pumps remain in service.<br>These exercise tests should not be performed at that time in order to prevent<br>loss of seal cooling flow, or to minimize pressure swings on the seal flow to the<br>reactor coolant pumps. |
| Alternate Testing:                     | Full stroke exercising shall be performed during refueling outages.                                                                                                                                                                                                      |

| Refueling<br>Justification:            | CS - RJ-6                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CS-V167, CS-V168                                                                                                                                                                                                                                                                                                                                                         |
| Category:                              | Α                                                                                                                                                                                                                                                                                                                                                                        |
| <u>Code Class</u> :                    | 2                                                                                                                                                                                                                                                                                                                                                                        |
| Function:                              | (Active) Containment Isolation                                                                                                                                                                                                                                                                                                                                           |
| Test Requirements:                     | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                           |
| Basis for Refueling<br>Outage Testing: | These valves isolate the Reactor Coolant Pump No. 1 Seal Leakoff flow and<br>Excess Letdown flow.<br>Isolating these valves during power operation and during startup could cause<br>damage to the Reactor Coolant Pump Seals. During most cold shutdowns, the<br>reactor coolant pumps remain in service. These exercise tests should not be<br>performed at that time. |
| Alternate Testing:                     | Full stroke exercising and stroke time testing shall be performed during refueling outages.                                                                                                                                                                                                                                                                              |

| Refueling<br>Justification:            | CS - RJ-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CS-V440                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Category:                              | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Code Class:                            | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Function:                              | (Active) Gravity Feed - Boration Flow Path                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Basis for Refueling<br>Outage Testing: | Exercising this normally closed valve to the open position during power<br>operation could cause a sudden increase in reactor coolant system boron<br>inventory. These valves supply highly concentrated borated water to the<br>suction of the charging pump. A rapid addition of this highly concentrated<br>borated water would add large amounts of negative reactivity to the reactor<br>coolant system possibly causing a plant shutdown.<br>This exercise test requires the swapping of the suction path from the VCT to<br>the Boric Acid Tanks in order to monitor system flow. This exercise test<br>should not be performed when the reactor coolant pumps are running. During |
| Alternate Testing:                     | most cold shutdowns, the reactor coolant pumps remain in service.<br>This valve shall be forward flow tested and closure verified during refueling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Anomato resung.                        | outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| Refueling<br>Justification:            | CS - RJ-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CS-V439, CS-V442                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Category:                              | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Code Class:                            | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Function:                              | (Active) Gravity Feed - Boration Flow Path                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test Requirements:                     | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Basis for Refueling<br>Outage Testing: | Exercising these normally closed valves during power operation could cause a sudden increase in reactor coolant system boron inventory. These valves supply highly concentrated borated water to the suction of the charging pump. A rapid addition of this highly concentrated borated water could add negative reactivity to the reactor coolant system, possibly causing a plant shutdown. This exercise test requires the swapping of the suction path from the VCT to the Boric Acid Tanks in order to monitor system flow. This exercise test should not be performed when the reactor coolant pumps are running. During most cold shutdowns, the reactor coolant pumps remain in service. |
| Alternate Testing:                     | These valves shall be full stroke exercised during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Refueling<br>Justification:            | CS - RJ-9                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | CS-V2, CS-V18, CS-V34, CS-V50, CS-V471, CS-V472, CS-V473 and CS-V474                                                                                                                                                                                                                                                                                                                                                              |
| Category:                              | с                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Code Class:                            | 1                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Function:                              | (Active) RCP Seal Injection check valves. These valves are normally open and remain open during safe shutdown and accident mitigation. Their closed safety function is simply to close to prevent loss of inventory from multiple loops.                                                                                                                                                                                          |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                    |
| Basis for Refueling<br>Outage Testing: | These valves are normally open to provide adequate seal injection flow to the RCPs. Stopping seal injection flow to the Reactor Coolant Pump seals while the RCPs are running could cause damage to the seals. RCP seal injection flow is only shut down under certain plant conditions when RCPs are shut down (e.g., RCS pressure less than 100 psig). During most cold shutdowns, the reactor coolant pumps remain in service. |
|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Refueling Justification:               | CS - RJ-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                                | CS-V200, CS-V209                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Category:                              | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Code Class:                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Function:                              | (Active) Centrifugal Charging Pump Discharge Check Valves (Forward and Reverse Flow)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Basis for Refueling<br>Outage Testing: | These valves can only be partially stroked during power operations. There is<br>insufficient flow during charging operations to achieve the full stroke exercise<br>of these valves (High Head Safety Injection Safety Function). During the<br>quarterly charging pump test, flow is directed through the seal water heat<br>exchanger to the suction of the pumps (e.g., this hydraulic test circuit is just<br>upstream of the discharge check valve). These valves cannot be exercised<br>during cold shutdowns since injection flow from the charging pumps could<br>result in low temperature overpressurization of the RCS. |
| Alternate Testing:                     | These valves shall be full-stroked exercised during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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| Cold Shutdown<br>Justification:     | DM - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | DM-V611, DM-V612                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Category:                           | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Code Class:                         | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Function:                           | (Active) Condensate Storage Tank (CST) Boundary Isolation.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Basis for Cold<br>Shutdown Testing: | DM-V611 and DM-V612 are in the Demineralized Water Transfer Line to the CST. They are open when the Demineralized Water Transfer Pumps are running and the system is aligned for CST makeup. These valves are normally closed. They are only open during periods when the CST is being refilled. Reverse testing these valves requires either system intrusion (e.g., CST drainage in order to perform a check valve disassembly) or the use of non-intrusive test equipment. |
|                                     | These values are 6 inch swing check values. The hanger arm and disc assembly<br>are connected to the hanger ring via a hinge pin. The internals of the value are<br>stainless steel and the quality of the water is suitable for steam generator<br>secondary side water chemistry. These check values (considered as part of the<br>Condensate System for failure rate) do not have a significantly high failure rate.                                                       |
| Alternate Testing:                  | These values will be tested in the forward flow direction and individually using<br>non-intrusive techniques for the reverse closure direction during cold shutdowns<br>and at refueling outages.                                                                                                                                                                                                                                                                             |

| Cold Shutdown<br>Justification:     | FW - CSJ-1                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | FW-V30, FW-V39, FW-V48, FW-V57                                                                                                                                                                                                                                                                                                           |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                        |
| Code Class:                         | 2                                                                                                                                                                                                                                                                                                                                        |
| Function:                           | (Active) Feedwater Isolation                                                                                                                                                                                                                                                                                                             |
| Test Requirements:                  | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                           |
| Basis for Cold<br>Shutdown Testing: | Full closure of these values to satisfy the requirements of ISTC 4.2.1 would<br>require plant shutdown. Part-stroke testing during power operation introduces<br>the risk of plant shutdown if the value were to close fully during part-stroke<br>operation or if the value did not return to the full open position following testing. |
| Alternate Testing:                  | Valve full closure time will be verified in hot standby during each reactor shutdown, but this verification need not be determined more than once every 3 months for multiple shutdowns.                                                                                                                                                 |

| Cold Shutdown<br>Justification:     | FW - CSJ-2                                                                                                                                                             |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | FW-V76, FW-V82, FW-V88, FW-V94                                                                                                                                         |
| Category:                           | c                                                                                                                                                                      |
| Code Class:                         | 2                                                                                                                                                                      |
| Function:                           | (Active) Prevent Feedwater Backflow and EFW Forward Flow to the Steam Generators                                                                                       |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                         |
| Basis for Cold<br>Shutdown Testing: | Exercising these valves quarterly during power operations would unnecessarily introduce cold water into the steam generator causing thermal shock to the feed nozzles. |
| Alternate Testing:                  | These valves shall be exercised in the forward and reverse directions during cold shutdowns and refueling outages.                                                     |

| Cold Shutdown<br>Justification:     | FW - CSJ-3                                                                                                                  |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | FW-V330, FW-V331, FW-V332, FW-V333                                                                                          |
| Category:                           | C                                                                                                                           |
| Code Class:                         | 2                                                                                                                           |
| Function:                           | (Active) Prevent Feedwater Backflow via Main Feed Headers                                                                   |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                              |
| Basis for Cold<br>Shutdown Testing: | Exercising these valves for closure would require securing the steam generator feedwater system and cause a plant shutdown. |
| Alternate Testing:                  | These valves shall be reverse closure tested during cold shutdown conditions and refueling outages.                         |

| Cold Shutdown<br>Justification:     | FW - CSJ-4                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | FW-V64, FW-V70                                                                                                                                                                                                                                                                                                                                                                                     |
| Category:                           | c                                                                                                                                                                                                                                                                                                                                                                                                  |
| Code Class:                         | 3                                                                                                                                                                                                                                                                                                                                                                                                  |
| Function:                           | (Active) EFW Pumps A & B Discharge Check Valves                                                                                                                                                                                                                                                                                                                                                    |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                     |
| Basis for Cold<br>Shutdown Testing: | Full flow through these normally closed check valves on a quarterly basis would<br>require establishing emergency feedwater flow to the steam generators. This<br>would introduce cold water into the steam generators causing a thermal shock<br>to the feedwater nozzles. This testing could also cause feedwater control<br>problems during plant operation which could lead to a reactor trip. |
| Alternate Testing:                  | These valves shall be exercised in both the forward and reverse directions during cold shutdowns and refueling outages.                                                                                                                                                                                                                                                                            |

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| Cold Shutdown<br>Justification:     | FW - CSJ-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | FW-V216, FW-V357                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Category:                           | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Code Class:                         | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Function:                           | (Active) Startup Feed Pump/EFW Header Check Valves                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Basis for Cold<br>Shutdown Testing: | Full flow through these normally closed check valves on a quarterly basis would<br>require establishing emergency feedwater flow to the steam generators. This<br>would introduce cold water into the steam generators causing a thermal shock<br>to the feedwater nozzles. This testing could also cause feedwater control<br>problems during plant operation which could lead to a reactor trip. Quarterly<br>reverse flow testing of these valves would require a system intrusion. |
| Alternate Testing:                  | These valves shall be exercised in both the forward and reverse directions during cold shutdown conditions and refueling outages.                                                                                                                                                                                                                                                                                                                                                      |

| Cold Shutdown<br>Justification:     | FW - CSJ-6                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | FW-V349, FW-V351                                                                                                                                                                                                                                                                                                                                                   |
| Category:                           | С                                                                                                                                                                                                                                                                                                                                                                  |
| Code Class:                         | 3                                                                                                                                                                                                                                                                                                                                                                  |
| <u>Function</u> :                   | (Active) Emergency Feedwater Pump Turbine Oil Cooler Outlet Check Valve<br>(FW-V351), Emergency Feedwater Common Recirc Line Check Valve (FW-<br>V349)                                                                                                                                                                                                             |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                     |
| Basis for Cold<br>Shutdown Testing: | A forward flow exercise for both of these valves could be achieved on a quarterly interval, when the EFW pumps are run. However, to verify obturator movement in both the open and closed direction, as required by ISTC 4.5.4 (a.2), system intrusion and isolation of all EFW recirculation flow paths is required, which would make both EFW trains inoperable. |
| Alternate Testing:                  | These valves shall be exercised in the reverse direction during cold shutdowns and refueling outages.                                                                                                                                                                                                                                                              |

| Cold Shutdown<br>Justification:     | FW - CSJ-7                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | FW-FV4214A/B, FW-FV4224A/B, FW-FV4234A/B and FW-FV4244A/B                                                                                                                                                                                                                                                                                                                         |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                                                                 |
| Code Class:                         | 3                                                                                                                                                                                                                                                                                                                                                                                 |
| Function:                           | (Active) Steam Generator EFW Isolation Valves                                                                                                                                                                                                                                                                                                                                     |
| Test Requirements:                  | ISTC 4.2.1 Exercise (3 months)                                                                                                                                                                                                                                                                                                                                                    |
| Basis for Cold<br>Shutdown Testing: | If a valid EFW actuation were to occur during performance of a quarterly surveillance stroke time test, EFW flow to two additional steam generators could be isolated. This would result in less than the design basis flow (e.g., minimum flow of 470 gpm to three steam generators and a minimum total flow of 650 gpm to four steam generators with one EFW pump operational.) |
| Alternate Testing:                  | These valves will be full stroke exercised and stroke time tested during cold shutdowns and refueling outages.                                                                                                                                                                                                                                                                    |

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| Cold Shutdown<br>Justification:     | IA - CSJ-1                                                                                                                                                                                                                                                                           |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | IA-V531                                                                                                                                                                                                                                                                              |
| Category:                           | AC                                                                                                                                                                                                                                                                                   |
| Code Class:                         | 2                                                                                                                                                                                                                                                                                    |
| Function:                           | (Active) Containment Isolation (Reverse Flow)                                                                                                                                                                                                                                        |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                       |
| Basis for Cold<br>Shutdown Testing: | To quarterly full stroke exercise this normally closed check valve in the reverse direction is not practical. It would require a containment entry during Modes 1-4 into a locked high radiation area. It would also require a system intrusion in order to reverse test this valve. |
| Alternate Testing:                  | This valve will be exercised in the open and in the reverse direction during cold shutdowns and refueling outages.                                                                                                                                                                   |

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|----------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u> </u> | Cold Shutdown<br>Justification:     | MS - CSJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|          | <u>Valves</u> :                     | MS-V94, MS-V96                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|          | Category:                           | С                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|          | Code Class:                         | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|          | Function:                           | (Active) Full stroke open to allow steam supply to the Emergency Feedwater<br>Pump Turbine                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|          | Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|          | Basis for Cold<br>Shutdown Testing: | These valves have both open and closed safety functions. During quarterly testing of the Emergency Feedwater Turbine Pump (FW-P37A), there is insufficient flow to full stroke exercise these valves in accordance with the requirements of the Code. These valves are partially stroked during the quarterly pump test. Full stroke exercising these valves would require flowing emergency feedwater to the steam generators which is impractical due to the resulting thermal shock to the steam generator feed nozzles and impact on the feed flow control. |
|          | Alternate Testing:                  | The full stroke in the forward flow direction and verification of the reverse closure function for these valves will be performed at cold shutdowns and refueling outages.                                                                                                                                                                                                                                                                                                                                                                                      |

| Cold Shutdown<br>Justification:     | MS - CSJ-2                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | MS-V86, MS-V88, MS-V90, MS-V92                                                                                                                                                                                                                                                                                                                                    |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                                                 |
| Code Class:                         | 2                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Function</b> :                   | (Active) Main Steam Isolation                                                                                                                                                                                                                                                                                                                                     |
| Test Requirements:                  | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                    |
| Basis for Cold<br>Shutdown Testing: | Full closure of these valves for the purpose of exercising per ISTC 4.2.1 would<br>require plant shutdown. Part-stroke testing during power operation introduces<br>the risk of plant shutdown if the valve were to close fully during part-stroke<br>operation or if the valve did not return to the full open position following<br>testing.                    |
| Alternate Testing:                  | Valve full closure time will be verified generally in hot standby during each reactor shutdown, except that this verification need not be determined more then once every 3 months for multiple shutdowns. Valve full closure time may also be performed when the MSIV actuator metal temperature can be maintained at or above the required minimum temperature. |

Refueling Justification: MS - RJ-1

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| Valves:                                | MS-V400, MS-V401, MS-V404, MS-V405, MS-V417, MS-V418                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Category:                              | с                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Code Class:                            | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Function:                              | (Active) The values are installed in opposite direction of flow and in vertical runs of pipe. They open to allow condensate drainage when the system is depressurized and close when the system is pressurized.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Test Requirements:                     | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Basis for Refueling<br>Outage Testing: | Full stroke exercising each of these valves cannot be performed with the existing piping configuration. During the quarterly EFW pump tests, three of the six valves can be verified closed by checking differential temperature across the valves. The closure of these three valves will likely prevent the other three from closing since there will not be a significant differential pressure. Since the inseries valves are similar and located in close proximity to each other, the valves that close may change from test to test. The differential temperature test, therefore, cannot consistently verify the full exercise of these valves.                                                        |
| Alternate Testing:                     | These valves shall be partially disassembled, examined and manually exercised<br>on a staggered sampling basis each refueling outage. All valves shall be<br>disassembled and examined at least every 8 years. One group includes the<br>upstream valves, the other group includes the downstream valves. At each<br>disassembly, it shall be verified that the disassembled valve is capable of full<br>stroking and that its internals are structurally sound (no loose or corroded<br>parts). In the event that the disassembled valve's full stroke capability is in<br>question, the remaining valves in the respective group shall be disassembled,<br>examined and manually exercised per ISTC 4.5.4.c. |

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| Cold Shutdown<br>Justification:     | RC - CSJ-1                                                                                                                                                                                                                                                             |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | RC-V22, RC-V23, RC-V87, RC-V88                                                                                                                                                                                                                                         |
| Category:                           | Α                                                                                                                                                                                                                                                                      |
| Code Class:                         | 1                                                                                                                                                                                                                                                                      |
| Function:                           | (Active) RHR Pump Suction Valves                                                                                                                                                                                                                                       |
| Test Requirements:                  | ISTC 4.2.1 Full Stroke Exercise, Full Stroke Time (3 Months)                                                                                                                                                                                                           |
| Basis for Cold<br>Shutdown Testing: | It is impractical to open these valves during operation when RCS pressure is<br>above 365 psig. These valves have system interlocks which prevent them from<br>opening with the RCS pressure above 365 psig to prevent overpressurization of<br>the RHR system piping. |
| Alternate Testing:                  | These valves shall be full stroke exercised and timed during cold shutdowns and refueling outages.                                                                                                                                                                     |

| Cold Shutdown<br>Justification:     | RC - CSJ-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | RC-PCV456A, RC-PCV456B                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Category:                           | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Code Class:                         | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Function:                           | (Active) Pressurizer Power Operated Relief Valves (PORVs)                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Test Requirements:                  | ISTC 4.2.1 Full Stroke Exercise, Full Stroke Time, and Fail Safe (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Basis for Cold<br>Shutdown Testing: | Full stroke exercising of these valves is impractical during power operation.<br>These valves demonstrate a high probability of sticking open and are not<br>needed for overpressure protection during power operation. The safety<br>function of these valves is to protect the reactor vessel and the reactor coolant<br>system from low temperature overpressurization conditions, and shall be<br>exercised prior to initiation of system conditions for which vessel protection is<br>needed. |
| Alternate Testing:                  | These valves shall be full stroke exercised, timed, and fail safe tested at each cold shutdown. The typical cold shutdown testing position is not applicable to the PORVs; however, in the case of frequent cold shutdowns, testing of the PORVs is not required more often than every three months.                                                                                                                                                                                               |

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| Cold Shutdown<br>Justification:     | RC - CSJ-3                                                                                                                         |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | RC-V323                                                                                                                            |
| Category:                           | В                                                                                                                                  |
| Code Class:                         | 2                                                                                                                                  |
| Function:                           | (Active) Reactor Head Vent Isolation Block Valve                                                                                   |
| Test Requirements:                  | ISTC 4.2.1 Full Stroke Exercise and Full Stroke Time (3 Months)                                                                    |
| Basis for Cold<br>Shutdown Testing: | As discussed in Generic Letter 93-05, Paragraph 6.3 and as adopted in Seabrook Station Technical Specification Amendment 30.       |
| Alternate Testing:                  | This valve shall be full stroke exercised and timed at least once per cold shutdown, if not performed within the previous 92 days. |

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| Cold Shutdown<br>Justification:     | RC - CSJ-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <u>Valves</u> :                     | RC-V475, RC-V479                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <u>Category</u> :                   | AC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Code Class:                         | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Function:                           | (Active) Pressure Locking Vent Path                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Basis for Cold<br>Shutdown Testing: | These valves are located inside the Containment missile barrier. They are not accessible during plant operation. These valves provide a bonnet vent path to relieve trapped bonnet pressure (e.g., differential pressure locking). Differential pressure locking may occur when a system is pressurized after a valve is closed. The pressurized side of the disc may move slightly away from the seat, allowing high pressure liquid to enter the bonnet cavity. With time, the bonnet pressure would tend to equalize with pressure in the body cavity. If the pressure in the system is subsequently decreased, the bonnet pressure would force the disc against the seat, more tightly than normal if the bonnet pressure is not relieved, These check valves are normally closed against reactor coolant (RCS) system pressure, but are open to relieve trapped bonnet pressure after RCS pressure is decreased. |
| Alternate Testing:                  | These values will be full stroke exercised as part of the pressure isolation value leakage testing, which is performed at cold shutdown intervals defined by Seabrook Technical Specifications 4.4.6.2.2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Refueling<br>Justification:            | RC - RJ-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                        | RC-LCV459, RC-LCV460                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Category:                              | В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Code Class:                            | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Function:                              | (Active) Letdown Regenerative Hx Isolation from Loop 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Test Requirements:                     | ISTC 4.2.1 Full Stroke Exercise, Full Stroke Time, and Fail Safe (3 Months)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Basis for Refueling<br>Outage Testing: | The letdown subsystem of the Chemical and Volume Control System provides<br>pressurizer level control of the reactor coolant system. Full stroke exercising<br>these valves during power operation on a quarterly basis could cause a loss of<br>pressurizer level control and possibly a plant trip.<br>During most cold shutdowns, the reactor coolant pumps remain in service.<br>These exercise tests should not be performed at that time in order to prevent<br>loss of seal cooling flow, or to minimize pressure swings on the seal flow to the<br>reactor coolant pumps. |
| Alternate Testing:                     | These valves shall be full stroke exercised, timed, and fail safe tested during refueling outages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Cold Shutdown<br>Justification:     | RH - CSJ-1                                                                                                                                                                                                                                           |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | RH-V4, RH-V40                                                                                                                                                                                                                                        |
| Category:                           | c                                                                                                                                                                                                                                                    |
| Code Class:                         | 2                                                                                                                                                                                                                                                    |
| Function:                           | (Active) RHR Pump Discharge Check Valves                                                                                                                                                                                                             |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                       |
| Basis for Cold<br>Shutdown Testing: | There is not sufficient flow to full stroke exercise these valves during quarterly RHR pump tests because these tests can only be run on minimum flow recirculation. These valves can only be partially stroked during the quarterly RHR pump tests. |
| Alternate Testing:                  | These valves shall be full stroke exercised during cold shutdowns and refueling outages.                                                                                                                                                             |

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| Cold Shutdown<br>Justification:     | RH - CSJ-2                                                                                                                                                                            |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Valves</u> :                     | RH-V14, RH-V26                                                                                                                                                                        |
| Category:                           | В                                                                                                                                                                                     |
| Code Class:                         | 2                                                                                                                                                                                     |
| Function:                           | (Active) RHR Cold Leg Isolation                                                                                                                                                       |
| Test Requirements:                  | ISTC 4.2.1 Exercise (3 Months)                                                                                                                                                        |
| Basis for Cold<br>Shutdown Testing: | These values are required to be open with power removed from the operators during Modes 1, 2 and 3 by Technical Specification 4.5.2 to ensure the operability of this ECCS subsystem. |
| Alternate Testing:                  | These valves shall be full stroke exercised during cold shutdowns and refueling outages.                                                                                              |

| Cold Shutdown<br>Justification:     | RH - CSJ-3                                                                                                                                                                                                                                                                                              |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valves:                             | RH-V15, RH-V29, RH-V30, RH-V31                                                                                                                                                                                                                                                                          |
| Category:                           | AC                                                                                                                                                                                                                                                                                                      |
| Code Class:                         | 1                                                                                                                                                                                                                                                                                                       |
| Function:                           | (Active) Reactor Coolant Pressure Boundary Isolation Valves                                                                                                                                                                                                                                             |
| Test Requirements:                  | ISTC 4.5.1 Exercise (3 Months)                                                                                                                                                                                                                                                                          |
| Basis for Cold<br>Shutdown Testing: | To quarterly full stroke exercise these normally closed check valves to the open position is not practical. It would require the reactor coolant system pressure to be below the RHR pump discharge pressure.                                                                                           |
| Alternate Testing:                  | These valves shall be full open exercised during cold shutdowns and refueling outages, and shall be full closed exercised during cold shutdowns and refueling outages when performing their required reactor coolant pressure isolation valve leakage rate tests per Technical Specification 4.4.6.2.2. |

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Cold Shutdown Justification:	RH - CSJ-4
Valves:	RH-V35, RH-V36
Category:	В
Code Class:	2
Function:	(Active) Provide suction source to the safety injection/charging pump(s) during recirculation mode of operation of the emergency core cooling system.
Test Requirements:	ISTC 4.2.1 Exercise (3 Months)
Basis for Cold Shutdown Testing:	These valves cannot be exercised during normal plant operation without the use of electrical jumpers to defeat system interlocks. Should an ECCS actuation occur while these valves were open, the suction source to the charging and safety injection pumps would be the RHR system, and the borated water supplied would be at the boron concentration of the RHR system at the time the RHR system was last shutdown. This boron concentration could be less than the boron concentration in the CS/SI pumps normal suction supply (RWST) and may result in an increase in the time required to borate the reactor coolant system.
Alternate Testing:	These valves shall be full stroke exercised during cold shutdowns and refueling outages.

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	Cold Shutdown Justification:	RH - CSJ-5
	<u>Valves</u> :	RH-V21, RH-V22
	Category:	В
	Code Class:	2
	Function:	(Active) Residual Heat Removal System Crossover Valves
	Test Requirements:	ISTC 4.2.1 Exercise (3 Months)
	Basis for Cold <u>Shutdown Testing</u> :	Exercising these valves during power operations is impractical. Closing either valve would render the RHR system inoperable by isolating two of the required four cold leg injection paths to the reactor coolant system from each RHR pump. Technical Specification 3.5.2 requires that there be at least one operable RHR pump for emergency core cooling during Modes 1, 2 and 3. Closing either of these valves could inhibit the ability of the RHR system to adequately respond to a large break loss-of-coolant accident.
	Alternate Testing:	These valves shall be full stroke exercised during cold shutdowns and refueling outages.

Cold Shutdown Justification:	RH - CSJ-6
<u>Valves</u> :	RH-V32, RH-V70
Category:	В
Code Class:	2
Function:	(Active) RHR Hot Leg Isolation
Test Requirements:	ISTC 4.2.1 Exercise (3 Months)
Basis for Cold Shutdown Testing:	These values are required by Technical Specifications to be shut and power to be removed from their operators during Modes 1, 2, and 3 (Technical Specification 4.5.2) to ensure operability of this ECCS subsystem.
Alternate Testing:	These valves shall be full stroke exercised during cold shutdowns and refueling outages.

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Refueling Justification:	RH - RJ-1
<u>Valves</u> :	RH-V50, RH-V51, RH-V52, RH-V53
Category:	C
Code Class:	1
Function:	(Active) RHR Hot Leg Injection
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Refueling Outage Testing:	Exercising these valves per the frequency described in ISTC 4.5.1 is not practical. Exercising these valves during plant operation would require initiating flow to the reactor coolant system using the residual heat removal pumps. During plant operation, the reactor coolant system pressure will be greater than the residual heat removal pump discharge pressure.
Alternate Testing:	These valves shall be full open and closed exercised during refueling outages.

Cold Shutdown Justification:	RMW - CSJ-1
<u>Valves</u> :	RMW-V29
Category:	AC
Code Class:	2
Function:	(Active) Reactor Makeup Water Containment Isolation Valve
Test Requirements:	ISTC 4.5 1 Exercise (3 Months)
Basis for Cold Shutdown Testing:	This value is located inside containment at elevation -12 ft. (over CBS Sump). The value is normally closed except during brief periods when filling various non-safety related tanks or standpipes. Exercise testing would require containment entry and system intrusion to drain the lines, hookup test equipment, and perform the test.
Alternate Testing:	Full stroke exercising shall be performed during cold shutdowns and refueling outages.

Refueling Justification:	RMW - RJ-1
Valves:	RMW-V119
Category:	C
Code Class:	2
Function:	(Active) Forward flow for emergency boration
Test Requirements:	ISTC 4.5 1 Exercise (3 Months)
Basis for Refueling Outage Testing:	Reverse closure testing of this valve would require isolation of the VCT. Since the VCT is the normal suction path to the charging pumps, a suction swap to the RWST would be required, introducing colder borated water into the RCS causing a reactivity imbalance. Forward flow through this valve could be achieved by inserting reactor makeup water directly to the suction of the charging pumps, however, the open and closed exercise tests need to be performed in the same interval per ISTC 4.5.2a. The reverse test requires that both charging pumps are secured. This exercise test requires the swapping of the suction path from the VCT to the Boric Acid Tanks in order to monitor system flow. This exercise test should not be performed when the Reactor Coolant pumps are running. During most cold shutdowns, the reactor coolant pumps and charging pumps remain in service.
Alternate Testing:	Forward and reverse exercising shall be performed during refueling outages.

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Cold Shutdown Justification:	SI - CSJ-1
<u>Valves</u> :	SI-V77, SI-V102
Category:	В
Code Class:	2
Function:	(Active) SI to Hot Leg Isolation Valves
Test Requirements:	ISTC 4.2.1 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	These values are required by Technical Specifications to be closed and power to be removed from their operators during Modes 1, 2, and 3 (Technical Specification 4.5.2a) to ensure operability of this ECCS subsystem.
Alternate Testing:	These valves shall be full stroke exercised and timed during cold shutdowns as permitted by Technical Specification 3.5.3.2 and refueling outages.

Cold Shutdown Justification:	SI - CSJ-2
<u>Valves</u> :	SI-V93
Category:	В
Code Class:	2
Function:	(Active) Minimum Flow Common Recirculation Isolation for SI-P6A and SI-P6B
Test Requirements:	ISTC 4.2.1 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	Isolating this valve during power operations is impractical. Isolating this valve would render both safety injection pumps inoperable in the event of a safety injection actuation. The valve is designed to provide a minimum flow through the safety injection pumps during the time of an event when the RCS pressure is greater than the shutoff head of the SI pumps. Isolating this minimum flow path from both SI pumps would possibly damage the pumps and significantly affect the ability of these pumps to adequately perform their safety function.
Alternate Testing:	This valve shall be full stroke exercised and timed during cold shutdowns and refueling outages.

Cold Shutdown Justification:	SI - CSJ-3
<u>Valves</u> :	SI-V114
Category:	В
Code Class:	2
Function:	(Active) SI to Cold Leg Isolation Valve
Test Requirements:	ISTC 4.2.1 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	This value is required by Technical Specifications to be open and power removed from its operator during Modes 1, 2, and 3 (Technical Specification 4.5.2a) to ensure operability of this ECCS subsystem.
Alternate Testing:	This value shall be full stroke exercised and timed during cold shutdowns as permitted by Technical Specification 3.5.3.2 and refueling outages.

Cold Shutdown Justification:	SI - CSJ-4
<u>Valves</u> :	SI-V3, SI-V17, SI-V32, SI-V47
Category:	В
Code Class:	1
Function:	(Active) Accumulator Isolation Valves
Test Requirements:	ISTC 4.2.1 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Cold Shutdown Testing:	These normally open valves provide isolation between the pressurized accumulators and the reactor coolant system, when the reactor coolant system pressure is less than 1000 psig. These valves cannot be exercised during normal plant operation in Modes 1 or 2 (or in Mode 3 when the RCS is pressurized above 1000 psig), since Technical Specifications require them to be open, with power removed from their actuators. These valves cannot be exercised in Mode 4 or in Mode 5 when the accumulators are pressurized above 100 psig, since they are required to be closed, with power removed from their actuators by Technical Specifications.
Alternate Testing:	These valves shall be full stroke exercised and timed during cold shutdowns and refueling outages.

Refueling Justification:	SI - RJ-1
<u>Valves</u> :	SI-V71, SI-V96
Category:	C
Code Class:	2
Function:	(Active) SI Pumps Parallel Discharge Check Valves (Forward and Reverse Flow)
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Refueling Outage Testing:	Full stroke exercising these valves per the frequency described in ISTC 4.5.1 is not practical. Exercising these valves during plant operation would require initiating flow to the reactor coolant system using the safety injection pumps. During plant operation the reactor coolant system pressure is greater than the safety injection pump discharge pressure. These valves cannot be exercised during cold shutdowns because safety injection pump flow could result in low temperature overpressurization of the RCS, and is prohibited by Technical Specifications. To comply with Technical Specifications, it would require removal of the reactor vessel head in order to cause flow through a safety injection pump to the RCS.
Alternate Testing:	These valves shall be full open and closed exercised during refueling outages.

Refueling Justification: SI - RJ-2

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Valves:	SI-V118, SI-V122, SI-V126, SI-V130
Category:	AC
Code Class:	2
<u>Function</u> :	(Active) SI to Cold Leg Injection Valves (Forward Flow), Reactor Coolant Pressure Isolation Valves (Reverse Flow)
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Refueling Outage Testing:	Exercising these valves per the frequency described in ISTC 4.5.1 is not practical. Exercising these valves during plant operation would require initiating flow to the reactor coolant system using the safety injection pumps. During plant operation the reactor coolant system pressure is greater than the safety injection pump discharge pressure. These valves cannot be exercised during cold shutdowns because safety injection pump flow could result in low temperature overpressurization of the RCS, and is prohibited by Technical Specifications. To comply with Technical Specifications, it would require removal of the reactor vessel head in order to cause flow through a safety injection pump to the RCS.
Alternate Testing:	These valves shall be full open exercised during refueling outages, and shall be full closed exercised during refueling outages when performing their required reactor coolant pressure isolation valve leakage rate tests per Technical Specification 4.4.6.2.2.

Refueling Justification: SI - RJ-3

Valves:	SI-V140, SI-V144, SI-V148, SI-V152, SI-V156
Category:	AC
Code Class:	1 and 2
Function:	(Active) High Head Safety Injection (HHSI) Flow Path (Forward Flow)
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Refueling Outage Testing:	These valves are normally closed check valves. To quarterly forward flow exercise these check valves, normal charging would be redirected to the HHSI flowpath. Since normal charging water is heated prior to the entry into the RCS, inversion of this fluid would introduce relatively cold water to the RCS, thermally shocking these piping lines. Further, it would divert seal injection flow from the reactor coolant pumps (RCPs), possibly damaging RCP seals and bearings. Charging flow through these valves during cold shutdowns could cause low temperature overpressurization of the RCS.
Alternate Testing:	These check valves shall be full open and reverse flow exercised at refueling outages.

### Refueling Justification: SI - RJ-4

<u>Valves</u> :	Group 1 (Safety Injection Accumulator Check Valves): SI-V6, SI-V21, SI-V36, SI-V51
	Group 2 (Combined SI/RHR Check Valves): SI-V5, SI-V20, SI-V35, SI-V50
Category:	AC
Code Class:	1
Function:	(Active) Safety Injection Accumulator or Combined Safety Injection Accumulator and SI/RHR Injection Check Valves (Forward Flow), Reactor Coolant Pressure Isolation Valves (Reverse Flow)
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Refueling Outage Testing:	Group 1 valves cannot be full stroke exercised with flow quarterly during power operation because the safety injection accumulators have insufficient pressure to flow into the RCS. Additionally, Group 2 valves cannot be exercised quarterly during power operation because the SI and RHR pumps have insufficient pressure to flow into the RCS.
	Group 1 valves cannot be full stroke exercised with flow during cold shutdowns because of the restrictions placed on the accumulator isolation valves (SI-V3, SI-V17, SI-V32, and SI-V47). The accumulator isolation valves (see CSJ-5) cannot be exercised in Modes 4 or 5 when the accumulators are pressurized above 100 psig, since they are required to be closed, with power removed from their actuators by Technical Specifications. SI flow from the accumulators could also risk low temperature overpressurization of the RCS. Group 2 valves cannot be full stroke exercised with flow during cold shutdowns, since there is not sufficient flow to achieve the maximum accident condition flow rate.

Refueling Justification: SI - RJ-4 (Continued)

<u>Alternate Testing</u>: These Group 1 and 2 valves will either be monitored by a non-intrusive sampling program each cycle or at least one valve from each group shall be partially disassembled, examined, and manually exercised on a staggered sampling basis each refueling outage. All valves in each group shall be disassembled and examined at least once every 8 years, or the non intrusive testing shall be performed each refueling.

#### Disassembly

At each disassembly, it shall be verified that the disassembled valve is capable of full stroking and that its internals are structurally sound (no loose or corroded parts). In the event that the disassembled valves full stroke capability is in question, all valves in this group shall be disassembled per ISTC 4.5.4c.

Non-Intrusive Sampling Program (See Section 4.1.2 of Reference 2.19)

One valve from each group will be non-intrusively tested each refueling outage on a rotating schedule, and the balance of the group will be exercised by monitoring the pressure and level change in each accumulator. If a problem with the non-intrusive test analysis indicates that the operational readiness of the valve is affected, then all of the valves in the group must be non-intrusively tested.

The conditions of each low pressure accumulator discharge test (e.g., pressure, level, etc.) shall be repeatable in order to consider this exercise test on the remaining balance of valves in the group as "other positive means." Any system modification or significant change from the conditions established during the initial tests (e.g., OR01, OR02, and OR03) will be evaluated to determine the need to perform non-intrusive tests on all valves in the group (e.g., establish a new baseline).

#### **Closure Demonstration**

In addition to the non-intrusive testing or to the disassembly, reactor coolant pressure isolation valve leakage rate testing will be used to verify reverse closure at the frequencies specified in the Technical Specifications.

Refueling Justification: SI - RJ-5

<u>Valves</u> :	SI-V81, SI-V82, SI-V86, SI-V87, SI-V106, SI-V110
Category:	C
Code Class:	2
Function:	(Active) SI to Cold Leg & Hot Leg Injection Valves (Forward Flow)
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Refueling Outage Testing:	Exercising these valves per the frequency described in ISTC 4.5.1 is not practical. Exercising these valves during plant operation would require initiating flow to the reactor coolant system using the safety injection pumps. During plant operation the reactor coolant system pressure is greater than the safety injection pump discharge pressure. These valves cannot be exercised during cold shutdowns because safety injection pump flow could result in low temperature overpressurization of the RCS, and is prohibited by Technical Specifications. To comply with Technical Specifications, it would require removal of the reactor vessel head in order to cause flow through a safety injection pump to the RCS.
Alternate Testing:	These valves shall be full open and closed exercised during refueling outages.

Refueling Justification:	SI - RJ-6
<u>Valves</u> :	SI-V138 and SI-V139
<u>Category</u> :	В
Code Class:	2
Function:	(Active) Containment Isolation/High Head Safety Injection (HHSI) Isolation
Test Requirements:	ISTC 4.2.1 Full Stroke Exercise, Full Stroke Time (3 Months)
Basis for Refueling Outage Testing:	These valves cannot be exercised during normal plant operation or under certain Cold Shutdown alignments. Exercising these valves would direct normal charging pump flow to the high head safety injection flow path. Since normal charging water is heated by the RCS letdown in the regenerative heat exchanger, the inversion through the HHSI flow path introduces relatively cold water to the RCS, thermally shocking these piping lines. Further, it would divert seal injection flow from the Reactor Coolant Pumps (RCP), possibly damaging RCP seals and bearings. During most cold shutdowns, the reactor coolant pumps remain in service. These exercise tests should not be performed at that time in order to prevent loss of seal cooling flow, or to minimize pressure swings on the seal flow to the reactor coolant pumps.
Alternate Testing:	These valves shall be full stroke exercised and timed during refueling outages.

Cold Shutdown Justification:	SS - CSJ-1
Valves:	SS-V273
Category:	AC
Code Class:	2
Function:	(Active) Containment Isolation Valve
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Cold <u>Shutdown Testing</u> :	To full stroke exercise this normally closed check value in the reverse direction is impractical. It would require a containment entry during Modes 1-4 into a locked high radiation area. This would also require a system intrusion in order to test the value.
Alternate Testing:	This valve shall be full stroke exercised during cold shutdowns and refueling outages.

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Cold Shutdown Justification:	SW - CSJ-1
<u>Valves</u> :	SW-V1, SW-V3, SW-V28, and SW-V30
Category:	C
Code Class:	3
Function:	(Active) Service Water Pump Discharge Check Valves (Forward), Prevent Backflow on Idle Pump (Reverse)
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Cold Shutdown Testing:	Reverse flow closure testing of these valves requires that both service water pumps in the same train be running. The discharge isolation MOVs breaker is de-energized open (preventing closure when the pump is stopped). The related pump is then shutdown and the pump shaft is checked for reverse rotation. Conducting this test as described above results in both ocean service water pumps in the train being inoperable for the period during which the "C" or "D" pump discharge valve (SW-V22 or V31) is de-energized in the open position with both pumps in the train operating. Additionally, the cooling tower service water pump is also inoperable during this period. Following restoration of power, none of the three pumps in the affected train will automatically start; manual action would be required to restore service water flow in the affected train. With the diesel generator operating, a limited amount of time would be available to establish service water flow to the diesel generator jacket water cooler. These check valves are dual-plate wafer check valves. Each plate covers only one-half the flow area of the valve. The plates are hinged vertically and are equipped with a spring to assist in the closing of the valve. Testing of the four check valves in the manner described above, results in a water hammer transient as the backflow from the running pump seats the recently idled pump's discharge check valve. Disassemblies performed on these check valves do not indicate significant wear on the internal valve parts.
Alternate Testing:	SW-V1, SW-V3, SW-V28 and SW-V30 will be reverse flow closure tested during cold shutdowns and refueling outages. These valves will be forward flow tested with the reverse flow closure test which is done at cold shutdown intervals.

Cold Shutdown Justification	SW - CSJ-2
Valves:	SW-V15, SW-V17
Category:	В
Code Class:	3
Function:	(Active) PCCW Heat Exchanger Train A/B Isolation Valves
Test Requirements:	ISTC 4.2.1 Exercise (3 Months)
Basis for Cold Shutdown Testing:	The only time these valves are fully closed is either when isolating the PCCW heat exchanger for maintenance or during valve maintenance.
	Performing a quarterly open and close stroke time test significantly increases the probability of an RCP seal failure as these valves are in the common line from the PCCW heat exchanger. Loss of cooling to a PCCW train would impact the cooling to two reactor coolant pumps (motor and bearing coolers) which could result in an RCP seal failure.
Alternate Testing:	These valves will be part-stroke exercised at quarterly intervals and full stroke exercised and timed during cold shutdowns and refueling outages.

#### FIGURE F5 <u>IST PROGRAM (ADMINISTRATIVE)</u> <u>GENERAL RELIEF REQUESTS</u>

### SEABROOK STATION

### PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

#### FIGURE F5 <u>IST PROGRAM (ADMINISTRATIVE)</u> <u>GENERAL RELIEF REQUESTS</u>

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Relief Request:	AG-1
Function:	General requirements for the duties, qualifications and access for the authorized inspection agencies and inspectors
<u>Test Requirements</u> :	<ul> <li>ISTA – 1.5 and 2.1, Authorized Nuclear Inservice Inspector (ANII) requirements</li> <li>ISTA 1.5 states "Provisions for examination shall include access for the Inspector and examination personnel and equipment necessary to conduct the test or examination."</li> <li>ISTA 2.1 states the specific requirements for access for the Inspector, qualification of the Authorized Inspector. Supervisors and the duties of the Inspector.</li> </ul>
Basis for Relief:	The ASME OMb Code - 1997 Addenda to the 1995 ASME OM Code for Operation and Maintenance of Nuclear Power Plants, ISTA 1.5 eliminates reference to access provisions for the Inspector. Requirements for access provisions for examination personnel and equipment remain. ISTA 2.1, detailing specific requirements for access for the Inspector, qualification of the Authorized Inspection Agencies, Inspectors and Supervisors and the duties of the Inspector, has been deleted in its entirety. Furthermore, ANII review of inservice testing programs is usually far less comprehensive than the inspection performed on inservice inspection activities, for example. Normally, the inspection of inservice test programs consists mainly of a review of the inservice test plan and records review of tests and examinations performed. These inspections are also performed internally to the organization by Seabrook Station's Quality Assurance Program. There is no added quality-related benefit in duplicating these inspection efforts but there is a cost benefit in ensuring these inspection activities are not needlessly duplicated by two separate organizations.
Alternate Testing:	Specific requirements for access for the Inspector, qualification of the Authorized Inspection Agencies, Inspectors and Supervisors and the duties of the Inspector (ANII) shall be eliminated from the Inservice Testing Program.

# PART II

# SEABROOK STATION

# PUMP AND VALVE INSERVICE TESTING (IST) PROGRAM PLAN

# **EXCLUSION JUSTIFICATION DOCUMENT**

#### 1.0 INTRODUCTION

#### 1.1 **OBJECTIVE**

This document presents justification for excluding various ASME III Class 1, 2 and 3 pumps and valves from the Seabrook Station Inservice Testing (IST) Program Plan.

This document also contains justification for excluding various non-ASME, but safety-related pumps and valves from the IST Program Plan.

The reference documents used to develop the IST Program Plan are listed in Reference 2.4.

#### 1.2 DEFINITIONS

#### 1. <u>P&IDs</u>

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

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

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

#### 3. Passive Valves

Any valve which does not have to change position to accomplish its specific safety-related function. The reference code excludes valves used only for operating convenience and/or maintenance testing.

#### 4. Manual Valves

The reference code excludes passive manual valves from IST testing unless they have a leakage requirement (see ISTC 4.3) and/or remote position indication (see ISTC 4.1). Refer to Table ISTC 3.6-1.

#### 5. <u>Control Valves</u>

The reference code excludes valves which perform system control functions. Control valves that are self-contained (e.g., pressure regulating valves) are excluded. The program excludes other control valves unless they also perform a required system safety-related response function such as having a required fail-safe position.

6. <u>Power Operated Valves</u>

Power operated valves activated by remote switches by safety system signals, or by process signals to change position.

#### 1.3 **RESPONSIBILITIES**

Component Engineering and Test personnel maintain the Pump and Valve Inservice Testing (IST) Program.

#### 2.0 <u>REFERENCES</u>

- 1. ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition, 1996 Addenda.
- 2. Generic Letter No. 89-04, Guidance on Developing Acceptable Inservice Testing Programs, April 3, 1989.
- 3. Updated Final Safety Analysis Report (UFSAR), Seabrook Station.
- 4. Seabrook Station Pump and Valve Inservice Testing (IST) Program Plan.

#### 3.0 <u>SCOPE</u>

Various pumps and valves contained in this document were excluded from the IST Program Plan because they did not meet the following general conditions.

#### 3.1 PUMPS

The pumps included in the IST Program Plan are certain ASME III Code Class 2 and 3 safety-related pumps. These pumps must perform a specific function in shutting down the reactor, maintaining safe shutdown conditions or in mitigating the consequences of an accident, and must be provided with an emergency on site power source (See ISTB 1.1).

#### 3.2 VALVES

The valves included in the IST Program Plan are certain ASME III Code Class 1, 2, and 3 safety-related valves. The valves must perform a specific function in shutting down a reactor to the safe shutdown condition, maintaining safe shutdown conditions or in mitigating the consequences of an accident. Also covered, are pressure relief devices which protect systems or portions of systems which perform those specific functions (See ISTC 1.1).

#### 3.3 APPROACH

Active components are listed is UFSAR 3.9 in the following tables:

- 1. Table 3.9(B)-26, BOP Supplier Active Pumps
- 2. Table 3.9(B)-27, BOP Supplier Active Valves
- 3. Table 3.9(N)-10, NSSS Supplier Active Pumps
- 4. Table 3.9(N)-11, NSSS Supplier Active Valves

System P&IDs containing the above listed components were obtained. Portions of each system that performed a specific function in shutting down the reactor to a safe shutdown condition, maintaining safe shutdown or in mitigating the consequences of an accident were highlighted. Boundaries of these system portions were established. Components in these highlighted system portions were either included in the IST Program Plan, or listed in the Exclusion Justification Document.

Safe shutdown is defined as the minimum required for maintaining safe shutdown of the reactor under non-accident conditions, and does not include shutdown capabilities in the event of a fire. The safe shutdown design basis for Seabrook Station is Hot Standby per UFSAR 5.4.7.2.i. Reference UFSAR 7.4, Systems Required for Safe Shutdown.

#### 3.4 OTHER COMPONENTS NOT INCLUDED

The following HVAC Systems, with the exception of the containment penetration valves, are not included in the scope of the Seabrook Station IST Program Plan:

CBA - Emergency Switchgear, Battery Room, and Cable Spreading Room Ventilation System

PAH - Primary Air Handling System

EAH - Enclosure Air Handling System

FAH - Fuel Storage Building Heating and Ventilation

These systems and other HVAC systems are excluded from the IST Program Plan because:

- 1. these systems are tested in accordance with Technical Specification requirements,
- 2. other system operation is demonstrated by monitoring area temperatures in accordance with Technical Specifications requirements,
- 3. these systems contain dampers and fans, and
- 4. these systems contain self-contained, skid mounted chillers or air conditioning units whose operation is demonstrated by satisfactory system operation.

Fire Protection Systems, with the exception of the containment penetration valves, are not included in the scope of the IST Program Plan. They are not listed in this document.

Certain skid-mounted pumps, valves and component sub-assemblies that are adequately tested as part of the major component are also excluded from the scope of the IST Program in accordance with provisions of ISTB 1.2.c and ISTC 1.2.c. See IST Program Plan Section 3.7 for additional information on the scope of skid-mounted components.

#### 3.5 COMPONENT EXCLUSION JUSTIFICATION TABLES

Figure F6 includes the tables for systems which have components that have been excluded from the IST Program Plan.

#### 4.0 <u>PUMPS</u>

#### 4.1 PUMP EXCLUSION

Pumps which are excluded from the IST Program Plan are contained in the applicable system or component notes/remarks of Figure F6, IST Exclusion Justification Document Tables.

Bases for which pumps are excluded from the IST Program Plan include the following:

- 1. The pump is not ASME Code Class 2 or 3, or does not perform a specific ISTB 1.1 safety-related function.
- 2. The pump does not have an emergency on site power supply (ISTB 1.1).
- 3. The pump is supplied with emergency power solely for operating convenience (ISTB 1.2b).
- 4. The pump is associated with a skid system (e.g., diesel generator engine driven pumps or fuel oil transfer pumps) where satisfactory operation of the unit demonstrates satisfactory operation of the pump (ISTB 1.2c).
- 5. The pump is associated with a Fire Protection system (e.g., non-Code, but important to safety). These pumps are tested separately in accordance with other Seabrook Station programs.
- 6. Pumps that are either gear or shaft driven are excluded as their operation is assessed with the satisfactory operation of the associated equipment.
- 7. Drivers are excluded (ISTB 1.2a) unless they are an integral unit (e.g., canned motor assembly like the boric acid transfer pumps) or part of a vertical line shaft pump (e.g., residual heat removal, service water, etc.).

#### 5.0 <u>VALVES</u>

#### 5.1 VALVE EXCLUSION

Valves which are excluded from the IST Program Plan are contained in the applicable system or component notes/remarks of Figure F6, IST Exclusion Justification Document Tables. The valve number and the drawing coordinates uniquely define the valve. The noun name serves only to provide information regarding the function of the valve. Changes in valve noun names are considered as editorial changes. These will be periodically updated; however, they should not be the sole reason for a revision

Bases for which valves are excluded from the IST Program Plan include the following:

- 1. Valves used only for operating convenience such as manual vent, drain, instrument, and test valves (ISTC 1.2a) are not listed in this document.
- 2. Valves used for system control such as self contained pressure regulating valves (ISTC 1.2b) or that do not have a required ISTC 1.1 safety-related function.
- 3. Valves used for maintenance isolation or for thermal relief protection during maintenance isolation (ISTC 1.2), or if no credit for overpressure protection for certain thermally induced scenarios is assumed in the design bases.
- 4. External control and protection systems responsible for sensing plant conditions and providing signals for valve operation (ISTC 1.2c) are not listed in this document.
- 5. Passive valves that do not have a leakage requirement (ISTC 4.3) or remote position indication (ISTC 4.1).
- 6. Valves that are not ASME Code Class 1, 2, or 3 or that are ASME Code Class but do not perform a specific ISTC 1.1 safety-related function.
- 7. Valves that are skid-mounted and whose function is demonstrated by the satisfactory operation of the associated component (ISTC 1.2c).
- 8. Valves that are integral with a component (e.g., a seal cooler assembly on an ISTB in-scope pump, or an integral relief valve on a positive displacement pump). Satisfactory operation of the valve is integral with the satisfactory operation of the component.
- 9. Valves that are in the Fire Protection System (e.g., non-safety related portion). These components are tested in accordance with other Seabrook Station programs.
- 10. Valves whose function is adequately demonstrated by another program (e.g., the INPO Check Valve Program).

#### 6.0 COMPONENT EXCLUSION JUSTIFICATION TABLE NOMENCLATURE

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

Valve Type	Actuator Type
BFV - Butterfly Valve BLV - Ball Valve	ADA - Air/Diaphragm APA - Air/Piston
CHV - Check Valve	HOA - Hydraulic
DIV - Diaphragm Valve	MAA - Manual MOA - Motor
GLV - Globe Valve	
GTV - Gate Valve	SEA - Self SOA - Solenoid
PGV - Plug Valve	
C C	Positions
REV - Relief Valve	
	O - Open
SAV - Saunders Weir Valve	1
SCV - Stop Check Valve	C - Closed
SEV - Safety Valve	
<u> </u>	LO - Locked Open
TMV - Three Way Valve	*
2	LC - Locked Closed
	TH - Throttled

DE - Normal position depends on system condition.

### 7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT

Valve Number	Unique number assigned to each valve, and a noun name of the component within the system.
Class and Coord	The ASME component classification (Class 1, 2, or 3), non- ASME component classification (N), ANSI component classification (e.g., Class 3*) and the component location on the P&ID.
Valve (CAT.)	Valve category as defined in ISTC 1.4.
Size (In.) and Type	Valve size is the nominal diameter of the valve in inches.
	Valve type is the specific type of valve, as abbreviated in Section 6.0, "Component Exclusion Justification Table Nomenclature."
Actu Type	The type of Actuator used to operate the valve, as abbreviated in Section 6.0, "Component Exclusion Justification Table Nomenclature."
Positions NRM SAF FAL	The expected valve position during normal plant operation, the safety position and fail-safe position, as abbreviated in Section 6.0, "Component Exclusion Justification Table Nomenclature."
Justification	Statement providing the basis for exclusion from the IST Program Plan.

	System	<u>P&amp;ID No.</u>	Page No.
1.	Auxiliary Steam (AS)	1-AS-D20569	N/A
2.	Containment Air Handling (CAH)	1-MAH-D20504	N/A
3.	Containment Air Purge (CAP)	1-MAH-D20504	N/A
4.	Containment Spray (CBS)	1-CBS-D20233 1-SI-D20446 1-SI-D20447	2-F6.1
5.	Component Cooling Water (CC)	1-CC-D20205 1-CC-D20206 1-CC-D20207 1-CC-D20209 1-CC-D20211 1-CC-D20212 1-CC-D20213	2-F6.2

2-7.1

70	COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT	Continued)
1.0	COMI ONENT EXCEDDION JOBTH IONITON HIBEET OTALLI	0011011000)

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System	P&ID No.	Page No.
6. Combustible Gas Control (CGC)	1-CGC-D20612	2-F6.4
7. Condensate (CO)	1-CO-D20426	2-F6.7
8. Containment Online Purge (COP)	1-MAH-D20504	2-F6.8
9. Chemical & Volume Control (CS)	1-CS-D20722 1-CS-D20725 1-CS-D20726 1-CS-D20729 1-RH-D20662 1-RH-D20663	2-F6.9
10. Diesel Generator (DG)	1-DG-D20458 1-DG-D20459 1-DG-D20460 1-DG-D20461 1-DG-D20462 1-DG-D20463 1-DG-D20464 1-DG-D20465 1-DG-D20466 1-DG-D20467	2-F6.18
11. Demineralized Water (DM)	1-DM-D20349 1-DM-D20352	2-F6.50
12. Fire Protection (FP)	1-FP-D20271	N/A
13. Feedwater (FW)	1-CO-D20426 1-FW-D20686 1-FW-D20687 1-FW-D20688 1-FW-D20690 1-FW-D20691	2-F6.51
14. Instrument Air (IA)	1-IA-D20640 1-IA-D20643 1-IA-D20644 1-IA-D20645	2-F6.59
15. Leak Detection (LD)	1-LD-D20864	N/A

# 7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT (Continued)

	System	P&ID No.	<u>Page No.</u>
16.	Main Steam (MS)	1-MS-D20580 1-MS-D20581 1-MS-D20582 1-MS-D20583 1-MS-D20587	2-F6.62
17.	Nitrogen Gas (NG)	1-NG-D20135 1-NG-D20136	2-F6.63
18.	Reactor Coolant (RC)	1-RC-D20841 1-RC-D20842 1-RC-D20843 1-RC-D20844 1-RC-D20845 1-RC-D20846 1-SS-D20518 1-WLD-D20218	2-F6.64
19.	Residual Heat Removal (RH)	1-RH-D20662 1-RH-D20663	2-F6.65
20.	Reactor Makeup Water (RMW)	1-CS-D20729 1-RMW-D20360	2 <b>-</b> F6.66
21.	Service Air (SA)	1-SA-D20652	N/A
22.	Steam Generator Blowdown (SB)	1-RC-D20841 1-RC-D20842 1-RC-D20843 1-RC-D20844	2-F6.67
23.	Spent Fuel Pool Cooling and Cleanup (SF)	1-SF-D20482 1-SF-D20483 1-SF-D20484 1-SW-D20796	2-F6.69
24.	Safety Injection (SI)	1- <b>SI-D2</b> 0446 1- <b>SI-D2</b> 0447 1- <b>SI-D2</b> 0450	2-F6.70
25.	Sample (SS)	1-SS-D20520	N/A
26.	Service Water (SW)	1-SW-D20794 1-SW-D20795 1-SW-D20796	2-F6.71

### 7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT (Continued)

System	P&ID No.	Page No.
27. Vent Gas (VG)	1-VG-D20780	N/A
28. Waste Gas (WG)	1-WG-D20773	2-F6.73
29. Waste Processing Liquid Drains (WLD)	1-WLD-D20218 through 1-WLD-D20229	2-F6.74

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 SYSTEM:
 CBS

 PID No.:
 D20233

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	s FAL	
CBS-V35	2 (G-8)		4.0 Gate	Manual	С	С		
RWST to SF pool makeup isolation of function as described in ISTC 1.1. A procedures, this is a short evolution i operated in this manner need not be OS1215.07	lthough open n terms of tim	ed for SF pool	l makeup during ab G 1482, 2.4.2 guida	normal operating ance, a valve				
CBS-V61	3		4.0	Manual				
	(B-4)		Diaphragm					
RWST to SF pool makeup isolation v function as described in ISTC 1.1. A procedures, this is a short evolution i operated in this manner need not be OS1215.07	lthough open n terms of tim	ed for SF pool ne. Per NURE	l makeup during ab G 1482, 2.4.2 guida	normal operating ance, a valve				

#### SYSTEM: CC PID No.: D20205

# FIGURE F6 **EXCLUSION JUSTIFICATION** DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	-	Position: SAF	FAL			
CC-V1267	3 (A-8)		16.0 Butterfly	Manual	С					
PCCW return header cross Passive valve with only safe program since there is no re	ty function being to ma	intain CC pro	essure boundary. Ex	cluded from IST						
CC-V1268	3		24.0	Manual	0			· · · · · · · · · · · · · · · · · · ·		 
	(F-11)		Butterfly							
valve. Passive valve with on	y safety function being	i to maintain	CC pressure bounda	ry. Excluded						
valve. Passive valve with on from IST program since the DCR 94-45	y safety function being	i to maintain	CC pressure bounda	ry. Excluded References: Manual	с				 	 
valve. Passive valve with on from IST program since the DCR 94-45	y safety function being re is no remote position	i to maintain	CC pressure bounda or this passive valve.	References:	С				 	 
valve. Passive valve with on from IST program since the DCR 94-45 CC-V1272 PCCW head tank cross-cor Passive valve with only safe	y safety function being re is no remote position 3 (D-8) unect manual isol. Adm ty function being to ma	to maintain n indication fo ninistratively c intain CC pre	CC pressure bounda or this passive valve. 4.0 Butterfly controlled locked clos essure boundary. Exc	References: Manual red valve. cluded from IST	с				 ,	 
valve. Passive valve with on from IST program since the DCR 94-45 <b>CC-V1272</b> PCCW head tank cross-cor Passive valve with only safe program since there is no re	y safety function being re is no remote position 3 (D-8) unect manual isol. Adm ty function being to ma	to maintain n indication fo ninistratively c intain CC pre	CC pressure bounda or this passive valve. 4.0 Butterfly controlled locked clos essure boundary. Exc	References: Manual red valve. cluded from IST	c	0			 	 
PCCW CC-E-17A heat exc valve. Passive valve with on from IST program since the DCR 94-45 CC-V1272 PCCW head tank cross-cor Passive valve with only safe program since there is no re CC-V486	y safety function being re is no remote position 3 (D-8) Inect manual isol. Adm ty function being to ma mote position indicatio	n indication for n indication for ninistratively of nintain CC pro- n for this pas	CC pressure bounda or this passive valve. 4.0 Butterfly controlled locked clos essure boundary. Ex ssive valve. Referenc	References: Manual ed valve. cluded from IST es: DCR 94-45	_	0			 	 
valve. Passive valve with on from IST program since the DCR 94-45 <b>CC-V1272</b> PCCW head tank cross-cor Passive valve with only safe program since there is no re	y safety function being re is no remote position 3 (D-8) Intect manual isol. Adm ty function being to ma mote position indicatio NNS (B-6) ler relief valve. This valve owever, this valve is n	n indication for n indication for n indication for intain CC pre- n for this pass C lve is credited on-ASME an	CC pressure bounda or this passive valve. 4.0 Butterfly controlled locked clos essure boundary. Exe ssive valve. Referenc 3.0 Relief/Safety d to provide adjacent d therefore excluded	References: Manual ed valve. cluded from IST es: DCR 94-45 Self piping OPP for from IST. Will	_	0			 	 

# SYSTEM: CC PID No.: D20211

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	I NRM	Position: SAF	s FAL			
CC-V1266	3 (A-9)		16.0 Butterfly	Manual						
PCCW return header cross- Passive valve with only safet program since there is no rer	connect manual isol.	intain CC pr	ely controlled locked essure boundary. Exc	cluded from IST						
CC-V1269	3		24.0	Manual	0			· · · · ·		
	(F-11)		Butterfly							
DUN 34-40										
DUR 34-40										
CC-V1273 PCCW head tank cross-coni	3 (D-9) nect manual isol. Adm	inistratively	4.0 Butterfly controlled locked clos	Manual ed valve.	С	<u> </u>			 	
CC-V1273 PCCW head tank cross-coni Passive valve with only safety	(D-9) nect manual isol. Adm y function being to ma	intain CC pro	Butterfly controlled locked clos essure boundary. Exc	ed valve. cluded from IST	C	<u>.</u>	<u> </u>		 	
CC-V1273 PCCW head tank cross-coni Passive valve with only safety program since there is no rem	(D-9) nect manual isol. Adm y function being to ma	intain CC pro	Butterfly controlled locked clos essure boundary. Exc	ed valve. cluded from IST	С	0				
CC-V1273 PCCW head tank cross-com Passive valve with only safety program since there is no rer	(D-9) nect manual isol. Adm y function being to ma mote position indicatio	intain CC pro n for this pas	Butterfly controlled locked clos essure boundary. Exc ssive valve. Reference	ed valve. cluded from IST es: DCR 94-45	-	0			 	
DCR 94-45 CC-V1273 PCCW head tank cross-com Passive valve with only safety program since there is no rer CC-V120 CC containment return header penetrations X-22 & X-23.Ho be tested under other App. B 960023, revision 0.	(D-9) nect manual isol. Adm y function being to ma mote position indicatio NNS (A-10) er relief valve. This va wever, this valve is no	intain CC pro n for this pas C C lve is credited	Butterfly controlled locked clos essure boundary. Exc ssive valve. Reference 3.0 Relief/Safety d to provide adjacent d therefore excluded f	ed valve. cluded from IST es: DCR 94-45 Self piping OPP for from IST. Will	-	0			 	

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Valve Coord (CAT		Actuator Type		Positions SAF	FAL	 	
CGC-V56	NNS (D-5)	Globe	Manual					
when the hydrogen analyzer addresses a flow path throu containment air sample is no	sel isolation valve. This valve is is in service. Note that the an gh the sample vessel, however ot a safety related function. This 07. References: P&ID B20612,	alyzer operating procec collection of the post a function will be tested	iure (OS1023.71) ccident periodically using					
CGC-V57	NNS		Manual					
	(D-5)	Globe						
when the hydrogen analyzer addresses a flow path throu containment air sample is n	sel isolation valve. This valve is is in service. Note that the an gh the sample vessel, however ot a safety related function. This 07. References: P&ID B20612,	alyzer operating proced collection of the post a function will be tested OS1023.71, FSAR Se	dure (OS1023.71) ccident periodically using ction 6.2.5.				 	 
CGC-V58	2 (E-6)	0.75 Globe	Manual	С	С			
when the hydrogen analyzer addresses a flow path throu containment air sample is n Chem. Procedure CS0925.0	sel isolation valve. This valve is is in service. Note that the an- gh the sample vessel, however ot a safety related function. This D7. Serves passive function of is d from IST. References: P&ID	alyzer operating procec collection of the post a function will be tested solating NNS piping. N	dure (OS1023.71) ccident   periodically using o position					
CGC-V59	2*	0.75	Manual	С	С		 	
	(E-5)	Globe						
when the hydrogen analyzer addresses a flow path throu containment air sample is n Chem. Procedure CS0925.0	sel isolation valve. This valve is is in service. Note that the an- gh the sample vessel, however ot a safety related function. This 07. Serves passive function of is s 2, therefore excluded from IST 6.2.5.	alyzer operating proced collection of the post a planction will be tested solating NNS piping. N	lure (OS1023.71) ccident   periodically using o position					

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# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Valv Coord (CA		Actuator Type		Position: SAF			
CGC-V60	NNS (D-5)	Globe	Manual					
when the hydrogen analyzer addresses a flow path throu containment air sample is ne	sel isolation valve. This valve is is in service. Note that the ar gh the sample vessel, however ot a safety related function. Thi J7. References: P&ID B20612	alyzer operating proced collection of the post a s function will be tested	lure (OS1023.71) ccident periodically using					
CGC-V61	NNS (D-5)	Globe	Manual				 	
when the hydrogen analyzer addresses a flow path throu containment air sample is no	sel isolation valve. This valve is is in service. Note that the ar gh the sample vessel, however ot a safety related function. Thi 07. References: P&ID B20612 2	alyzer operating proceed collection of the post ac s function will be tested	lure (OS1023.71) ccident periodically using	C	C	 		
CGC-V02	_ (C-6)	Globe		-	-			
when the hydrogen analyzer addresses a flow path throu containment air sample is no Chem. Procedure CS0925.0	sel isolation valve. This valve is is in service. Note that the ar gh the sample vessel, however of a safety related function. Thi I7. Serves passive function of d from IST. References: P&ID	alyzer operating proced collection of the post ac s function will be tested solating NNS piping. N	lure (OS1023.71) ccident periodically using o position					
CGC-V63	2*	0.75	Manual	С	С			
when the hydrogen analyzer addresses a flow path throu containment air sample is no Chem. Procedure CS0925.0	(C-5) sel isolation valve. This valve is is in service. Note that the ar gh the sample vessel, however of a safety related function. This i7. Serves passive function of i , therefore excluded from IST.	alyzer operating proced collection of the post ac function will be tested solating NNS piping. N	lure (OS1023.71) ccident periodically using o position					

 SYSTEM:
 CGC

 PID No.:
 B20612

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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Valve Number Remarks	Class and Val Coord (CA		Actuator Type	Positions NRM SAF FAL	
CGC-V64	NNS (E-5)	Globe	Manual		
when the hydrogen analyz addresses a flow path thro containment air sample is	essel isolation valve. This valve er is in service. Note that the a bugh the sample vessel, howeve not a safety related function. Th 5.07. References: P&ID B20612	is normally closed and re- inalyzer operating proced or collection of the post ac- nis function will be tested	ure (OS1023.71) ccident periodically using		
CGC-V65	NNS		Manual		
	(E-6)	Globe			
	not a safety related function. Th 5.07. References: P&ID B20612 NNS				
CGC-400	(C-5)	Globe	in a factor		
when the hydrogen analyz addresses a flow path thro containment air sample is	essel isolation valve. This valve i er is in service. Note that the a bugh the sample vessel, howeve not a safety related function. Th 5.07. References: P&ID B20612	nalyzer operating proced r collection of the post ac is function will be tested	ure (OS1023.71) cident periodically using		
CGC-V67	NNS		Manual		
	(C-5)	Globe			
when the hydrogen analyze addresses a flow path thro containment air sample is	essel isolation valve. This valve i er is in service. Note that the a rugh the sample vessel, howeve not a safety related function. Th 5.07. References: P&ID B20612	nalyzer operating procedure r collection of the post ac is function will be tested	ure (OS1023.71) cident periodically using		

### SYSTEM: CO PID No.: D20426

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	AL	
CO-V142	3 (F-9)	В	24.0 Gate	Manuai	С	DE		
CST to startup aux feedwater pun SC-3 to NNS interface isolation), startup feedwater pump suction. ( included in the IST program scop this valve to be not active, as its u shutdown to hot standby condition	and is opened to Operation of this we via SITR Rev 1 ise would be for c	align the CS valve required 0. Subsequer peration beyo	T protected water vo by TS 3.7.1.2 This nt Engineering review and the plant's licens	olume to the valve was w determined				
CO-V340	NNS (D-6)	С	8.0 Check	Self	С	0		
Startup aux feedwater pump sucti startup feed pump is operating. T this valve is non-ASME and there program. References: P&ID D204	his valve does no fore excluded fro	it have a safel	ty related close funct	tion.However,				
CO-V430	NNS	С	0.75	Self	С	0		
	(A-6)		Relief/Safety					

# SYSTEM: COP PID No.: D20504

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# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	ositions SAF	FAL		
COP-V7	NNS		4.0	Motor				
	(F-10)		Butterfly					
COP Exhaust throttle valve ISTC 1.1.	used for fine control. N	INS valve with	n no safety function	as described in				
COP-V8	NNS		8.0	Motor			 	
	(F-10)		Butterfly					
COP Exhaust throttle valve in ISTC 1.1.	used for coarse contro	ol. NNS valve v	with no safety functi	on as described				
COP-V11	NNS		8.0	Manual	 			 
	(F-10)		Gate					
COP Exhaust valve PAH-F	-16 bypass. NNS valve	with no safet	y function as descri	bed in ISTC 1.1.				
COP-V12	NNS		8.0	Manual	 			 
	(F-10)		Gate					
COP Exhaust valve PAH-F	-16 inlet. NNS valve wi	th no safety fu	inction as described	i in ISTC 1.1.				

# SYSTEM: CS PID No.: D20662

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF	AL	
CS-V496	2 (B-7)	С	3.0 Check	Self	0	с		
CVCS purification return to which is open during RHR o References: P&ID RH-D206 However, upon further Engir be not active, and should be the manual valve CS-V828 o be added to the IST Program	operation and must clos 562. This valve was ac neering review conduct removed from the IST upstream of CS-V496 v	se following a Ided to the IS ed for EWR 9 Program. TI	failure of the NNS T program in Rev 1 97-095, this valve v his Eng. Evaluation	CS piping. 0 to the SITR. vas determined to determined that				
CS-V828	2		3.0	Manual	С	С		
	(C-7)		Gate					
cooling only and do not occu Station, this valve will not be as described in ISTC 1.1 for with its importance to safety	tested under the IST p this station. Will be te	brogram as it sted under ot	does not perform a	safety function	0	c		
CS-V497	2 (B-7)	C	Check	Sen	0	U		
CVCS purification return to I which is open during RHR o References: P&ID RH-D206 However, upon further Engir be not active, and should be the manual valve CS-V829 u be added to the IST Program	peration and must clos 62. This valve was ad neering review conduct removed from the IST upstream of CS-V497 v	e following a ded to the IS ed for EWR 9 Program. Th	failure of the NNS T program in Rev 1 )7-095, this valve w his Eng. Evaluation	CS piping. 0 to the SITR. vas determined to determined that				•
CS-V829	2		3.0	Manual	С	С		
	(B-7)		Gate					
RHR Train B to CVCS Purifi opened to initiate Train B R- piping break upstream to pre considered active per EWR cooling only and do not occu Station, this valve will not be as described in ISTC 1.1 for with its importance to safety	IR slipstream flow. It is serve RHR inventory v 97-095. But, since slip ir while in Hot Standby, tested under the IST p this station. Will be test	s required to i while in slipstr stream opera which is the rogram as it o sted under oti	be closed in the eve eam operation and tions are used durin licensing basis for does not perform a	ent of a NNS therefore is ng shutdown Seabrook safety function				

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# SYSTEM: CS PID No.: D20722

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

√alve Number Remarks	Class and Coord	Size (in Valve and (CAT) Type	.) Actuator Type	Positions NRM SAF	
CS-Various1					
Valves which perform an acc 149, 150, 142,143, 144, 177 which are included within the	7, 180, 178, 179, 181 &	182. There are no other			
CS-HCV123	2	1.0	Air/Diaphragm	c c	 
	(C-11)	Giobe			
Excess letdown HX flow con boundary isolation is provide UFSAR 7.4, Table 7.4-1.					
CS-HCV182	2	3.0	Air/Diaphragm		
	(C-6)	Globe			
function provided by this valu flow may be adjusted using the function as described in IST	the needle valves outsi	de containment. This vai	ve serves no safety Motor		 
CS-HCV189	∠ (F-9)	2.0 Globe			
	· · ·				
Letdown flow control valve. is isolated by upstream valve described in ISTC 1.1					
CS-HCV190	2	2.0	Motor		
	(F-9)	Globe			
Letdown flow control valve. I is isolated by upstream valve described in ISTC 1.1	Letdown is not used du s RC-LCV 459 and 46	ring DBA or safe shutdo 0. This valve serves no	wn conditions. Letdown safety function as		
CS-V145	2	3.0	Air/Diaphragm		
	(F-10)	Globe	-		
Letdown Regen HX isolation	valve. Letdown is not	used during DBA or safe	shutdown conditions.		
etdown is isolated by upstre	eam valves RC-LCV 45	i9 and 460. This valve s	erves no safety function		

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

/alve Number	Class and	Valve	Size (in.) and	Actuator	Positior	S		
Remarks	Coord	(CAT)	Туре	Туре	NRM SAF	FAL	 	
CS-V170	2 (C-9)		1.0 Three way	Air/Diaphragm				
Excess letdown HX outlet 3 RCS boundary isolation is p UFSAR 7.4, Table 7.4-1.	way divert valve server rovided by upstream C	s no safety fu lass 1 valves	nction as described CS-V175 and V17	l in ISTC 1.1 as 6. References:				
CS-V184	2 (D-12)		0.75 Check	Self			 	
overpressurization of peneti	ation X-33 due to the	rmai expansio	on of trapped fluid u	nder accident				
based on CS-V177 and 180 7.4, 9.3.4, SS-EV-960023,	/184 is not needed for i inclusion to IST. Refe	this function a	and may be exclude	d from IST ections 5.4.7,			 	 
based on CS-V177 and 180 7.4, 9.3.4, SS-EV-960023, CS-Various5 The CVCS purification syst and is excluded from the IS are listed in the UFSAR act	184 is not needed for i inclusion to IST. Refe Rev. 0, EWR 97-095. em depicted on this P8 T scope per ISTC 1.1.	this function a erences: P&II LID is not req There are no	and may be exclude D D20722, FSAR S uired for SSD or ac valves shown on th	ections 5.4.7, cident mitigation his drawing which			 	
based on CS-V177 and 180 7.4, 9.3.4, SS-EV-960023, <b>CS-Various5</b> The CVCS purification syst and is excluded from the IS are listed in the UFSAR act 5.4.7, 7.4, 9.3.4.	184 is not needed for i inclusion to IST. Refe Rev. 0, EWR 97-095. em depicted on this P8 T scope per ISTC 1.1.	this function a erences: P&II LID is not req There are no	and may be exclude D D20722, FSAR S uired for SSD or ac valves shown on th	ections 5.4.7, cident mitigation his drawing which			 	 
based on CS-V177 and 180 7.4, 9.3.4, SS-EV-960023, <b>CS-Various5</b> The CVCS purification syst and is excluded from the IS are listed in the UFSAR act 5.4.7, 7.4, 9.3.4. <b>CS-V502</b> This valve was to be used a piping during RHR slipstrea used for this purpose instea	184 is not needed for i inclusion to IST. Refe Rev. 0, EWR 97-095. em depicted on this P8 T scope per ISTC 1.1. ve valve tables 3.9(B)- 2 (B-4) s the SC2/NNS piping m operations. Howeve d to preserve RHR inv	this function a erences: P&II There are no 27 or 3.9(N)- B boundary in i r, RH-V18 an	and may be exclude D D20722, FSAR S uired for SSD or ac valves shown on th 11. References: UI 3.0 Gate the event of a break ad RH-V19 which ar	ections 5.4.7, cident mitigation his drawing which FSAR Sections Manual in the NNS e upstream are			 	 
conditions. Therefore, CS-V based on CS-V177 and 180 7.4, 9.3.4, SS-EV-960023, <b>CS-Various5</b> The CVCS purification syst and is excluded from the IS are listed in the UFSAR act 5.4.7, 7.4, 9.3.4. <b>CS-V502</b> This valve was to be used a piping during RHR slipstrea used for this purpose instea function as described in IST <b>CS-V834</b>	184 is not needed for 1 inclusion to IST. Refe Rev. 0, EWR 97-095. em depicted on this P8 T scope per ISTC 1.1. ve valve tables 3.9(B)- 2 (B-4) s the SC2/NNS piping m operations. Howeve d to preserve RHR inv 'C 1.1. NNS	this function a erences: P&II There are no 27 or 3.9(N)- B boundary in i r, RH-V18 an	and may be exclude D D20722, FSAR S ulred for SSD or ac o valves shown on th 11. References: Ul 3.0 Gate the event of a break of RH-V19 which an ofore this valve serve 0.75	ections 5.4.7, cident mitigation his drawing which FSAR Sections Manual in the NNS e upstream are			 	 
based on CS-V177 and 180 7.4, 9.3.4, SS-EV-960023, <b>CS-Various5</b> The CVCS purification syst and is excluded from the IS are listed in the UFSAR act 5.4.7, 7.4, 9.3.4. <b>CS-V502</b> This valve was to be used a piping during RHR slipstrea used for this purpose instea function as described in IST	184 is not needed for f inclusion to IST. Refe Rev. 0, EWR 97-095. Erm depicted on this P8 T scope per ISTC 1.1. ve valve tables 3.9(B)- 2 (B-4) s the SC2/NNS piping m operations. Howeve d to preserve RHR inv 'C 1.1. NNS (B-4)	this function a erences: P&II There are no 27 or 3.9(N)- B boundary in f r, RH-V18 an entory. There	and may be exclude D D20722, FSAR S ulred for SSD or ac valves shown on th 11. References: Ul 3.0 Gate the event of a break d RH-V19 which an offore this valve serve 0.75 Relief/Safety	ections 5.4.7, cident mitigation his drawing which FSAR Sections Manual in the NNS e upstream are as no safety Self				 

Sec. 2

SYSTEM: CS PID No.: D20724

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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

#### **CS-Various6**

The letdown degasifier and associated components depicted on this P&ID are not required for SSD or accident mitigation and are excluded from the IST scope per ISTC 1.1. There are no valves shown on this drawing which are listed in the UFSAR active valve tables 3.9(B)-27 or 3.9(N)-11. References: UFSAR Sections 5.4.7, 7.4, 9.3.4.

#### SYSTEM: CS PID No.: D20725

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

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Valve Number Remarks	Ciass and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL		
CS-FCV121	2 (D-12)		3.0 Globe	Air/Diaphragm				 	
Charging flow control valve upstream of this valve. Pos V210,219,220 and 221 at 0 7.4. CS-FCV121 has no s	ition of the FCV is incon Charging Pump discharg	sequential du le are also us	ring DBA. Manua ed for safe shutdo	l valves CS-					
CS-P128	2 (C-7)	<u></u>						 	
The Charging system PDP considered active. They ar	and its subcomponents e not relied upon to prov	are not powe ide a safety fu	red from a safety inction as describ	bus and are not bed in ISTC 1.1					
CS-P243A	2 (A-10)								 
The motor driven Charging pressure falls below 8 psig pump (run off the CCP whi the CCP is not running and CCP. It is excluded per IS	(CCP gear driven pump le it is running). Satisfac l it should be treated as a	not running). tory operation an integral ski	It is a backup to of this pump is d d-mounted comp	the gear driven letermined when					
CS-P243B	2 (C-10)	· · · · ·							
The motor driven Charging pressure falls below 8 psig pump (run off the CCP whi the CCP is not running and CCP. It is excluded per IS	Pump Lube Oil Pump is (CCP gear driven pump le it is running). Satisfac I it should be treated as a	not running). tory operation an integral ski	It is a backup to of this pump is d d-mounted comp	the gear driven letermined when					
CS-V205	2 (D-6)		2.0 Globe	Motor	С				
PDP Minimum flow valve. are not considered active. ISTC 1.1	The PDP and its subcon		not powered from						

#### CS SYSTEM: PID No.: D20725

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	-	AL		
CS-V230	2 (F-11)		1.0 Check	Self						
Chemical mixing tank outlet check controlled use of this valve by Con manual valve CS-V229 upstream section 2.4.2 guidance this valve is of time and administratively contro 1.1.	trol Room due to of this check val s not considered	o reactivity chi ve is SC2/NN I active since i	ange potential. Norr S boundary. Per NU it is repositioned for	nally closed IREG 1482 a short period						
CS-V492	2		0.75	Self						
	(D-6)		Relief/Safety							
PDP discharge piping relief valve. bus and are not considered active described in ISTC 1.1										

described in ISTC 1.1

SYSTEM: CS PID No.: D20726

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Position SAF	s FAL	 		
CS-Various2	2									
The RCP seal water return required for SSD or acciden be removed from the IST P required for CCP min flow of are within the IST scope as	nt mitigation and are not rogram. Only that portion cooling is included within	within the IST n of the seal w the IST scope	scope per ISTC ater return pipin e. RCP Seal wat	1.1, and should g which is						
CS-V10	2		0.75	Air/Diaphragm	0					
	(A-12)		Globe							
RCP #1 seal water return is mitigation, and is therefore 9.3.4, 5.4.7, 7.4.	solation valve. Seal water excluded per ISTC 1.1. F	return is not r References: Pa	equired for SSD &ID D 20726, F\$	or accident SAR Sections						
CS-V28	2 (B-12)		0.75 Globe	Air/Diaphragm	0					
RCP #2 seal water return is mitigation, and is therefore 9.3.4, 5.4.7, 7.4.										
CS-V44	2	В	0.75 Globe	Air/Diaphragm	0					
RCP #3 seal water return is mitigation, and is therefore 9.3.4, 5.4.7, 7.4.	(C-12) solation valve, Seal water excluded per ISTC 1.1. F	return is not r References: Pa	equired for SSD	or accident SAR Sections						
CS-V59	2		0.75	Air/Diaphragm	0					
	(D-12)		Globe							
RCP #4 seal water return is mitigation, and is therefore 9.3.4, 5.4.7, 7.4.					·					
CS-V1166	2		0.75	Self	0				 	
	(A-12)		Check							
RCP #1 seal water return c mitigation, and is therefore o 9.3.4, 5.4.7, 7.4.										

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Size (in.) Valve and	Actuator		ositions			
Remarks	Coord	(САТ) Туре	Туре	NRM	SAF	FAL		
CS-V1167	2	0.75	Self	о				
	(B12)	Check						
RCP #2 seal water return c mitigation, and is therefore 9.3.4, 5.4.7, 7.4.	heck valve. Seal water re excluded per ISTC 1.1. R	turn is not required for SSD or eferences: P&ID D 20726, FS	r accident AR Sections					
CS-V1168	2	0.75	Self	0				
	(C-12)	Check						
9.3.4, 5.4.7, 7.4.		eferences: P&ID D 20726, FS					 	 
CS-V1169	2	0.75	Self	0				
	(D-12)	Check						
RCP #4 seal water return c mitigation, and is therefore 9.3.4, 5.4.7, 7.4.	heck valve. Seal water re excluded per ISTC 1.1. R	turn is not required for SSD or eferences: P&ID D 20726, FS	r accident SAR Sections					
CS-Various3								
and is excluded from the IS	T scope per ISTC 1.1. T	not required for SSD or accion here are no valves shown on t (B)-27 or 3.9(N)-11. Referenc	his drawing					
CS-Various4								
and is excluded from the IS	T scope per ISTC 1.1. Th	not required for SSD or accio tere are no valves shown on th or 3.9(N)-11. References: FS	nis drawing which					

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Vaive (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL			
CS-FCV110A	3		2.0 Globe	Air/Diaphragm					-	
Boric Acid Blender flow contr downstream valves, if necess operation. Per UFSAR Table operation as there are alterna No safety function as describ	eary. Piping is seisming 9.3-7, position of this te means of boration	c, as these lin s valve is Inco	al upstream valve C les are used during nsequential to safe	) normal plant shutdown						
CS-FCV110B	2		2.0	Air/Diaphragm				······································		 
CO-FGVIIUD	(C-4)		Saunders Weir							
inconsequential to safe shutd unaffected by the position of CS-FCV111A	this valve. No safety 3	function as de	escribed in ISTC 1	.1 Air/Diaphragm						 
RMW to Boric Acid Blender f prior to emergency boration to inconsequential to safe shutd	o avoid dilution. Per	UFSAR Table	e 9.3-7 position of 1	his valve is						
CS-FCV111B	2		2.0	Air/Diaphragm						
	(C-4)		Saunders Weir							
Boric Acid Blender to VCT flo necessary. Per UFSAR Table operation. No safety function	e 9.3-7 position of thi	s valve is inco	y upstream or dow onsequential to saf	nstream valves, if e shutdown						 
CS-V434	3		2.0	Self						
	(A-5)		Check							
Boric Acid supply to BA Blen or other downstream valves, i plant operation. This valve is described in ISTC 1.1	if necessary. Piping i	s seismic, as	these lines are us	ed during normal						

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM SAF FAL	
DG-P115A	3* (G-10)					
The engine driven Lube Oil readiness is adequately der LO pressure within the pres per ISTB 1.2(c). Also exclu	nonstrated during norm cribed range. Therefor	al EDG surv e, this pump	eillance testing by n is excluded from the	aintenance of IST Program		
DG-P116A	3* (B-5)					
Motor driven Pre-lube and f safety function as described Class 3.	ilter pump. This portion I in ISTC 1.1. Also, this	n of the DG lu s pump is exc	ibe oil system does cluded from IST bec	not perform a ause it is ANS		
DG-P117A	3* (D-11)					
The motor driven aux. lube IST per ISTB 1.1. Reference	oil pump is not required e: DBD- DG-01, revisio	l to support E on 1.	DG operation ,and	s excluded from		
DG-P227A	3* (C-6)					
The motor driven Rocker A excluded from IST per ISTE	rm lube oil pump is nol 3 1.1. Reference: DBD-	required to s DG-01, revi	support EDG operat sion 1.	on ,and is		
DG-P228A	3* (C-6)					
The engine drivenRocker A operational readiness is add maintenance of LO pressur IST Program per ISTB 1.2( revision 1.	equately demonstrated e within the prescribed	during norma range. There	I EDG surveillance fore, this pump is e	testing by xcluded from the		
DG-V8A	3*	С	3.0 Relief/Safety	Self	0 C	
Motor driven aux LO pump	(E-11) discharge relief valve	This numn is	-	ort EDG		
operation. Therefore, the R' ANS Class 3. References:	V is not within the IST s	cope per IS	C 1.1. Also exclude	ed because it is		

#### SYSTEM: DG PID No.: D20458

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	
DG-V18A	3* (C-6)	С	0.5 Check	Self	0	С		
Motor driven rocker arm pre- function only. This function maintenance of process pai IST by ISTC1.2(c). Also ex- support EDG operation. The P&ID D20458, DBD-DG-01	is adequately demonst rameters within normal coluded because it is A e valve is exercised to t	rated during ranges. The NS Class 3.	normal surveillance i refore, the valve is ex Pump operation is r	testing through kcluded from not required to				
DG-V23A	3	с	5.0	Self	С	0		
₩₩ - <b>1</b> ₽ ₩1	(G-10)		Check					
testing (non-safety) is also   D20458, DBD-DG-01,OX1- DG-V24A		С	5.0 Check	Self	0	с		
Motor driven aux LO pump support EDG operation. The This function is adequately process parameters within in The open and close function D20458, DBD-DG-01, OX1	discharge check valve his valve, if open, must tested during normal s normal range. Therefor ons are also verified qua	close to ensu urveillance te e, the valve is	Iriven pump is not re tre adequate LO flow sting through mainte s excluded from IST	v to the EDG. enance of by ISTC1.2(c).				
DG-V29A	3	В	5.0	Self	С	0		
	(C-10)		Three way					
Self contained lube oil temp P&ID D20458, DBD-DG-01	erature control valve, e I.	xempt from I	ST per ISTC 1.2(b).	references:				
DG-V31A	3*	с	2.0	Self	0	с		
	(B-5)		Check					
Motor driven prelube and fil closed when the EDG is run verified during normal srveil Therefore, the valve is exclu References: P&ID D20458,	nning to prevent lube of lance by maintanence uded from IST by ISTC	l bypass flow of adequate I	The closure function Opressure and ten	on is adequately operatures.				

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#### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	 		
DG-V37A	3* (B-5)	с	Relief/Safety	Self						
Prelube and filter pump integral dis operation. Therefore, the valve is exis is ANS Class 3. References: P&ID	cempt from IST	per ISTC 1.1	p is not required to s I ( scope). Also exclu	upport EDG ded because it						
DG-V41A	3* (D-7)		0.38 Gate	Self						
Lube oil reservoir tank level control of maintaining lube oil inventory. It subcomponent to the lube oil reser commensurate with its importance	valve. This valvies excluded from volr. It will be te	n IST becau	se it is ANS 3 and an	integral					 	
DG-V42A	3* (D-7)	В	0.5 Relief/Safety	Self	тн	тн				
Rocker arm duplex filter outlet pres arm lubricating header at 12 psig a a function as described in ISTC 1. References: P&ID D20458 , DBD-	nd is excluded 1 1, per EWR 97-	rom IST by I 095. Also ex	STC 1.2(b). Not requ cluded because it is A	ired to perform					 	
DG-V195A	NNS (D-7)		Relief/Safety	Self	С					
Lube oil keep warm filter internal re EDG operation and the valve is not DBD-DG-01.	lief valve. This p in the IST scop	portion of the per ISTC 1	system is not require I.1. References: P&II	d to support D D20458,				 	 	
DG-V196A	3* (G-10)	С	Relief/Safety	Self	с	0				
Engine driven LO pump integral rel in scope per ISTC 1.1. However, e subcomponent to the pump so it is 01.	ief valve, adequ	se it is ANS (	during pump operation Class 3 and it is an in	tegral				 		
DG-V257A	3* (G-6)	В	0.75 Globe	Self	С	0				
EDG lube oil resevoir tank makeup exempt from IST per ISTC 1.2(b). D20458, DBD-DG-01.	valve. This is a	self containe ecause it is i	ed pressure regulator ANS Class 3. Refere	which is nces: P&ID						

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#### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Vaive (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	s FAL		
DG-V261A	3* (C-6)	С	Check	Self	С	0		 	
Engine driven rocker arm lube of adequate engine lubrication. Th readiness is verified during norr and temperature and may be ex Both the open and the non- safe References: P&ID D20458, DB	is valve has no sa nal surveillance te cluded by ISTC 1. aty closure function	fety related clo sting by maint 2(c). Also ex ns are periodic	osure function. Open anence of adequate cluded because it is	rational LO pressure ANS Class 3.					

Sec. 2

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	I NRM	Position: SAF	s FAL	_	
DG-P38A	3 (B-10)							-	
The fuel oil transfer pumps have a specified flow rate o required to support EDG or during normal EDG surveill range. Therefore, this pump D20459, FSAR Table 9.5-4	f 20 GPM and an actua peration, and it's operation, and it's operation ance testing by mainter to is excluded from the I	I flow rate of tional reading nance of FO	25 GPM. The FO ess is adequately de day tank level withir	Fransfer pump is monstrated I the prescribed					
DG-P118A	3*								
The motor driven aux fuel o the IST Program by ISTB 1				excluded from					
DG-P119A	3* (G-7)							 	 
The engine driven FO pump adequately demonstrated d within the prescribed range 1.2(c). Also excluded becau	uring normal EDG surv . Therefore, this pump	eillance testi is excluded f	ng by maintenance rom the IST Progra	of FO pressure m per ISTB					
DG-V82A	3* (F-7)	С	1.0 Check	Self	С	0			
EDG fuel header return che fuel to the day tank. This fu maintenance of proper fuel excluded because it is ANS	ck valve. This valve ha nction is adequately ve oil process conditions.	rified during No other tes	normal surveillance sting or monitoring is	testing by					
DG-V83A	3*	С	1.0	Self	С	0		 	
EDG fuel header return che fuel to the day tank. This fu maintenance of proper fuel or monitoring is required. A DBD-DG-01.	nction is adequately ver oil process conditions	rified during and is exclu	normal surveillance ded by ISTC 1.2(c).	testing by No other testing					

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	f NRM	Positions SAF	FAL		
DG-V84A	3 (H-7)	с	1.0 Check	Seif	0	с		 •	
Motor driven aux fuel oil pur operation, and the check va function is adequately verifie Both the open and closure f D20459, DBD-DG-01.	live has a safety close t ad during normal surve	function only Ilance and m	to prevent fuel oil by ay be exempted by I	pass. This STC 1.2(c).					
DG-V85A	3* (G-7)	С	1.0 Check	Self	с	0			
Engine driven fuel oil pump only which is verified during open and close functions ar	normal surveillance tes	sting and may	y be excluded by IST	C 1.2(c). Both					
DG-V99A	3* (H-7)	- <u> </u>	Relief/Safety	Self					
Aux motor driven fuel oil pur to support EDG operation. DBD-DG-01.	mp integral relief valve.	The aux moto pe per ISTC	or driven fuel oil pum	p is not required &ID D20459,					
DG-V100A	3*	C		Self	С	0			<u>,,,,,,,</u> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Engine driven fuel oil pump excluded because it is ANS P&ID D2059, DBD-DG-01.	(H-7) integral relief valve. Thi Class 3. Will be teste	is valve is in a d under other	Relief/Safety scope per ISTC 1.1. Appendix B program	However, n. References:					
DG-V155A	NNS (H-12)		4.0 Relief/Safety	Self					
EDG fuel oil day tank relief to atmosphere. References:			iclear safety, and the	e tank is vented					
DG-V208	NNS (D-8)		Relief/Safety	Self				 	
Fuel oil tank relief valve. Th atmosphere. References: Po	is valve is classified no			vented to					

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Remarks	Class and Coord	Vaive (CAT)	Size (in.) and Type	Actuator Type	I NRM	Positions SAF	-
DG-D-6A-checks	3* (F-4)	С	Check	Self	DE	DE	
C-2A air dryer check valves oper required to remove moisture to w the dryer and associated comport associated pneumatic componer valve are excluded per ISTC 1.2 periodically commensurate with valves include DG-V281A, DG- DBD-DG-01.	vithin design limits nents is verified vi nts which is verifie (c). Also excluded their importance to	of the suppli- a proper oper d by periodic d because the safety under	ed components. Prop ation and reliability o surveillance testing. ay are ANS Class 3. r another App. B prog	per operation of If the EDG and Therefore the Will be tested gram. These			
DG-D-6A-SOVs	3*	В		Solenoid	DE	DE	
	(F-4)		Globe				
valves are excluded per ISTC 1. include DG-V279A, DG-V280A commensurate with their Import D20460, DBD-DG-01.	DG-V285A, DG-	V289A and D	G-V290A. Will be te	sted periodically			
DG-V52A	(C-10)		Other	Sei			
function for control air subsyste excluded from IST based on IS	aive. Reduces air m according to EV FC 1.2b and 1.2c	VR 97-095. S and because	n 600 to 100 psig. P Self contained pressu it is ANS 3. It will be	ire control valve tested			
DG control air press. reducing v function for control air subsyste excluded from IST based on IS periodically under another App. DG-V53A	aive. Reduces air m according to EV FC 1.2b and 1.2c	VR 97-095. S and because	n 600 to 100 psig. P Self contained pressu it is ANS 3. It will be	ire control valve tested			
function for control air subsyste excluded from IST based on IS periodically under another App. DG-V53A EDG shutdown air receiver inlet	alve. Reduces air m according to EV FC 1.2b and 1.2c : B program comme 3 (C-10) check valve- not r	VR 97-095. and because ensurate with equired for E	n 600 to 100 psig. P Self contained pressu it is ANS 3. It will be its importance to saf Check DG operation, and th	ure control valve tested ety. Self			
function for control air subsyste excluded from IST based on IST periodically under another App.	alve. Reduces air m according to EV FC 1.2b and 1.2c : B program comme 3 (C-10) check valve- not r	VR 97-095. and because ensurate with equired for E	n 600 to 100 psig. P Self contained pressu it is ANS 3. It will be its importance to saf Check DG operation, and th	ure control valve tested ety. Self	C	0	

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## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Position: SAF			
DG-V55A	3*	· · · ·		Self				_	
	(D-10)		Other						
DG control air press. reduc function for control air subs excluded from IST based o periodically under another /	ystem according to EW n ISTC 1.2b and 1.2c a	R 97-095. S Ind because	Self contained press it is ANS 3. It will be	sure control valve e tested					
DG-V56A	3*	с	0.25	Self	с	0			
	(D-10)		Relief/Safety						
EDG 40 psig control air reli Class 3. Will be tested und	ef valvein scope per la der other Appendix B pr	STC 1.1. How ogram. Refe	wever, excluded bec rences: P&ID D204	ause it is ANS 460, DBD-DG-01.			 		
DG-V59A	3*			Self					
	(D-8)		Other						
because it is ANS 3. It will its importance to safety. DG-V60A	3*			Self			 		
DG-V6UA	(D-8)		Other	och					
DG main air start valve. Pe 97-095. Self contained cor it is ANS 3. It will be tested importance to safety.	trol valve excluded from	n IST based (	on ISTC 1.2b and 1	.2c and because					
DG-V72A	3*	С		Self	С	0			
	(F-10)		Relief/Safety						
Starting air compressor dis because it is ANS Class 3. P&IDD20460, DBD-DG-01	Will be tested under o	e-in scope p ther Appendi	er ISTC 1.1. Howev x B program. Refer	ences:					
	3*			Self					
DG-V220A			<b>O</b> 11						
DG-V220A	(D-8)		Other						

#### SYSTEM: DG PID No.: D20460

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF				
DG-V221A	3* (D-8)		Other	Self						
DG starting air booster valve EWR 97-095. Self containe because it is ANS 3. It will b its importance to safety.	d control valve exclude	d from IST ba	ased on ISTC 1.2b	and 1.2c and						
DG-V224A	3* (C-8)		Other	Self						
DG main air start valve. Per 97-095. Self contained coni it is ANS 3. It will be tested ( importance to safety.	rol valve excluded from	IST based o	n ISTC 1.2b and 1	.2c and because						
DG-V225A	3* (G-9)	В	0.5 Gate	Manual	0	С				
Starting air compressor disc to place the backup control a 94-044. Added to the SITR tested under other Appendix	air compressor inservic Revision 10. However,	e. Reference:	s: P&ID D20460, C	DS1026.12, DCR						
DG-V226A	NNS		0.75	Self				 		
	(E-9)		Check							
C-2A air dryer manifold drai Removal of moisture from the Satisfactory performance of References: P&ID D20460,	e compressor discharg the air drying equipme	je is a design	requirement for th	e unit.						
DG-V253A	3*		0.25	Solenoid			 		b	
C-2A solenoid operated drai compressor discharge. The	(E-10) n valve operates on tir operational readiness o	ner to remove of this valve is	Three way e accumulated con s verified through p	densate in the roper						
compressor operation as we		EDG and as	ssociated pneumat	ic components.						

#### SYSTEM: DG PID No.: D20460

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

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Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Position: SAF			
DG-V258A	3* (F-10)	С	Relief/Safety	Self	С	0			
C-2A integral stage relief valv term EDG operation and is in periodically tested as part of the References: P&ID D20460	scope per ISTC 1.1.	The RV is e	xcluded per ISTC 1.2	(c) and will be					
DG-V259A	3*	С		Self	с	0			
	(F-10)		Relief/Safety						
C-2A integral stage relief valve term EDG operation and is in periodically tested as part of the References: P&ID D20460	scope per ISTC 1.1.	The RV is e	xcluded per ISTC 1.2	(c) and will be			 	 	
DG-V260A	3* (E-10)	С	0.5 Check	Self	С	0			
EDG starting air compressor provide control air for long terr the receiver inlet check valves V225A is closed when the ba	m EDG operation. The sprevent reverse flow ackup compressor (C-	nere is no sa when C-2A -18A) is plac	fety related closure fu is in service, and ma ed in service. The va	Inction since Inual valve DG- Ive is excluded					
receiver pressure. Also exclud are verified quarterly by OX 14	ded because it is ANS	Class 3. Bo	oth the open and clos	ed functions					
receiver pressure. Also exclud are verified quarterly by OX 14 OS1026.12, DCR 94-044.	ded because it is ANS	Class 3. Bo	oth the open and clos	ed functions			 	 	 
receiver pressure. Also exclud are verified quarterly by OX 14 OS1026.12, DCR 94-044.	ded because it is ANS 426.14. References: f	Class 3. Bo	oth the open and clos	ed functions 426.14,			 	 	 
from IST since the valve open receiver pressure. Also exclud are verified quarterly by OX 14 OS1026.12, DCR 94-044. DG-V269A DG starting air booster valve. EWR 97-095. Self contained because it is ANS 3. It will be its importance to safety.	ded because it is ANS 426.14. References: f 3* (D-8) Performs safety func d control valve exclude	S Class 3. Bo P&ID D2046 tion for DG s	oth the open and clos 0,DBD-DG-01, OX1 Other starting air subsysten pased on ISTC 1.2b a	ed functions 426.14, Self n according to and 1.2c and				 	 
receiver pressure. Also exclud are verified quarterly by OX 14 OS1026.12, DCR 94-044. DG-V269A DG starting air booster valve. EWR 97-095. Self contained because it is ANS 3. It will be its importance to safety.	ded because it is ANS 426.14. References: f 3* (D-8) Performs safety func d control valve exclude	S Class 3. Bo P&ID D2046 tion for DG s	oth the open and clos 0,DBD-DG-01, OX1 Other starting air subsysten pased on ISTC 1.2b a	ed functions 426.14, Self n according to and 1.2c and	DE	DE		 	
receiver pressure. Also exclud are verified quarterly by OX 14 OS1026.12, DCR 94-044. DG-V269A DG starting air booster valve. EWR 97-095. Self contained because it is ANS 3. It will be	ded because it is ANS 426.14. References: f 3* (D-8) Performs safety func d control valve exclude e tested periodically un	S Class 3. Bo P&ID D2046 tion for DG s d from IST I ider another	oth the open and clos 0,DBD-DG-01, OX14 Other starting air subsysten based on ISTC 1.2b a App. B program com	ed functions 426.14, Self n according to and 1.2c and mensurate with	DE	DE	 	 	

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Ciass and Coord	Vaive (CAT)	Size (in.) and Type	Actuator Type	F NRM	Positions SAF	s FAL	
DG-V331A	3* (G-1)	С	Relief/Safety	Self	с	0		
EDG backup control air com support long term EDG oper because it is ANS Class 3. D20460, DBD-DG-01, DCR	ation. Therefore, the R Will be tested under o	V is in scop	per ISTC 1.1. Howeve	er, excluded				
DG-V332A	3* (G-9)	В	0.5 Ball	Manual	С	0		
EDG backup control air com and is opened to place the b ANS Class 3. Will be tested OS1026.12, DCR 94-044.	ackup air compressor	into service.	. However, excluded bec	ause it is				
DG-V333A	3* (G-9)	В	0.5 Ball	Manual	С	0		
EDG backup control air com and is opened to place the b ANS Class 3. Will be tested OS1026.12, DCR 94-044.	ackup air compressor	into service.	. However, excluded bec	ause it is				
DG-V334A	3* (G-9)	С	0.5 Check	Self	С	0		
EDG backup control air con support long term EDG oper valves prevent reverse flow v V332A and V333A are close is ANS Class 3. Will be test open and closed direction by	ation. Reverse closure when the compressor i d when the compress ted under other Appen	is not requi s in service, or is not in s dix B progra	ired since the air receive and the manual dischar ervice. However, exclude m. This valve is tested in	r check ge valves ed because it n both the				
DG-V335A	3*	С	0.25	Self	С	0		
	(E-12)		Relief/Safety					
EDG backup control air com excluded per ISTC 1.2(c). A tested periodically with the o	Iso excluded because	it is ANS CI	ass 3. This integral relie	f valve will be				

#### SYSTEM: DG D20461 PID No.:

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	l	Positions				
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL			
DG-P120A	3* (G-11)									
Motor driven Jacket Coolant Sta system does not perform a safe from IST because it is ANS Cla	ety function as desc	IMP. This po ribed in IST(	ortion of the DG jac <del>l</del> C 1.1. Also, this pun	tet coolant water np is excluded						
DG-P121A	3* (F-9)									
The EDG jacket water coolant p readiness is adequately demons from IST per ISTB 1.2 (c). Also revision 1.	strated during norm	al surveilland	ce testing. Therefore	e it is excluded					 	
DG-P122A	NNS									
	(E-6)									
The EDG motor driven aux. co	holant numn is not	romuired to s	unnort EDG operati	on and is						
excluded from IST per ISTB 1.	1. Reference: DBD	DG-01, revis	sion 1.						 	 
excluded from IST per ISTB 1.7	1. Reference: DBD-  3*	DG-01, revis	sion 1.					<u></u>	 	 
excluded from IST per ISTB 1. DG-P231A	1. Reference: DBD- 3* (D-8)	-DG-01, revis	sion 1.						 	 
excluded from IST per ISTB 1. DG-P231A The EDG air coolant pump is re adequately demonstrated during	1. Reference: DBD 3* (D-8) equired to support E g normal surveilland	DG-01, revis	n and its operationa	al readiness is ed from IST per						 
excluded from IST per ISTB 1. DG-P231A The EDG air coolant pump is re adequately demonstrated during ISTB 1.2 (c). Also excluded bec	1. Reference: DBD 3* (D-8) equired to support E g normal surveilland	DG-01, revis	n and its operationa	al readiness is ed from IST per	тн	ТН			 	 
excluded from IST per ISTB 1. DG-P231A The EDG air coolant pump is re adequately demonstrated during ISTB 1.2 (c). Also excluded bec	1. Reference: DBD 3* (D-8) equired to support E g normal surveilland cause it is ANS Cla	DG-01, revis	n and its operationa nerefore it is exclude nce: DBD-DG-01, r	al readiness is ed from IST per evision 1.	тн	ТН			 	 
excluded from IST per ISTB 1. <b>DG-P231A</b> The EDG air coolant pump is re adequately demonstrated during ISTB 1.2 (c). Also excluded bec <b>DG-PV7A-1</b> EDG jacket water pressure con	1. Reference: DBD- 3* (D-8) equired to support F g normal surveilland cause it is ANS Cla 3 (F-7)	DG-01, revis	n and its operationa perefore it is exclude nce: DBD-DG-01, r 6.0 Globe	I readiness is of from IST per evision 1. Self	тн	ТН			 	 
excluded from IST per ISTB 1. <b>DG-P231A</b> The EDG air coolant pump is re adequately demonstrated during ISTB 1.2 (c). Also excluded bec <b>DG-PV7A-1</b> EDG jacket water pressure con P&ID D20461, DBD-DG-01.	1. Reference: DBD- 3* (D-8) equired to support F g normal surveilland cause it is ANS Cla 3 (F-7)	DG-01, revis	n and its operationa perefore it is exclude nce: DBD-DG-01, r 6.0 Globe	I readiness is of from IST per evision 1. Self	тн	ТН			 	 
excluded from IST per ISTB 1. DG-P231A The EDG air coolant pump is re adequately demonstrated during ISTB 1.2 (c). Also excluded bea DG-PV7A-1 EDG jacket water pressure con P&ID D20461, DBD-DG-01.	1. Reference: DBD 3* (D-8) equired to support F g normal surveilland cause it is ANS Cla 3 (F-7) ntrol valve - staked i	DG-01, revis	n and its operationa nerefore it is exclude nce: DBD-DG-01, r 6.0 Globe mined throttled posi	al readiness is ed from IST per evision 1. Self tion. References:					 	 
excluded from IST per ISTB 1. DG-P231A The EDG air coolant pump is re adequately demonstrated during ISTB 1.2 (c). Also excluded bec DG-PV7A-1 EDG jacket water pressure con	1. Reference: DBD 3* (D-8) equired to support E g normal surveillanc cause it is ANS Cla 3 (F-7) ntrol valve - staked i 3 (D-9) e control valve - stał	DG-01, revis	sion 1. erefore it is exclude nce: DBD-DG-01, r 6.0 Globe mined throttled posi 6.0 Globe	I readiness is ed from IST per evision 1. Self tion. References: Self						 
excluded from IST per ISTB 1. DG-P231A The EDG air coolant pump is re adequately demonstrated during ISTB 1.2 (c). Also excluded bea DG-PV7A-1 EDG jacket water pressure con P&ID D20461, DBD-DG-01. DG-PV7A-2 EDG air cooling water pressure	1. Reference: DBD 3* (D-8) equired to support E g normal surveillanc cause it is ANS Cla 3 (F-7) ntrol valve - staked i 3 (D-9) e control valve - stał	DG-01, revis	sion 1. erefore it is exclude nce: DBD-DG-01, r 6.0 Globe mined throttled posi 6.0 Globe	I readiness is ed from IST per evision 1. Self tion. References: Self			0		 	 

#### SYSTEM: DG D20461 PID No.:

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

Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL			
DG-TCV7A-2	3 (F-9)	В	6.0 Three way	Air/Diaphragm	тн	тн	0			
EDG air coolant temperatur valve will be excluded from I	e control valve modulal IST per ISTC 1.2(b). F	tes to maintair teferences: Pa	i coolant temperatu &ID D20461, DBD-	ire setpoint DG-01.						
DG-V1A	3 (G7)		6.0 Check	Self						
Aux coolant pump to jacket required to support EDG op Therefore, this valve is not v DBD-DG-01.	eration. This check val	lve has no act	ive open or close s	afety function.						
DG-V2A	3	С	6.0	Self	С	0		 		
	(F-9)		Check							
I.2(c). References: P&ID 2 	0461, DBD-DG-01. 3		6.0	Self				 		
DG-V4A			6.0 Check	Sell						
	(D8)									
Aux coolant pump to air coo required to support EDG op Therefore, this valve is not y	ling header discharge eration. This check va within the IST scope as	ive has no act	ive open or close s	afety function.						
DBD-DG-01. DG-V5A	3 (D-8)	С	6.0 Check	Self	С	0		 	,	
DBD-DG-01.	(D-8) harge check valve- ope polant bypass when the equately verified during rameters within allowat	ens to support e aux coolant normal EDG ple ranges. Th	Check EDG operation. No pump is operating. surveillance testing	on-safety reated The open g through	С	0				
DBD-DG-01. DG-V5A EDG air coolant pump discl closure function prevents co function for this valve is ade maintenance of process pai IST per ISTC 1.2(c). Refere	(D-8) harge check valve- ope oolant bypass when the equately verified during rameters within allowat ences: P&ID 20461, D	ens to support e aux coolant normal EDG ple ranges. Th	Check EDG operation. N pump is operating. surveillance testing erefore, this valve	on-safety reated The open g through	C C	O C		 		
DBD-DG-01. DG-V5A EDG air coolant pump discl closure function prevents co function for this valve is ade maintenance of process pai	(D-8) harge check valve- ope polant bypass when the equately verified during rameters within allowat ences: P&ID 20461, D 3 (F-7)	ens to support e aux coolant normal EDG ole ranges. Th BD-DG-01.	Check EDG operation. N pump is operating. surveillance testing erefore, this valve Butterfly	on-safety reated The open J through is excluded from Air/Piston	-			 		

#### SYSTEM: DG PID No.: D20461

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

Valve Number	Class and	Valve	Size (in.) and	Actuator		Positions		
temarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	
DG-V11A	3 (G-6)		6.0 Butterfly	Air/Piston	С	с		
Aux coolant pump discharge operation. This valve has no the IST scope as defined in I	active open or close s	afety function	<ol> <li>Therefore, this va</li> </ol>	o support EDG alve is not within				
DG-V12A	3		· · · · ·	Air/Piston	с	с		
	(E-6)		Butterfly					
Aux coolant pump suction iso operation. This valve has no the IST scope as defined in I	active open or close s	afety function	n. Therefore, this va	support EDG alve is not within				
DG-V13A	3			Air/Piston	С	С		
	(D-6)		Butterfly					
Aux coolant pump suction iso operation. This valve has no the IST scope as defined in I	active open or close s	afety function	n. Therefore, this va	alve is not within Self				
DG-V86A	-		Deliaf/Pafahr	361				
	(G-10)		Relief/Safety					
Jacket coolant standby cir. pi EDG operation. The standby keep warm system does not IST scope as defined in ISTO D20461, DBD-DG-01.	engine / coolant temp perform a safety relate	erature is es d function. T	sential for EDG Op herefore, this valve	erability, but the is not within the				
DG-V87A	3*	С	1.5	Self	0	С		
	(G-10)		Check					
Engine coolant keep warm pa upon engine start to prevent o demonstrated during normal acceptable ranges. Therefore because it is ANS Class 3. R	coolant bypass. The re surveillance testing th e, this valve is exclude	everse closur rough mainte d from IST pr	e function is adequ nance of process p er ISTC 1.2(c). Also	ately arameters within				
DG-V94A	3*	С	1.5	Self	0	С		
	(G-10)		Check					
Engine coolant keep warm pu upon engine start to prevent of demonstrated during normal acceptable ranges. Therefore because it is ANS Class 3. R	coolant bypass. The re surveillance testing th e, this valve is exclude	everse closur rough mainte d from IST p	e function is adequ nance of process p er ISTC 1.2(c). Alse	ately arameters within				

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# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	I NRM	Positions SAF	FAL			
DG-V145A	3* (E-9)		0.5 Three way	Self						
DG Coolant 3-way self-contained safety function and is required to ANS 3 and excluded based on IS B program commensurate with its	move to control o TC 1.2b and 1.2	oolant temp. c. It will be tes	Excluded from IST	because it is					 	
DG-V271	NNS (E-6)		Relief/Safety	Self						
EDG aux coolant pump relief valv operation. Therefore, this valve is P&ID D20461, DBD-DG-01.	e. This portion of not within the IS	i the system is T scope as de	not required to sup fined in ISTC 1.1. F	port EDG References:						
DG-NA1	· · · · · · · · · · · · · · · · · · ·									

There are no valves on this drawing within the IST program scope as defined in ISTC 1.1.

#### DG SYSTEM: PID No.: D20463

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	-	ositions SAF FAL		
DG-P115B	3* (G-10)							
The engine driven Lube Oil readiness is adequately der LO pressure within the pres per ISTB 1.2(c). Also exclude	nonstrated during norm cribed range. Therefore	al EDG surv e. this pump	eillance testing by n is excluded from the	aintenance of e IST Program				
DG-P116B	3* (B-5)							
Motor driven Pre-lube and f safety function as described Class 3.	ilter pump. This portion 1 in ISTC 1.1. Also, this	n of the DG lu s pump is exc	ube oil system does cluded from IST bec	not perform a cause it is ANS			 	
DG-P117B	3* (D-11)							
The motor driven aux. lube IST per ISTB 1.1. Reference	oil pump is not required e: DBD- DG-01, revisio	i to support E on 1.	EDG operation ,and	is excluded from			 	
DG-P227B	3* (C-6)							
The motor driven Rocker A excluded from IST per IST	rm lube oil pump is not 3 1.1. Reference: DBD-	required to s DG-01, revi	support EDG operatision 1.	ion ,and is			 	
DG-P228B	3* (C-6)							
The engine driven Rocker / operational readiness is add maintenance of LO pressur IST Program per ISTB 1.2( revision 1.	equately demonstrated e within the prescribed	during norma range. There	al EDG surveillance efore, this pump is e	testing by excluded from the				
DG-V8B	3* (E-11)	С	3.0 Relief/Safety	Self	0	С		
Motor driven aux LO pump operation. Therefore the RV ANS Class 3. References:	discharge relief valve. / is not within the IST s	cope per IST	not required to sup	port EDG ed because it is				

#### SYSTEM: DG D20463 PID No .:

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

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√alve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL		
DG-V18B	3* (C-6)	с	0.5 Check	Self	0	с		_	
Motor driven rocker arm prelu function only. This function is maintenance of process para IST by ISTC1.2(c). Also excl support EDG operation. The P&ID D20463, DBD-DG-01,	a dequately demonstra meters within normal uded because it is AN valve is exercised to t	rated during ranges. The IS Class 3. I	normal surveillance to refore, the valve is ex Pump operation is not	esting through cluded from required to					
DG-V23B	3	С	5.0	Self	С	0			
	(G-10)		Check						
testing (non-safety) is also pr D20463, DBD-DG-01,OX142 DG-V24B		c	5.0 Check	Self	0	С		 	 
DG-V24B Motor driven aux LO pump d support EDG operation. This This function is adequately t	(F-10) scharge check valve. s valve, if open, must	The motor o	Check driven pump is not require adequate LO flow	uired to to the EDG.	0	С		 	 
normal LO process paramter functions verified quarterly by	es, and may be exclu	ded by ISTC	: 1.2(c), Both open a	nd closed					
DG-V29B	3 (C-10)	В	5.0 Three way	Self	С	0			
Self contained lube oil tempe P&ID D20463, DBD-DG-01.	rature control valve, e	xempt from	IS⊤ per ISTC 1.2(b).	references:				 	 
DG-V31B	3* (B-5)	С	2.0 Check	Self	0	С			
Motor driven prelube and filte closed when the EDG is runn verified during normal srveilla Therefore, the valve is excluc	ning to prevent lube of ince by maintanence	I bypass flow of adequate	v. The closure function LO pressure and tem	n is adequately peratures.					

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF			
DG-V37B	3* (B-5)	С	Relief/Safety	Self					
Prelube and filter pump Integ operation. Therefore, the values of the second se	ral discharge relief va	per ISTC 1.1	np is not required to s	upport EDG uded because it					
DG-V41B	3*		0.38	Self			 		
	(D-7)		Gate						
Lube oil reservoir tank level o of maintaining lube oil invent subcomponent to the lube oil commensurate with its impor	ory. It is excluded from reservoir. It will be te	n IST becau	se it is ANS 3 and ar	n integral			 	 	
DG-V42B	3*	В	0.5	Self	TH	тн			
	(D-7)		Relief/Safety						
arm lubricating header at 12 it is ANS Class 3. Not requir References: P&ID D20458, DG-V195B	ed to perform a functi DBD-DG-01 EDG OI NNS	on as describ	bed in ISTC 1.1, per 1 170-1.	EWR 97-095	С		 	 	
	(D-7)		Relief/Safety						
Lube oil keep warm filter inte EDG operation and the valve DBD-DG-01.	rnal relief valve. This is not in the IST scop	portion of the per ISTC 1	system is not require 1.1. References: P&I	ed to support D D20463,				 	
DG-V196B	3* (G-10)	С	Relief/Safety	Self	С	0			
Engine driven LO pump integ in scope per ISTC 1.1. How subcomponent to the pump s 01.	gral relief valve, adeque ever, excluded becau	se it is ANS (	during pump operati Class 3 and it is an ir	ntegral					
DG-V257B	3*	В	0.75	Self	С	0	 	 	
	(G-6)		Globe						
EDG oil resevoir tank makeu from IST per ISTC 1.2(b). Al	p valve. This is a self	contained pro	essure regulator which	ch is exempt					

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## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	s FAL		
DG-V261B	3* (C-6)	С	Check	Self	с	0		 	
Engine driven rocker arm lube adequate engine lubrication. T readiness is verified during no and temperature and may be e Both the open and the non- sa References: P&ID D20464, D	his valve has no sa rmal surveillance te excluded by ISTC 1. afety closure function	fety related clo sting by maint .2(c). Also exe ns are periodic	sure function. Oper anence of adequate cluded because it is	rational LO pressure ANS Class 3.					

2-F6.36

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#### SYSTEM: DG PID No.: D20464

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

Valve Number	Class and	Valve	Size (in.) and	Actuator		Positions			
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF FA	AL	-	
DG-P38B	3 (B-8)								
The fuel oil transfer pumps have a specified flow rate of required to support EDG of during normal EDG surveill range. Therefore, this pum D20459, FSAR Table 9.5-4	of 20 GPM and an actua peration, and it's operat lance testing by mainter p is excluded from the l	I flow rate of ional readine	25 GPM. The FO T ass is adequately de day tank level within	ransfer pump is monstrated the prescribed					
DG-P118B	3*								
	(H-5)								
The motor driven aux fuel on the IST Program by ISTB 1				excluded from					
DG-P119B	3*								
	(G-5)								
The engine driven FO pum adequately demonstrated d within the prescribed range 1.2(c). Also excluded beca	uring normal EDG surv . Therefore, this pump i	eillance testi is excluded fi	ng by maintenance rom the IST Progra	of FO pressure m per iSTB					
DG-V82B	3*	С	1.0	Self	С	0			
	(F-7)		Check						
EDG fuel header return cho fuel to the day tank. This fu maintenance of proper fue excluded because it is ANS	nction is adequately ver I oil process conditions.	rified during I No other tes	normal surveillance sting or monitoring is	testing by					
DG-V83B	3*	с	1.0	Self	С	0			
	(F-7)		Check						
EDG fuel header return che fuel to the day tank. This fu maintenance of proper fue	nction is adequately ver	ified during and is exclu	normal surveillance ded by ISTC 1.2(c)	testing by . No other testing					

#### FIGURE F6 **EXCLUSION JUSTIFICATION** DG SYSTEM: DOCUMENT TABLES D20464 Size (in.) and Type Class Valve Number Positions Actuator Type Valve (CAT) and Coord NRM SAF FAL 3 Self 0 С

PID No .:

Remarks

		С	1.0	Self	0	С				
	(H-7)		Check							
Motor driven aux fuel oil pur operation, and the check v function is adequately verifi Both the open and closure D20464, DBD-DG-01.	alve has a safety close t ied during normal survei	function only illance and m	to prevent fuel oil byp ay be exempted by IS	ass. This STC 1.2(c).						
DG-V85B	3*	С	1.0	Self	С	0				
	(G-7)		Check							
Engine driven fuel oil pump only which is verified during open and close functions a	normal surveillance tes	sting and ma	y be excluded by IST	C 1.2(c). Both					 	
DG-V99B	3*			Self	С					
	(H-7)		Relief/Safety							
Aux motor driven fuel oil pu required to support EDG op	imp integral relief valve.	The aux mo It in scope pe	tor driven fuel oil pum	ip is not es: P&ID						
required to support EDG or D20464, DBD-DG-01.	imp integral relief valve. peration This valve is no 3*	The aux mo at in scope pe C	tor driven fuel oil pum	p is not ss: P&ID Self	с	0	 	<u> </u>	 	
required to support EDG or D20464, DBD-DG-01. DG-V100B Engine driven fuel oil pump excluded because it is ANS	imp integral relief valve. peration This valve is no 3* (H-7) p integral relief valve. Th S Class 3. Will be teste	t in scope pe C is valve is in	tor driven fuel oil pum er ISTC 1.1.Reference Relief/Safety scope per ISTC 1.1.1	ss: P&ID Self However,	с	0	 		 	
required to support EDG op D20464, DBD-DG-01. DG-V100B Engine driven fuel oil pump excluded because it is ANS P&ID D20464, DBD-DG-01	imp integral relief valve. peration This valve is no 3* (H-7) p integral relief valve. Th S Class 3. Will be teste	t in scope pe C is valve is in	tor driven fuel oil pum er ISTC 1.1.Reference Relief/Safety scope per ISTC 1.1.1	ss: P&ID Self However,	с	0	 			
Aux motor driven fuel oil pur required to support EDG op D20464, DBD-DG-01. DG-V100B Engine driven fuel oil pump excluded because it is ANS P&ID D20464, DBD-DG-01 DG-V155B	ump integral relief valve. peration This valve is no 3* (H-7) p integrat relief valve. Th S Class 3. Will be teste 1.	t in scope pe C is valve is in	tor driven fuel oil pum er ISTC 1.1.Reference Relief/Safety scope per ISTC 1.1. H r Appendix B program	ss: P&ID Self However, h. References:	С	0	 			
required to support EDG or D20464, DBD-DG-01. DG-V100B Engine driven fuel oil pump excluded because it is ANS P&ID D20464, DBD-DG-01	imp integral relief valve. peration This valve is no 3* (H-7) b integrat relief valve. Th 5 Class 3. Will be teste 1. NNS (H-12) valve. This valve is clas	C C is valve is in d under othe	tor driven fuel oil pum er ISTC 1.1.Reference Relief/Safety scope per ISTC 1.1. H r Appendix B program 4.0 Relief/Safety	Self Self However, h. References: Self	с	0	 			
required to support EDG op D20464, DBD-DG-01. DG-V100B Engine driven fuel oil pump excluded because it is ANS P&ID D20464, DBD-DG-01 DG-V155B EDG fuel oil day tank relief to atmosphere. References	imp integral relief valve. peration This valve is no 3* (H-7) b integrat relief valve. Th 5 Class 3. Will be teste 1. NNS (H-12) valve. This valve is clas	C C is valve is in d under othe	tor driven fuel oil pum er ISTC 1.1.Reference Relief/Safety scope per ISTC 1.1. H r Appendix B program 4.0 Relief/Safety	Self Self However, h. References: Self	C	0				
required to support EDG op D20464, DBD-DG-01. DG-V100B Engine driven fuel oil pump excluded because it is ANS P&ID D20464, DBD-DG-01 DG-V155B EDG fuel oil day tank relief	imp integral relief valve. peration This valve is no 3* (H-7) b integrat relief valve. Th S Class 3. Will be teste 1. NNS (H-12) valve. This valve is clas 5: P&ID D20464, DBD-E	C C is valve is in d under othe	tor driven fuel oil pum er ISTC 1.1.Reference Relief/Safety scope per ISTC 1.1. H r Appendix B program 4.0 Relief/Safety	Self Self However, h. References: Self tank is vented	С	0				
required to support EDG op D20464, DBD-DG-01. DG-V100B Engine driven fuel oil pump excluded because it is ANS P&ID D20464, DBD-DG-01 DG-V155B EDG fuel oil day tank relief to atmosphere. References	imp integral relief valve. peration This valve is no 3* (H-7) b integral relief valve. Th S Class 3. Will be teste 1. NNS (H-12) valve. This valve is class b: P&ID D20464, DBD-E NNS (D-8)	c c d under othe sified non-nu DG-01.	tor driven fuel oil pum er ISTC 1.1.Reference Relief/Safety scope per ISTC 1.1. F r Appendix B program 4.0 Relief/Safety uclear safety, and the Relief/Safety	Self However, h. References: Self tank is vented Self	C	0	 			

SYSTEM: DG PID No.: D20465

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

of the supplied compo a proper operation and d by periodic surveillar because they are ANS DG-V287B. Will be tes	operation. The dryer is ments. Proper operation or reliability of the EDG and toce testing. Therefore the S Class 3. These valves		DE	
of the supplied compo a proper operation and d by periodic surveillar because they are ANS OG-V287B. Will be tes er another App. B prog B Global Global Glob	nents. Proper operation of reliability of the EDG and ace testing. Therefore the S Class 3. These valves ted periodically iram. References: P&ID			
Gid	Solenoid			
		DE	DE	
	be			
d because they are AN V289B and DG-V290B	nce testing. Therefore, th IS Class 3. These valves b. Will be tested periodica gram. References: P&ID			
Ot	Self her			
pressure from 600 to '	100 psig. Performs safety ined pressure control valv 3. It will be tested	e		
Ch	Self			
equired for EDG opera 20465, DBD-DG-01.	ation, and the valve is not	n		
<u> </u>	.5 Self	С	0	
U U	Safety			
	20465, DBD-DG-01. C 0 Relief/	20465, DBD-DG-01. C 0.5 Self Relief/Safety C 1.1. However, excluded because it is ANS Clas	20465, DBD-DG-01. C 0.5 Self C Relief/Safety C 1.1. However, excluded because it is ANS Class	20465, DBD-DG-01. C 0.5 Self C O Relief/Safety

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

/alve Number	Class and	Valve	Size (in.) and	Actuator		Positions	
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DG-V55B	3*			Self			
	(D-10)		Other				
DG control air press. reduc function for control air subs excluded from IST based of periodically under another a	system according to EW In ISTC 1.2b and 1.2c a	'R 97-095. \$ nd because	Self contained press it is ANS 3. It will be	ure control valve tested			
DG-V56B	3*	с	0.25	Self	С	0	
	(D-10)		Relief/Safety				
EDG 40 psig control air rel Class 3. Will be tested un	ief valvein scope per IS der other Appendix B pr	STC 1.1. Hovogram. Refe	wever, excluded bec rences: P&ID D204	ause it is ANS 65, DBD-DG-01.			
DG-V59B	3*			Self			
	(D-8)		Other				
its importance to safety.	3*			Self			
DG-V60B	(D-8)		Other	00.			
DG main air start valve. Pe 97-095. Self contained co it is ANS 3. It will be tested importance to safety.	ntrol valve excluded fron	IST based	on ISTC 1.2b and 1	2c and because			
DG-V72B	3*	С		Self	С	0	
	(F-10)		Relief/Safety				
Starting air compressor dis because it is ANS Class 3 P&IDD20465, DBD-DG-0	Will be tested under o	e-in scope p ther Append	er ISTC 1.1. Howev ix B program. Refere	er, excluded ences:			
DG-V220B	3*			Self			
	(D-8)		Other				
DG starting air booster val EWR 97-095. Self contair because it is ANS 3. It will	ed control valve exclude	ed from IST	based on ISTC 1.2b	and 1.2c and			

#### SYSTEM: DG D20465 PID No.:

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

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Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF			
DG-V221B	3*		Other	Self				 -	
DG starting air booster valv EWR 97-095. Self contain because it is ANS 3. It will I its importance to safety.	ed control valve exclude	d from IST b	ased on ISTC 1.2b	and 1.2c and					
DG-V224B	3* (C-8)		Other	Self					
DG main air start valve. Per 97-095. Self contained cor it is ANS 3. It will be tested importance to safety.	trol valve excluded from	IST based o	on ISTC 1.2b and 1 ogram commensur	.2c and because			 	 	 
DG-V225B	3* (G-9)	B	0.5 Gate	Manual	0	С			
Starting air compressor dis to place the backup control 94-044. Added to SITR rev under other Appendix B pro	air compressor inservic ision 10. However, exclu	e. Reference	s: P&ID D20465, 0	DS1026.12, DCR					
DG-V226B	NNS		0.75	Self					
	(E-9)		Check						
C-2B air dryer manifold dra Removal of moisture from to Satisfactory performance of References: P&ID D20465.	he compressor discharg f the air drying equipmer	je is a desigr	requirement for th	e unit.				 	 
			0.25	Solenoid					
DG-V253B	3*								
	3* (E-10)		Three way						

# FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Position: SAF			
DG-V258B	3* (F-10)	С	Relief/Safety	Self	С	0			
C-2A integral stage relief values term EDG operation and is in periodically tested as part of References: P&ID D20465	a scope per ISTC 1.1.	The RV is e	xcluded per ISTC 1.2	(c) and will be					
DG-V259B	3*	с		Self	с	0			
	(F-10)		Relief/Safety						
C-2A integral stage relief values term EDG operation and is in periodically tested as part of References: P&ID D20465	scope per ISTC 1.1.	The RV is e	xcluded per ISTC 1.2	(c) and will be				 	
DG-V260B	3*	С	0.5	Self	С	0			
	(E-10)		Check						
EDG starting air compressor provide control air for long te the receiver inlet check valve V225B is closed when the ba from IST since the valve ope receiver pressure. Also exclu are verified quarterly by OX 1 OS1026.12, DCR 94-044.	rm EDG operation. Ti s prevent reverse flow ackup compressor (C- n function is adequate ided because it is ANS	here is no sa when C-2B 18B) is plac ily verified th S Class 3, B	afety related closure fu is in service, and mar ed in service. The valv rough maintenance of oth the open and close	nction since Jual valve DG- re is excluded normal air ed functions					
DG-V269B	3*			Self					
	(D-8)		Other						
DG starting air booster valve EWR 97-095. Self container because it is ANS 3. It will be its importance to safety.	d control valve exclude	ed from IST	based on ISTC 1.2b a	nd 1.2c and			 		
DG-V325B	3*	В	0.25	Self	DE	DE			
	(F-12)		Relief/Safety						
C-18B unloader SOV cycles operation which is required for compressor surveillance test Class 3. References: P&ID I	or long term EDG ope ing and is excluded p	ration. This er ISTC 1.2(	valve is adequately tes c). Also excluded bec	ted during					

#### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

	Coord	Valve (CAT)	and Type	Actuator Type	RM	Position: SAF	IS FAL
DG-V331B	3* (G-1)	С	Relief/Safety	Self	С	0	
EDG backup control air compress support long term EDG operation. because it is ANS Class 3. Will b D20465, DBD-DG-01, DCR 94-04	Therefore, the F e tested under o	{V is in scop	e per ISTC 1.1. Howev	/er, excluded			
DG-V332B	3* (G-9)	В	0.5 Ball	Manual	С	0	
EDG backup control air compress and is opened to place the backup ANS Class 3. Will be tested unde OS1026.12, DCR 94-044.	air compressor	into service.	However, excluded be	cause it is			
DG-V333B	3* (G-9)	В	0.5 Ball	Manual	С	0	
EDG backup control air compress and is opened to place the backup ANS Class 3. Will be tested unde OS1026.12, DCR 94-044.	air compressor	into service.	However, excluded be	cause it is			
DG-V334B	3* (G-9)	С	0.5 Check	Self	С	0	
EDG backup control air compress support long term EDG operation. valves prevent reverse flow when t V332B and V333B are closed whe is ANS Class 3. Will be tested un open and closed direction by OX1	Reverse closure the compressor i en the compress der other Appen	e is not requi s in service, or is not in s dix B progra	red since the air receiv and the manual discha ervice. However, exclu m. This valve is tested	er check arge valves ded because it in both the			
DG-V335B	3*	С	0.25	Self	С	0	
	(E-12)		Relief/Safety				

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#### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF			
DG-P120B	3* (G-11)								
Motor driven Jacket Coolant system does not perform a s from IST because it is ANS	safety function as desc	ump. This po ribed in ISTC	rtion of the DG jac 1.1. Also, this pur	ket coolant water np is excluded					
DG-P121B	3*								 
	(F-8)								
The EDG jacket water coola readiness is adequately den from IST per ISTB 1.2 (c). A revision 1.	nonstrated during n orn	nal surveillan	ce testing. Therefo	re it is excluded					 
DG-P122B	NNS								
	(E-5)								
The EDG motor driven aux excluded from IST per ISTE	coolant pump is not 1.1. Reference: DBD	required to su -DG-01, revis	ipport EDG operat ion 1.	ion and is					 
DG-P231B	3*								
	(D-7)								
The EDG air coolant pump i adequately demonstrated du ISTB 1.2 (c). Also excluded	iring normal surveilland	e testing. Th	erefore is is exclud	led from IST per					 
DG-PV7B-1	3		6.0	Self	TH	ΤН			
	(F-7)		Globe						
EDG jacket water pressure P&ID D20466, DBD-DG-01	control valve - staked i	n a pre-deterr	nined throttled pos	ition. References:					
	3		6.0	Self	TH	тн			 
DG-PV7B-2	5		01-1						
DG-PV7B-2	-		Globe						
EDG air cooling water press	(D-9) sure control valve - stal	ked in a pre-d		position.					
EDG air cooling water press References: P&ID D20466,	(D-9) sure control valve - stal	ed in a pre-d		position. Air/Diaphragm	TH	тн	0	·	 
DG-PV7B-2 EDG air cooling water press References: P&ID D20466, DG-TCV7B-1	(D-9) sure control valve - stat DBD-DG-01.		etermined throttled		тн	тн	0		 

# FIGURE F6 **EXCLUSION JUSTIFICATION** DOCUMENT TABLES

Valve Number	Class	Valve	Size (in.) and	Actuator	1	Position	s		
Remarks	and Coord	(CAT)	Туре	Туре	NRM	SAF	FAL		
DG-TCV7B-2	3 (D-8)	В	6.0 Three way	Air/Diaphragm	TH	тн	0		
EDG air coolant temperature valve is excluded from IST	e control valve modula per ISTC 1.2(b). Refe	tes to maintair rences: P&ID	n coolant temperatu D20466, DBD-DG	ıre setpoint -01.					
DG-V1B	3 (G7)		6.0 Check	Self					
Aux coolant pump to jacket required to support EDG op Therefore, this valve is not v DBD-DG-01.	eration. This check val	lve has no act	ive open or close s	afety function.					
DG-V2B	3	С	6.0	Self	С	0			
	(F-9)		Check						
1.2(c). References: P&ID 20  DG-V4B	3		6.0	Self				 	
DG-V4B	-			Self					
	(D8)		Check						
Aux coolant pump to air coo required to support EDG op Therefore, this valve is not v DBD-DG-01.	eration. This check val	lve has no act	ive open or close s	afety function.				 	
	3	С	6.0	Self	С	0			
DG-V5B	(D-8)		Check						
DG-V5B	(D-0)								
EDG air coolant pump disch closure function prevents co function for this valve is ade maintenance of process par	harge check valve- ope polant bypass when the quately verified during rameters within allowat	e aux coolant   normal EDG ble ranges. Th	oump is operating. surveillance testing	The open through					
EDG air coolant pump disch closure function prevents co function for this valve is ade maintenance of process par IST per ISTC 1.2(c). Refere	harge check valve- ope polant bypass when the quately verified during rameters within allowat	e aux coolant   normal EDG ble ranges. Th	oump is operating. surveillance testing	The open through	C	C		 	
DG-V5B EDG air coolant pump disct closure function prevents co function for this valve is ade maintenance of process par IST per ISTC 1.2(c). Refere DG-V9B	harge check valve- ope bolant bypass when the equately verified during rameters within allowat ences: P&ID 20466, DI	e aux coolant   normal EDG ble ranges. Th	oump is operating. surveillance testing	The open 9 through is excluded from	C	С		 	

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	F	ositions		
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	AL	
DG-V11B	3		6.0	Air/Piston	с	С		
	(G-6)		Butterfly					
Aux coolant pump discharge i operation. This valve has no a the IST scope as defined in IS	active open or close s	afety function	<ol> <li>Therefore, this value</li> </ol>	o support EDG alve is not within				
DG-V12B	3			Air/Piston	С	С		
	(E-6)		Butterfly					
Aux coolant pump suction isol operation. This valve has no a the IST scope as defined in IS	active open or close s	afety function	<ol> <li>Therefore, this value</li> </ol>	support EDG alve is not within				
DG-V13B	3			Air/Piston	С	С		
	(D-6)		Butterfly					
DG-V86B	3* (G-10)		Relief/Safety	Self				
Jacket coolant standby cir. pu EDG operation. The standby e keep warm system does not p IST scope as defined in ISTC D20466, DBD-DG-01.	engine / coolant temp erform a safety relate	erature is essed function. T	sential for EDG Op herefore, this valve	erability, but the is not within the				
DG-V87B	3*	С	1.5	Self	0	с		
	(G-10)		Check					
Engine coolant keep warm pur upon engine start to prevent c demonstrated during normal s acceptable ranges. Therefore, because it is ANS Class 3. Re	oolant bypass. The r surveillance testing th this valve is exclude	everse closur rough mainte d from IST pe	e function is adequ nance of process p er ISTC 1.2(c). Als	ately arameters within				
DG-V94B	3*	С	1.5	Self	0	С		
	(G-10)		Check					
Engine coolant keep warm put upon engine start to prevent c demonstrated during normal s acceptable ranges. Therefore, because it is ANS Class 3. Re	oolant bypass. The re surveillance testing th this valve is exclude	everse closure rough mainter d from IST pe	e function is adequ nance of process p er ISTC 1.2(c). Als	ately arameters within				

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL			
DG-V145B	3* (E-9)		0.5 Three way	Self						
DG Coolant 3-way self-contained ten safety function and is required to mo ANS 3 and excluded based on ISTC B program commensurate with its in	ve to control c 1.2b and 1.2c	oolant temp.	Excluded from IST b	ecause it is						
DG-V272	NNS			Self						
	(E-6)		Relief/Safety							
EDG aux coolant pump relief valve. operation. Therefore, this valve is no P&ID D20466, DBD-DG-01.	This portion of t within the IST	the system is * scope as de	not required to supp fined in ISTC 1.1. R	oort EDG eferences:						
DG-NA2										

There are no valves on this drawing within the IST program scope as defined in ISTC 1.1.

# SYSTEM: DGA PID No.: D20460

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position SAF	s FAL		
DGA-FY-ACO	3* (D-11)	В	0.38 Three way	Solenoid	с	0			
EDG control air isolation valv to the engine components wh required for engine operation other Appendix B program. T through maintenance of engin P&ID D20460, DBD-DG-01.	nen the engine starts . However, excluded 'his valve is adequate ne water and oil temp	and speed e because it is ly tested dur	xceeds 375 RPM. Co ANS Class 3. Will I ng normal surveilland	ontrol air is be tested under ce testing					
DGA-FY-AS1	3	В	0.38	Solenoid	С	0			
VALLIAVI	(B-8)		Three way						
with its importance to safety i 01, TS 4.8.1.1.2.a.5. DGA-FY-AS2	3 (B-9)	B	0.38 Three way	Solenoid	С	0		 	 
EDG air start solenoid valve- adequately tested during norn criterion in TS 4.8.1.1.2.(a).5 air start valves. Exclude from with its importance to safety o 01, TS 4.8.1.1.2.a.5.	energizes to admit of mal EDG surveillance , verifies the operatio n IST scope per ISTC	e, where mee nal readines: C1.2c. Will b	ne main air start valve ting the EDG minimu s of the SOVs and as e tested periodically o	im start time ssociated main commensurate					
DGA-FY-SDS	3		0.38	Solenoid					
DGA-FY-SDS	3 (D-9)		0.38 Three way	Solenoid					

### DGB SYSTEM: D20465 PID No.:

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

Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	 		
DGB-FY-ACO	3* (D-11)	В	0.38 Three way	Solenoid	С	0				
EDG control air isolation valve to the engine components wh required for engine operation. other Appendix B program. T through maintenance of engin P&ID D20465, DBD-DG-01.	nen the engine starts . However, excluded his valve is adequate ne water and oil temp	and speed e because it is ly tested duri	xceeds 375 RPM. C ANS Class 3. Will ng normal surveillan	ontrol air is be tested under ce testing						
DGB-FY-AS1	3	В	0.38	Solenoid	С	0		 		
	(B-8)		Three way							
air start valves. Exclude from with its importance to safety u	under another App. B	program. Re	eferences: P&ID D20	465, DBD-DG-						
01, TS 4.8.1.1.2.a.5. [ DGB-FY-AS2	3	В	0.38	Solenoid	С	0		 <u></u>	 	
DGB-FY-AS2 EDG air start solenoid valve- adequately tested during norr criterion in TS 4.8.1.1.2.(a).5 air start valves. Exclude from with its importance to safety to	(B-9) energizes to admit co mal EDG surveillance i, verifies the operatio n IST scope per ISTC	ontrol air to th , where mee nal readiness :1.2c. Will b	Three way ne main air start valve ting the EDG minimu s of the SOVs and a e tested periodically	e. This valve is im start time ssociated main commensurate	C	0		 	 	
EDG air start solenoid valve- adequately tested during norr criterion in TS 4.8.1.1.2.(a).5 air start valves. Exclude from with its importance to safety u 01, TS 4.8.1.1.2.a.5.	(B-9) energizes to admit co mal EDG surveillance i, verifies the operatio n IST scope per ISTC	ontrol air to th , where mee nal readiness :1.2c. Will b	Three way ne main air start valve ting the EDG minimu s of the SOVs and a e tested periodically	e. This valve is im start time ssociated main commensurate	c	0		 		
DGB-FY-AS2 EDG air start solenoid valve- adequately tested during norr criterion in TS 4.8.1.1.2.(a).5 air start valves. Exclude from with its importance to safety to	(B-9) energizes to admit cr mal EDG surveillance i, verifies the operation n IST scope per ISTC under another App. B	ontrol air to th , where mee nal readiness :1.2c. Will b	Three way ne main air start valve ting the EDG minimu s of the SOVs and a e tested periodically eferences: P&ID D20	e. This valve is um start time ssociated main commensurate 0465, DBD-DG-	С	0		 	 	

 SYSTEM:
 DM

 PID No.:
 D20352

### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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Valve Number	Class and	Valve	Size (in.) and	Actuator	1	Position	S
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
DM-V274	NNS	с	0.75	Self	С	0	
	(D-8)		Relief/Safety				

expansion of trapped fluid under accident conditions.However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20352, Engineering Evaluation SS-EV-960023, revision 0.

YSTEM: PID No.:	FW D20426				LUSION	JRE F6 JUSTIFICATION INT TABLES	
Valve Number		Class and	Vaive	Size (in.) and	Actuator	Positions	
Remarks		Coord	(CAT)	Туре	Туре	NRM SAF FAL	
FW-P113		NNS					
		(C-5)					

backup to the EFW pumps. The pump is capable of starting automatically following a trip of both main feedwater pumps. The pump was specified to deliver 1500 GPM @ 2700 ft TDH (BEP=1845 GPM). The pump is required to deliver a maximum flow rate of 650 GPM to the steam generators. The NNS startup feedwater pump is required to be operable during Modes 1-3 under TS 3.7.1.2. Quarterly surveillance testing is conducted on recirculation at approximately 27% BEP or 500 GPM. Similar testing to Comprehensive testing could be conducted during discharge check valve testing at a flow rate of approximately 650 GPM. The flow instruments in each SG FW line and the recirculation line instrument (CO-FI-4072) could be utilized to determine total pump flow. However, this pump is non-ASME and therefore excluded from IST. Will be tested under other App. B program commensurate with its importance to safety. References: P&ID D20426, FSAR Section 6.8, DBD-EFW-01, revision 1.TS 3.7.1.2, OX1436.08, OX1436.12.

 FW-V99	NNS	С	6.0	Self	С	0
	(C-7)		Check			
Startup aux feedwater pump discharge	e check valve.	This valve	e is normally closed and	opens when		

the startup feed pump is operating. This valve does not have a safety related close function. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20426, TS 3.7.1.2.

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### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	F NRM	Positions SAF	FAL		
FW-FCV510	NNS (F-5)	В	18.0 Globe	Air/Diaphragm	0	С	с		
SG #1 FW level control valve. This va feedwater isolation signal. Closure of analysis FSAR Section 15.1.5, and it 250000, Revision 32. However, this va tested under other App. B program. R NHY-250000, Revision 32.	this valve is cre has a critical c alve is non-ASI	dited in the SB losure time limi ME and therefor	steam line piping t of 5 seconds in re excluded from	failure DWG 1-NHY- IST. Will be					
 FW-FCV520	NNS (D-5)	В	18.0 Globe	Air/Diaphragm	0	С	С		
SG #2 FW level control valve. This va feedwater isolation signal. Closure of analysis FSAR Section 15.1.5, and it 250000, Revision 32. However, this vi tested under other App. B program. R NHY-250000, Revision 32.	this valve is cre has a critical c alve is non-ASI	dited in the SB losure time limi ME and therefo	steam line piping t of 5 seconds in re excluded from	failure   DWG 1-NHY- IST, Will be					
FW-FCV530	NNS (B-5)	В	18.0 Globe	Air/Diaphragm	0	С	С		
SG #3 FW level control valve. This va feedwater isolation signal. Closure of analysis FSAR Section 15.1.5, and it 250000, Revision 32.However, this va tested under other App. B program. R NHY-250000, Revision 32.	this valve is cro has a critical o live is non-ASM	edited in the SB losure time limi IE and therefor	steam line piping t of 5 seconds in e excluded from I	∣ failure □ DWG 1-NHY- ST. Will be					
 FW-FCV540	NNS (H-5)	В	18.0 Globe	Air/Diaphragm	0	С	С		
SG #4 FW level control valve. This va feedwater isolation signal. Closure of analysis FSAR Section 15.1.5, and it 250000, Revision 32. However, this v tested under other App. B program. If NHY-250000, Revision 32. (OPEN I and safety classification?)	live is open dur this valve is cro has a critical o alve is non-AS References: P8	edited in the SB closure time lim ME and therefo AID D20686, FS	steam line piping it of 5 seconds in re excluded from SAR Section 15.1	) failure DWG 1-NHY- IST. Will be .5, DWG 1-					

# SYSTEM: FW PID No.: D20686

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### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	s FAL	 	
FW-LV4210	NNS (F-5)	В	4.0 Globe	Air/Diaphragm	DE	DE	С		
SG #1 FW level control valve bypa 20%, and closes on receipt of a fe steam line piping failure analysis F seconds in DWG 1-NHY-250000 SG#1 as required by TS 4.7.1.2.2 IST. Will be tested under other Ap 15.1.5, DWG 1-NHY-250000, Re	edwater isolatior SAR Section 15 , Revision 32. Ti .b. However, this op. B program. F	a signal. Clos 5.1.5, and it h nis valve is al s valve is non	ure of this valve is las a critical closul so opened to align ASME and therefu	credited in the SB re time limit of 5 the SUFP to pre excluded from				 	
FW-LV4220	NNS (D-5)	В	4.0 Globe	Air/Diaphragm	DE	DE	С		
SG #2 FW level control valve bypa 20%, and closes on receipt of a fe steam line piping failure analysis F seconds in DWG 1-NHY-250000 SG#2 as required by TS 4.7.1.2.2 IST. Will be tested under other Ap 15.1.5, DWG 1-NHY-250000, Re	edwater isolatior SAR Section 15 , Revision 32. Ti .b. However, this op. B program. F	n signal. Clos 5.1.5, and it I his valve is al s valve is non	ure of this valve is as a critical closu so opened to align -ASME and therefi	credited in the SB re time limit of 5 the SUFP to ore excluded from					
FW-LV4230	NNS (B-5)	В	4.0 Globe	Air/Diaphragm	DE	DE	С		
SG #3FW level control valve bypa: and closes on receipt of a feedwat steam line piping failure analysis F seconds in DWG 1-NHY-250000 SG#3 as required by TS 4.7.1.2.2 IST. Will be tested under other Ap 15.1.5, DWG 1-NHY-250000, Re	er isolation signa SAR Section 15 , Revision 32. Th .b. However, this op. B program. F	al. Closure of 5.1.5, and it in his valve is al a valve is non	this valve is credil has a critical closul so opened to align -ASME and therefore	ed in the SB re time limit of 5 the SUFP to ore excluded from				 	 
FW-LV4240	NNS (H-5)	В	4.0 Globe	Air/Diaphragm	DE	DE	С		
SG #4 FW level control valve bypa 20%, and closes on receipt of a fe steam line piping failure analysis F seconds in DWG 1-NHY-250000 SG#4 as required by TS 4.7.1.2.2 IST. Will be tested under other Ap 15.1.5, DWG 1-NHY-250000, Re	ass valve. This v edwater isolation SAR Section 15 , Revision 32. The b. However, this op. B program. F	h signal. Clos 5.1.5, and it l his valve is al s valve is non	en during power op ure of this valve is has a critical closu so opened to align -ASME and theref	credited in the SB re time limit of 5 the SUFP to ore excluded from					

#### SYSTEM: FW PID No.: D20686

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

Remarks	Class and Coord	Size (in.) Valve and (CAT) Type	Actuator Type	Po: NRM S	sitions AF FAL		
FW-V28	NNS (F-4)	16.0 Gate	Motor	0			
providing a flowpath in the operating as an emergene	e event the primary flowpath cy feedwater pump) is not a path and the components a	r line. It serves an alternate fur h through the EFW header (wit available. Since manual operat are not supplied from an emerg	th the SUFP tor action is				
FW-V37	NNS	16.0	Motor	0			
	(D-4)	Gate					
source, it is excluded fror FW-V46	NNS	16.0	Motor	0		 	
F¥¥-V40	(C-4)	Gate					
	he normal feedwater supply	/ line. It serves an alternate fur	nction of				
providing a flowpath in the operating as an emergence required to align this flow	cy feedwater pump) is not a path and the components a	h through the EFW header (wil available. Since manual operat are not supplied from an emerg	th the SUFP tor action is			 	
providing a flowpath in the operating as an emergene required to align this flow source, it is excluded fror	cy feedwater pump) is not a path and the components a	h through the EFW header (wil available. Since manual operat	th the SUFP tor action is	0		 	
providing a flowpath in the operating as an emergen	cy feedwater pump) is not a path and the components a n IST.	h through the EFW header (wil available. Since manual operat are not supplied from an emerg	th the SUFP for action is jency power	0		 	

### SYSTEM: **FW** PID No.: **D20687**

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## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Position: SAF			
FW-Various3	NNS					•			
The SUFP and associated flow path EFW header and the normal FW dis Modes 1,2 & 3. NNS Components applicable TS surveillance procedur components which are important to components will be tested under oth are in the IST scope.	scharge heade in the TS requ res and the FV safety but non	r, are required ired flow paths / P&IDs, for it -ASME and th	t by TS 3.7.1.2 to I have been identifinclusion in the sco erefore excluded fi	be operable in ed using the pe of rom IST. Those			 		 
FW-PCV4326	NNS (B-8)	В	4.0 Globe	Air/Diaphragm	TH	ΤН			
This is the SUFP recirculation flow on value excluded from IST per ISTC tested during normal SUFP surveillar 01 Revision 1.	: 1.2(b) and be	cause it is nor	-ASME. This valve	e is adequately 7.1.2, DBD-EFW-			 	 	 
FW-PCV4377	NNS (A-8)		0.75 Gate	Air/Diaphragm					
This is a self-contained pressure co excluded because it is NNS. This v testing. References: TS 4.7.1.2.2b,	ntrol valve whi alve is adequa	itely tested dur	from IST per IST						 
FW-PCV4378	NNS		0.75	Air/Diaphragm					
This is a self-contained pressure co excluded because it is NNS. This v testing. References: TS 4.7.1.2.2b,	alve is adequa	tely tested dur					 	 	
FW-V1	NNS		20.0	Self	0				
	(D-4)		Check						
Manual operator action is required ir flow path. This check valve can be therefore excluded from IST.	n the event the isolated to pre	main feedwat vent reverse flo	er header is used a ow, if required. Thi	as an emergency s NNS valve is				 	

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

Valve Number Remarks	Class and Va Coord (C/		Actuator Type		ositions SAF FAL	_	
FW-V2	NNS (D-4)	20.0 Gate	Motor	o <sup>,</sup>		•	
providing a flowpath in the operating as an emergence	ne normal feedwater supply line. e event the primary flowpath thro cy feedwater pump) is not availa path and the components are no n IST.	ough the EFW header (wit ble. Since manual operat	h the SUFP or action is				
FW-V12	NNS	20.0	Self	0			
	(D-7)	Check					
flow path. This check val therefore excluded from Is FW-V13	ve can be isolated to prevent rev ST. NNS	verse flow, if required. Thi	s NNS valve is 	0		 	
FVV-V13	(D-7)	Gate	(inclusion)	Ŭ			
operating as an emergene required to align this flow source, it is excluded from	e event the primary flowpath thro cy feedwater pump) is not availa path and the components are no n IST.	ble. Since manual operat	or action is	0		 	
FW-V23	(G-3)	Gate	MOLOF	0			
providing a flowpath in the	ne normal feedwater supply line. a event the primary flowpath thro sy feedwater pump) is not availa sath and the components are no	It serves an alternate fur bugh the EFW header (wit ble. Since manual operat	h the SUFP or action is				
FW-V25	NNS	24.0	Motor	0			
	(G-6)	Gate					
providing a flowpath in the operating as an emergence	ne normal feedwater supply line. a event the primary flowpath thro sy feedwater pump) is not availa sath and the components are no	ough the EFW header (will ble. Since manual operat	h the SUFP or action is				

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	
FW-V100	NNS (B-8)	В	6.0 Gate	Manual	0	DE		
SUFP discharge isolation va then reopened to align the S SUFP to the EFW discharge However, this valve is non-A B program. References: P&	UFP to the normal feed e header. Note this is a SME and therefore exc	iwater heade TS required cluded from I	r. It is also closed v flow path per TS 4 ST.  Will be tested	vhen aligning the				
FW-V102	NNS		18.0	Self	С	С		
	(E-4)		Check					
Manual operator action is re- flow path. This check valve therefore excluded from IST	can be isolated to prev	main feedwal ent reverse fi	er header is used a ow, if required. This	as an emergency s NNS valve is				
FW-V163	NNS	В	6.0	Motor	С	0		
	(B-7)		Gate					
Startup feedwater pump dis and is opened to align the S and therefore excluded from D20688, TS 3.7.1.2.	UFP to the EFW disch	arge header.	However, this valve	e is non-ASME				
FW-V456	NNS		0.75	Self	0			
	(D-7)		Check					
Manual operator action is re- flow path. This check valve therefore excluded from IST	can be isolated to prev	main feedwal ent reverse fi	er header is used a ow, if required. This	as an emergency s NNS valve is				
FW-V458	NNS		0.75	Self	0			
	(D-4)		Check					
Manual operator action is re flow path. This check valve therefore excluded from IST	can be isolated to prev	main feedwal ent reverse fi	er header is used a ow, if required. Thi	as an emergency s NNS valve is				
FW-V465	NNS	В		Manuai	с	DE		
	(B-7)		Globe					
SUFP discharge isolation by and then reclosed when the TS 4.7.1.2.2.b. However, thi under other App. B program	pump discharge valve is valve is non-ASME a	is open. Note nd therefore	e this is a TS require excluded from IST.	ed flow path per				

### SYSTEM: FW D20688 PID No.:

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

Valve Number	Class and	Valve	Size (in.) and	Actuator	I	Position	6		
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	 	
FW-V156	NNS (H-4)	В	6.0 Gate	Motor	С	0			
Startup feedwater pump disc and is opened to align the S and therefore excluded from D20688, TS 3.7.1.2.	UFP to the EFW disc!	harge header.	However, this valve	e is non-ASME					 
FW-V258	3* (B-5)	С	0.5 Relief/Safety	Self	тн	TH			
Turbine Driven EFW pump pressure at 14-16 psig and i IST because it is non-ASME demonstrated during normal	is excluded from IST p (ANS Class 3). Sati	er ISTC 1.2 ( sfactory opera	<li>b). This valve is all tion of this regulation</li>	so excluded from ng valve is					 
FW-V467	3*		0.25	Self					
	(C-5)		Relief/Safety						
Turbine Driven EFW pump IST per ISTC 1.2 (b). This 3). Satisfactory operation of testing. References: P&ID	valve is also excluded f this regulating valve is	from IST bec	ause it is non-ASM	E (ANS Class					 
FW-Various2									
There are no accident mitiga	ating or safe shutdown	components	shown on this drav	ving.				 	 
FW-Various1									
There are no accident mitiga	ating or safe shutdown	components	shown on this drav	ving.				 	 
FW-Various4	NNS								
The startup feed pump lube driven pump (P-161) suppli driven pump. The entire lube pressure regulating valve V1	es the lube oil during e oil system including	startup and ir the check valv umps, is ade	the event of a failures (V120, V122,V2 quately tested during	ire of the shaft 123 V469, V470), ng normal pump					

### SYSTEM: IA PID No.: B20644

### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL	 	
IA-V545	3* (G-12)	с	1.0 Check	Self	0	с			
and therefore excluded from B20644, DBD-EFW-01, re			р. в program кетег	Self	0	c		 	 
IA-V540	(G-12)	Ŭ	Check	00.	·	•			
Alternate air supply to MS- open and closes on loss of 243 to supply nitrogen to th and therefore excluded fror B20644, DBD-EFW-01, re	normal instrument air t e MS-V393 actuator.Ho n IST. Will be tested u	o isolate the wever, this v nder other Ap	NNS system and all alve is non-ASME (	ow 1-MS-TK- ANSI Class 3)					

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 SYSTEM:
 IA

 PID No.:
 B20647

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF				
IA-Various1	3*									
There are several N2 PCVs and S0 this drawing. The PCVs are exclude integral part of the associated contr Furthermore, these components are	ed from IST per ol valve, and an	ISTC 1.2(b) e excluded fr	. The SOVs are test	ed as an			 			
IA-V547	3* (F-10)	С	0.75 Check	Self	0	С				
Alternate N2 supply to MS-V394 & valve is normally open and closes o allow N2 bottles to supply nitrogen Class 3) and therefore excluded fro P&ID B20647, FSAR Section 9.3.	MS-PV3002, S n loss of norma to the valve act m IST. Will be	Il instrument uators.Howe	air to isolate the NN ver, this valve is non	S system and -ASME (ANSI			 	 		
IA-V548	3* (F-10)	С	0.75 Check	Self	0	С				
Alternate N2 supply to MS-V394 & valve is normally open and closes o allow N2 bottles to supply nitrogen Class 3) and therefore excluded fro P&ID B20647, FSAR Section 9.3.	MS-PV3002, S n loss of norma to the valve act m IST. Will be	Il instrument uators.Howe	terface boundary ch air to isolate the NN ver, this valve is non	S system and -ASME (ANSI			 			
IA-V549	3* (H-10)	С	0.75 Check	Self	0	С				
Alternate N2 supply to MS-V393 & valve is normally open and closes o allow N2 bottles to supply nitrogen Class 3) and therefore excluded fro P&ID B20647, FSAR Section 9.3.1	MS-PV3001, S n loss of norma to the valve act m IST. Will be	I instrument uators. How	terface boundary ch air to isolate the NN ever, this valve is nor	S system and ASME (ANSI			 			
IA-V550	3* (H-10)	С	0.75 Check	Self	0	С				
Alternate N2 supply to MS-V393 & valve is normally open and closes o allow N2 bottles to supply nitrogen Class 3) and therefore excluded fro P&ID B20647, FSAR Section 9.3.1	MS-PV3001, S n loss of norma to the valve act m IST. Will be	Il instrument uators. How	iterface boundary ch air to isolate the NN ever, this valve is nor	S system and n-ASME (ANSI						

 SYSTEM:
 IA

 PID No.:
 B20647

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type		Positions SAF	-
IA-V8030	3* (B-10)	С	1.0 Check	Self	0	С	
Alternate N2 supply to CC-T normally open and closes or bottles to supply nitrogen to and therefore excluded from B20647, FSAR Section 9.3.	n loss of normal instrun the valve actuators.Ho IST. Will be tested ur	nent air to iso wever, this va	plate the NNS system live is non-ASME (A	n and allow N2 NSI Class 3)			
IA-V8031	3* (B-11)	С	1.0 Check	Self	0	С	
bottles to supply nitrogen to and therefore excluded from B20647, FSAR Section 9.3. IA-V8032	IST. Will be tested ur	nder other Ap	p. B program. Refer 1.0 Check	ences: P&ID Self	0	с	
· · · · · · · · · · · · · · · · · · ·	(U-11) V2271-1,-2, SC-3 / NI		ooundary check valv				
normally open and closes or bottles to supply nitrogen to and therefore excluded from	the valve actuators.Ho IST. Will be tested un	wever, this va	lve is non-ASME (A	NSI Class 3)			
normally open and closes or bottles to supply nitrogen to and therefore excluded from B20647, FSAR Section 9.3.	the valve actuators.Ho IST. Will be tested un	wever, this va	lve is non-ASME (A	NSI Class 3)	0	С	
normally open and closes or bottles to supply nitrogen to and therefore excluded from	the valve actuators.Ho IST. Will be tested ur 1.	wever, this vander other Ap	live is non-ASME (A p. B program. Refer	NSI Class 3) ences: P&ID	0	С	

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and	Valve	Size (in.) and	Actuator	1	Position	6
Remarks	Coord	(CAT)	Туре	Туре	NRM	SAF	FAL
MS-V129	3*	В	4.0	Manual	0	DE	
	(E-6)		Globe				

adequately tested during pump surveillance testing, and it is excluded from IST per ISTC 1.2 (c). Also excluded because it is ANS Class 3. References: P&ID D20582, FSAR Section 6.8, DBD-EFW-01, revision 1.

2-F6.62

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# SYSTEM: NG PID No.: D20135

### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Vaive Number	Class and	Vaive	ize (in.) and	Actuator	Positio			
Remarks	Coord	(CAT)	Туре	Туре	NRM SAF	FAL		
NG-V47	2		1.0	Self				
	(C-5)	I	Check					
Nitrogen supply to VCT che LCV112B and CS-LCV112 suction source is from RW	C do not perform a safe	ty function as desc	nents upstrea cribed in ISTC	m of CS- 31.1. Water			 	
NG-V187	2		1.0	Self				
	(C-6)		Check					
Nitrogen supply to VCT che LCV112B and CS-LCV112 suction source is from RW	C do not perform a safe	ty function as desc	nents upstrea pribed in ISTC	um of CS- C 1.1. Water			 	
NG-V18	2		1.0	Self				
	(G-6)		Check					
Nitrogen supply to SI Accu ISTC 1.1. Any Accum gas check valve.	m check valve. This va leakage is contained by	ve serves no safet the normally close	y function as ed AOV upstr	described in eam of this		,		
NG-V20	2		1.0	Self				
	(G-6)		Check					
Nitrogen supply to SI Accu ISTC 1.1. Any Accum gas check valve.	m check valve. This va leakage is contained by	ive serves no safet the normally close	y function as ed AOV upstr	described in eam of this			 	
NG-V22	2		1.0	Self				
	(G-6)		Check					
Nitrogen supply to SI Accu ISTC 1.1. Any Accum gas check valve.	m check valve. This va leakage is contained by	ive serves no safet / the normally close	y function as ed AOV upstr	described in eam of this				
NG-V24	2		1.0	Self				
	(F-6)		Check					
Nitrogen supply to SI Accu ISTC 1.1. Any Accum gas check valve.	m check valve. This va leakage is contained by	ive serves no safet / the normally close	y function as ed AOV upstr	described in eam of this				

SYSTEM: RC PID No.: D20218

### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

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Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Positions SAF	FAL	 	
RC-V147	2		0.38	Air/Piston	0				
Reactor vessel flange leakofi serves no safety function as			Gate alve is inconsequ	ential and it					
RC-Various1	,								
RCS Loop 2 P&ID. There a IST scope as defined in IST		function) on t						 	 
RC-V81	1		3.0	Motor	0				
	(B-8)		Gate						
Letdown Isolation from loop 3 letdown is isolated by downs boundary. Letdown is not us open safety function either.	tream valves RC-LCV4	59 and RC-L	CV460 to provide	the RCS Class 1				 	 
RC-PCV455A	1	-	4.0	Air/Diaphragm					
	(F-5)		Ball						
Pressurizer Spray Control va for safe shutdown. Excluded	ive. This valve is used per ISTC 1.2b and 1.1	for operating scope.	convenience and	l is not required					
RC-PCV455B	1		4.0	Air/Diaphragm					 
	(G-5)		Ball						
Pressurizer Spray Control va for safe shutdown. Excluded			convenience and	l is not required					

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

Valve Number Remarks	Class and Valv Coord (CA1		Actuator Type	Positions NRM SAF FAL	
RH-V8	2 (E-9)	0.75 Globe	Manual	c	
required for safe shutdown is not considered active sir	rab sample valve. Although liste ', per EWR 97-095 and NUREC nce it is repositioned for a short p s of drawing a sample. Therefo	1482 section 2.4.2 gui period of time, administration	dance this valve atively controlled		
RH-V18	2 (G-12)	2.0 Globe	Manual	С	
oping break downstream t considered active per EWI cooling only and do not occ Station, this valve will not b as described in ISTC 1.1 f	RHR slipstream flow. It is require o preserve RHR inventory while R 97-095. But, since slipstream cur while in Hot Standby, which is the tested under the IST program or this station. Will be tested under by per NUREG 1482 guidance.	In slipstream operation a operations are used dur s the licensing basis for as it does not perform a	and therefore is ing shutdown ' Seabrook a safety function		
RH-V19	2 (G-12)	2.0 Globe	Manuał	с	
opened to initiate Train B F piping break downstream t considered active per EWF cooling only and do not occ Station, this valve will not b as described in ISTC 1.1 f	ification (slipstream) isolation. RHR slipstream flow. It is require o preserve RHR inventory while R 97-095. But, since slipstream our while in Hot Standby, which i the tested under the IST program or this station. Will be tested und y per NUREG 1482 guidance.	ed to be closed in the evon slipstream operation a operations are used dur s the licensing basis for as it does not perform a	rent of a NNS and therefore is ing shutdown Seabrook a safety function		
RH-V33	2	8.0	Manual	C	
RHR to CBS-P-9B suction from operation in Modes 1-	(G-9) . This valve is normally locked o 4.	Gate losed and is administra	tively restricted		
RH-V44	2 (E-9)	0.75 Globe	Manual	C	
required for safe shutdown is not considered active sir	rab sample valve. Although liste ', per EWR 97-095 and NUREG nee it is repositioned for a short p s of drawing a sample. Therefo	a 1482 section 2.4.2 gui period of time, administra	dance this valve atively controlled		

 SYSTEM:
 RMW

 PID No.:
 D20360

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	I NRM	Position: SAF	s FAL	_	
RMW-V107	NNS (H-5)	С	1.5 Relief/Safety	Self	С	0			
This valve provides over pro- where the overpressue condi- conditions. However, this va- under other App. B program revision 0.	dition is caused by them live is non-ASME and t	mal expansio herefore excl	n of trapped fluid und uded from IST. Will	ler accident be tested					
RMW-V36	2	В	2.0	Manual	С	с		 	
	(E-5)		Globe						
Reactor makeup water isola closed for SSD and accider valves RMW-V31 & V34 are necessary barrier for dilution regardless of its position.	nt mitigation. This valve e active and closed/veri	is verified cle fied closed ir	osed in OS1200.01. OS1200.01 providin	Upstream g the					
RMW-V37	2		2.0	Self					 
	(E-5)		Check						
RMW to charging pump suc Emergency Boration provide boron insertion. Emerg. Bor function, but the multiple ba isolation.	es instructions for closi ration is from the BAT,	ng RMW-V3 thus reverse	1 and V34 to avoid di closure would be the	lution during intended					

### SYSTEM: SB PID No.: D20841

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### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	<sup>2</sup> ositions SAF	FAL		
SB-V2	2 (C-11)		2.0 Gate	Manual	с	<u></u>		 	
SG A alternate blowdown iso function as described in IST safety function for this system	C 1.1. Only the contai	d this portion inment isolati	of the SB system ha on valves downstrea	ave no safety am provide a					
SB-V189	2		3.0	Manual	0				
	(C-11)		Globe						
SG A blowdown isolation. T described in ISTC 1.1. Only for this system.	his valve and this port the containment isola	tion of the SB ition valves do	system have no sa ownstream provide a	fety function as a safety function				 	 
SB-V4	2		2.0	Manual	С				
	(C-5)		Gate						
function as described in IST safety function for this system SB-V191	C 1.1. Only the conta m 2	inment isolati	on valves downstrea	am provide a  Manual	0			 	 
2B-4.19.1	(C-5)		Globe						
SG B blowdown isolation. T described in ISTC 1.1. Only for this system.	his valve and this por	tion of the SB ation valves do	system have no sa ownstream provide a	fety function as a safety function					 
SB-V6	2		2.0	Manual	С				
	(E-6)		Gate						
SG C alternate blowdown iso function as described in IST safety function for this syste	C 1.1. Only the conta	d this portion inment isolati	of the SB system has no valves downstrea	ave no safety am provide a					
SB-V193	2 (E-6)		3.0 Globe	Manual	0				
SG C blowdown isolation. T		tion of the SF		fety function as					
described in ISTC 1.1. Only	the containment icels	tion values de	winetroam provide s	estatu function					

PID No.: **D20844** 

### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	F NRM	Position SAF	s FAL	 	
SB-V8	2 (E-10)		2.0 Gate	Manual	С				
SG D alternate blowdown is	olation. This valve and	this portion o	f the SB system ha	ave no safety					
function as described in IST safety function for this syste	C 1.1. Only the contai	inment isolatio	n valves downstrea	im provide a				 	
safety function for this syste	C 1.1. Only the contai	inment isolatio	n valves downstrea	im provide a Manual	0			 	
function as described in IST safety function for this syste SB-V195	C 1.1. Only the contai em. 2 (E-10)	inment isolatio			0			 	<u></u>

### SYSTEM: **SF** PID No.: **D20482**

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	F NRM	Positions SAF	FAL	 		
SF-P10A	3 (D-7)									
The spent fuel cooling pump o stored in the spent fuel pool. I described in ISTB 1.1 and are excluded from IST. Reference	The Spent Fuel Pum not considered activ	nps do not ser ve pumps in ti	ve an active safety he UFSAR. Theref	function as						
SF-P10B	3 (D-4)									
The spent fuel cooling pump o stored in the spent fuel pool.	perates continuous	y to remove d	ecay heat from spe	nt fuel elements function as						
described in ISTB 1.1 and are excluded from IST. Reference	not considered activ	ve pumps in tl	he UFSAR. Theref	ore, they are					 	
described in ISTB 1.1 and are	not considered actives: P&ID D20482, FS	ve pumps in tl	he UFSAR. Theref	ore, they are			<u>,                                     </u>	 	 	
described in ISTB 1.1 and are excluded from IST. Reference	not considered actives: P&ID D20482, FS (B-5) Operates continuousi The Spent Fuel Purr e not considered active	ve pumps in the SAR Table 9.1 by to remove do the pumps in the ve pumps in the	he UFSAR. Theref 1-3, OX1414.03. ecay heat from spe ve an active safety he UFSAR. Theref	ore, they are ont fuel elements function as					 	
described in ISTB 1.1 and are excluded from IST. Reference SF-P10C The spent fuel cooling pump o stored in the spent fuel pool. 1 described in ISTB 1.1 and are	not considered actives: P&ID D20482, FS (B-5) Operates continuousi The Spent Fuel Purr e not considered active	ve pumps in the SAR Table 9.1 by to remove do the pumps in the ve pumps in the	he UFSAR. Theref 1-3, OX1414.03. ecay heat from spe ve an active safety he UFSAR. Theref	ore, they are ont fuel elements function as					 	

SYSTEM: SI

### PID No.: D20447

## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL			
SI-V297	2 (H-6)		4.0 Check	Self						
Hi Head SI to RCS cold legs a accordance with MMOD 90-5		s were remo	ved from this valve du	ring OR04 in						
SI-V314	NNS (G-12)	С	0.75 Relief/Safety	Self	0	С				
This valve provides overpress scope per ISTC 1.1 However, tested under other App. B pro	this valve is non-AS	ME and there	efore excluded from 18	g and is in ST. Will be						

### SYSTEM: SW D20794 PID No.:

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	F NRM	Positions SAF	FAL	
SW-V63	NNS (F. 1)		38.0 Butterfly	Motor	0	0		
Service water pump discha locked open with power rer	(F-4) arge isolation to the disc noved. References: P≪	harge transit D D20794, D	ion structure. This v	alve is normally 1.				
SW-V64	NNS		38.0	Motor	0	0		
	(G-4)		Butterfly					
Service water pump discha locked closed with power re SW-V179	emoved, References: P8 3* (B-8)	dD D20794, C	DBD-SW-01, revisi 1.0 Check	on 1. Self	С	DE		
SW cooling tower pump ( I air into the system to preclude pump starts to preclude wa therefore excluded from IS D20794, DBD-SW-01, rev	ude water hammer when ater discharge. However, T. Will be tested under ision 1.	the pump re this valve is other App. B	starts. The valve clo non-ASME (ANS C program. Reference	eses when the lass 3) and	C	DE		
SW-V180	3* (B-7)	С	1.0 Check	Self	C	DE		
SW cooling tower pump ( if air into the system to preclu pump starts to preclude was therefore excluded from IS D20794, DBD-SW-01, revi	P-110B) vacuum breake ude water hammer when ater discharge. However, T. Will be tested under	the pump re this valve is	starts. THe valve cl non-ASME (ANS C	oses when the lass 3) and				

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## FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number		lass and	Valve	Size (in.) and	Actuator	I	ositions	S
Remarks		oord	(CAT)	Туре	Туре	NRM	SAF	FAL
SW-V66	((	3 2-12)	B	24.0 Butterfly	Manual	С	0	
unlikely that the plar simultaneous strain operating procedure operation for that pu	er bypass valve. Bas at will experience a lar blockage. Although OS1201.16 for a de rpose is beyond the o safety function per f 03	ge ingress this valve graded ulti lesign bas	of material v is included f mate heat sir is of the plan	which will cause rap or possible operation nk, the event of this t. Therfore this value	oid and on in abnormal valve's re is considered			
SW-V69	(/	3 \-11)	В	24.0 Butterfly	Manual	С	0	
unlikely that the plar simultaneous strain operating procedure operation for that pu	her bypass valve. Ba t will experience a lar or blockage. Although OS1201.16 for a de rpose is beyond the o safety function per f 03	ge ingress this valve graded ulti lesign bas	of material v is included f mate heat sin is of the plan	which will cause rap or possible operation nk, the event of this t. Therfore this value	oid and on in abnormal valve's ve is considered			
SW-V224	(	3* F-9)	С	1.0 Check	Self	С	DE	
pump trips to preclu water discharge or a alternate SFC heat of maintenance. Under is non-ASME (ANS	m breaker check valved de water hammer trans ir introduction when t exchanger is placed this condition, this is Class 3) and therefore s: P&ID D20795, DB	e. This va nsients on he system nto service the only a re exclude	subsequent is operating when both vailable SFC d from IST.	pump start, and ck under steady state CC trains are out o cooling path. How	oses to prevent conditions. The f service for ever, this valve			
SW-V225		3*	с	1.0	Self	С	DE	
pump trips to preclu water discharge or a alternate SFC heat e maintenance. Under is non-ASME (ANS	( m breaker check valved de water hammer trans ir introduction when exchanger is placed this condition, this is Class 3) and therefor as: P&ID D20795, D	nsients on the system into service the only a re exclude	subsequent is operating when both vailable SFC d from IST.	pump start, and clo under steady state CC trains are out o cooling path. How	oses to prevent conditions. The f service for ever, this valve			

2-F6.72

Sec. 15

# SYSTEM: WG PID No.: D20773

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### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

		Valve	and	Actuator	•	Positions		
Remarks	and Coord	(CAT)	Туре	Туре	NRM	SAF	FAL	 
WG-V53	2		1.0	Self				
	(G-12)		Check					

WG to VCT check valve. The VCT and its related components upstream of CS-LCV112b and CS LCV112C do not perform a safety function as described in ISTC 1.1 The RWST and ECCS containment sumps are the water sourcefor DBA.

2-F6.73

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# SYSTEM: WLD PID No.: D20218

### FIGURE F6 EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	Position: SAF	s FAL	 	
WLD-V277	NNS (F-11)	с	0.75 Relief/Safety	Self	С	0			
This relief valve relieves over trapped fluid under acciden from IST. Will be tested un Evaluation SS-EV-960023,	t conditions. However, Ider other App. B progr	this valve is I	non-ASME and there	ore excluded					
WLD-V211	NNS	С	0.75	Self	С	0			
••==	(D-11)		Relief/Safety						
This relief valve relieves over trapped fluid under acciden from IST. Will be tested un Evaluation SS-EV-960023,	t conditions. However, der other App. B progr	this valve is I	non-ASME and there	ore excluded					